Purchased by

.....

In the Year 18.....

Please preserve this volume until 1970, that the people of that time may see how near the estimates correspond to the then existing facts.

OUR COUNTRY

PAST AND PROSPECTIVE.

GIVING A BRIEF DESCRIPTION OF THE COLONIAL PERIOD;

ALSO

A DESCRIPTION AND A COMPLETE STATEMENT IN FACTS AND FIGURES OF THE WONDERFUL ADVANCE DURING THE NATIONAL PERIOD IN POPULATION AND ALL THE GREAT NATIONAL INDUSTRIES, EDUCATION, LITERATURE, ART, ETC.

ALSO A DESCRIPTION OF THE RELIGIOUS DENOMINATIONS AND SECTS, ALL BROUGHT DOWN TO THE CENSUS OF 1870,

GIVING

THE PROSPECTIVE PROGRESS, FOR THE COMING ONE HUNDRED YEARS, OF THE SAME SUBJECTS, THE PERCENTAGE OF INCREASE BEING BASED ON THE INCREASE OF THE PAST ONE HUNDRED YEARS,

WITH BRIEF DESCRIPTIONS AND STATISTICS OF ALL THE LEADING NATIONS OF THE WORLD, THEIR POPULATION, INDUSTRIAL RESOURCES, IMPORTS, EXPORTS, DEBTS, REVENUES, ETC., SHOWING THEIR COMPARATIVE IMPORTANCE.

By Rev. N. H. EGGLESTON.

RELIGIOUS DENOMINATIONS AND THE PROSPECTIVE.

By Dr. L. P. BROCKETT,

Author of "Men of Our Day," "St. John, the Beloved Disciple," Assistant Editor of Johnson's Encyclopedia, &c., &c.

---

225 ILLUSTRATIONS.

HARTFORD, CONN.:
PUBLISHED BY L. STEBBINS.
1878.

PREFACE.

There is no reasonable doubt that the century of our national existence on which we have entered will be the most wonderful in growth, population, wealth, and power, that the world has and perhaps will ever witness. The vast extent of territory and great variety of climate, unexampled resources in agricultural and mineral wealth, far exceeding that of any other country, the unparalleled facilities of communication and transportation through railroads, and water communication internal and external, are at this time superior to any other country in the world. The marvelous facilities for producing wealth by means of our great variety of labor-saving machinery, coupled with the acknowledged energy and enterprise of our people, all combine to produce results hitherto unknown.

To show that Americans are not alone in entertaining the sentiments here advanced, we quote from an article on the subject, written by William E. Gladstone, late Prime Minister of England. Speaking of colonies established by England, he says: "There is one whose place in the world's eye and in history is superlative: it is the American Republic. She is the eldest born. She has, taking the capacity of her land into view as well as its mere measurement, a natural base for the greatest continuous empire ever established by man. The development which the Republic has effected has been unexampled in its rapidity and force. While other countries have doubled, or at most trebled, their population, she has risen, during one single century of freedom, in round numbers, from two millions to forty-five. As to riches, it is reasonable to establish, from the decennial stages of the progress thus far achieved, a series for the future; and, reckoning upon this basis, I suppose that the very next census, in the year 1880, will exhibit her to the world as certainly the wealthiest of all the nations. While we have been advancing with portentous rapidity, America is passing us by in a canter. Yet even now the work of searching the soil and the bowels of the territory, and opening out her enterprise throughout its vast expanse, is in its infancy. The England and the America of the present are probably the two strongest nations of the world."

Speaking of our war debt, he says:

"More remarkable still was the financial sequel to the great conflict. The internal taxation for Federal purposes, which before its commencement had been unknown, was raised, in obedience to an exigency of life and death, so as to exceed every present and every past example. It pursued and worried all the transactions of life. The interest of the American debt grew to be the

highest in the world, and the capital touched £560,000,000. Here was provided for the faith and patience of the people a touchstone of extreme severity. In England at the close of the great French war, the propertied classes, who were supreme in Parliament, at once rebelled against the Tory Government, and refused to prolong the income tax even for a single year. We talked big, both then and now, about the payment of our national debt; but 63 years have now elapsed, all of them except two called years of peace, and we have reduced the huge total by about one-ninth; that is to say, by little over £100,000,000, or scarcely more than £1,500,000 a year. This is the conduct of a State elaborately digested into orders and degrees, famed for wisdom and forethought, and consolidated by a long experience. But America continued long to bear, on her unaccustomed and still smarting shoulders, the burden of the war taxation. In 12 years she has reduced her debt by £158,000,000, or at the rate of £13,000,000 for every year. In each 12 months she has done what we did in eight years; her self-command, self-denial, and wise forethought for the future have been, to say the least, eightfold ours. These are facts which redound greatly to her honor; and the historian will record it with surprise."

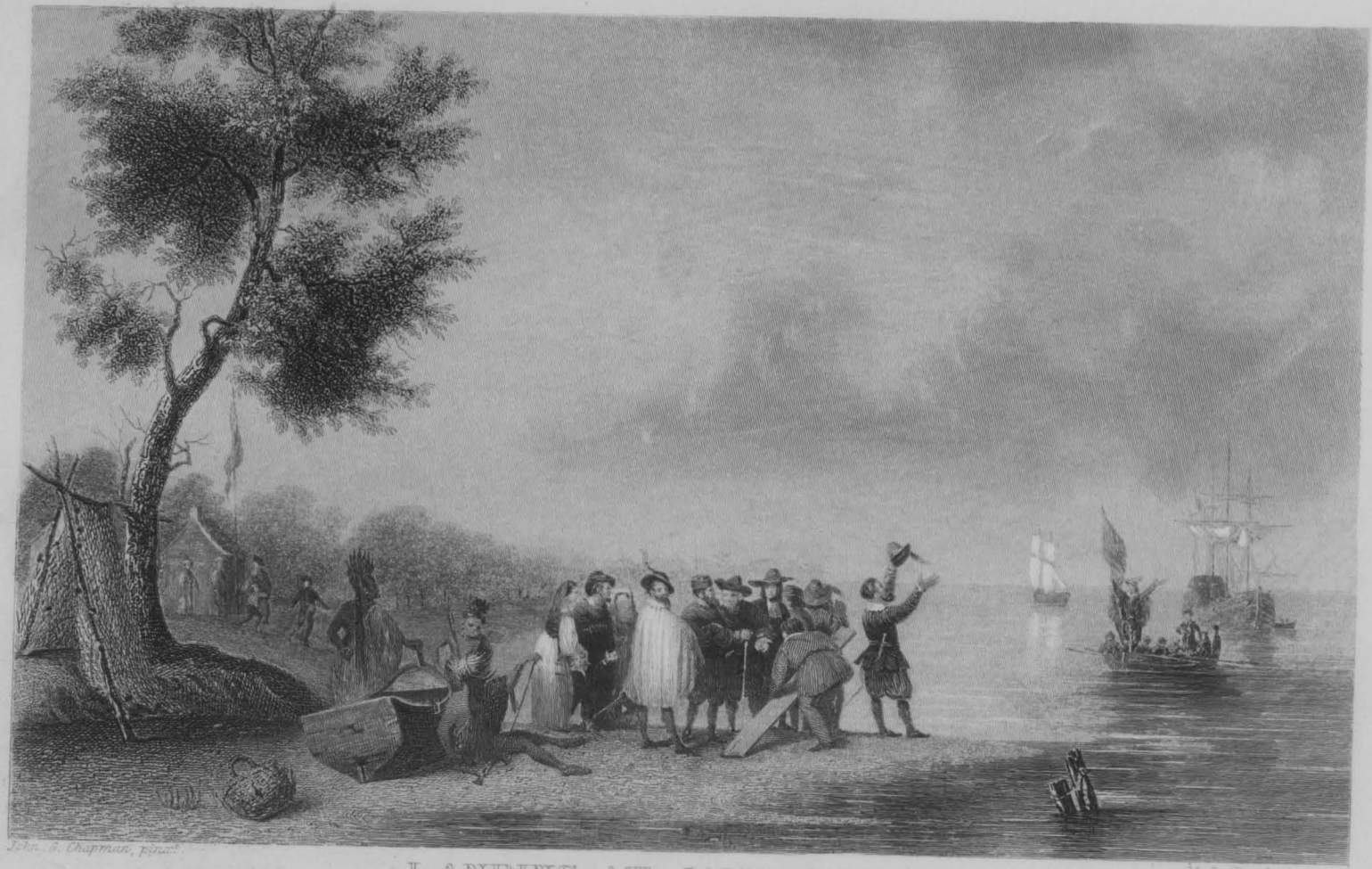
In preparing the progress of the past, we have condensed as much as possible, and given a good idea of what the advance has been. The tables and figures in the text give it exactly from official sources. The illustrations are numerous and instructive, really giving a better idea of the changes made than we could by a description.

The history of all the religious denominations and sects, numbering over forty in number, is very valuable and instructive, as showing the result of free toleration in our country. Articles of the peculiar faith and doctrines of each were prepared by a prominent clergyman of their respective denominations, and are reliable. Valuable information is imparted in relation to their origin, progress, forms of worship, efforts in Sunday-schools, amount of contribution to various charities, numbers of communicants and adherents, number of ministers, houses of worship, aggregate value of church property of each, missionary efforts, etc. A careful perusal of these pages will serve to do away with many prejudices now unfortunately prevailing.

PUBLISHER.

TABLE OF CONTENTS.

LIST OF ILLUSTRATIONS.



John. G. Chapman, pinxt.

M. I. Danforth, sculpt.

LANDING AT JAMESTOWN.

THE [illegible] PERIOD FROM 1607 TO 1776.

ed their way down the
the year 1484 had
miles south of the
ater they doubled
Africa, and thus
ion of reaching
of that cape
pe of Good
guese were
the East
bus, ac-
was a
ived
hed
he
rth was then believed
in by few. Columbus was eighteen years
in securing the needful help by which to
test his theory. At length he sailed from
Spain, and in the autumn of the year 1492
landed upon the island of San Salvador.
This and the neighboring islands he supposed to be lying off the east coast of
India, and so called them the West Indies.
In a subsequent voyage he reached the
mainland near Honduras, but considered it the coast of Asia, and
died finally in the fact that
he had discovered a new continent. It
was reserved for Americus Vespucius, a
friend of who subsequently
crossed the upon the
South American coast, and gave his name
to the new land which had been
found.

Animated by the same spirit of discovery and enterprise, and dreaming of the riches of the East, Europe was generally stirring
and and father and
son, ward from England,
and summer that Colum-
bus reached the coast of South America,
Sebastian Cabot discovered what he called
Newfoundland, and sailed along the New
England coast as far south as Chesapeake Bay, failed to find the expected

LANDING AT JAMESTOWN.

THE COLONIAL PERIOD FROM 1607 TO 1776.

The history of the United States as an independent nation reaches back only one hundred years. But the history of our people embraces also the period of a hundred and fifty years previous to the Declaration of Independence, during more or less of which the subsequent States of our Union existed under colonial governments. Looking back, therefore, from the completion of a century of our national history, that history naturally divides itself into two periods; the *Colonial* and *National*.

The discovery of the Mariner's Compass or the polarity of the magnet about the year 1300, or rather its rediscovery, for it is said to have been known to the Chinese long before the Christian era, and the invention of the art of printing, gave a great impulse to geographical exploration. The compass enabled the sailor to break away from the shore, along which he had hitherto timidly crept, and to push out boldly beyond the sight of land, confident of the direction in which he was going, and able to return at his pleasure.

The printing press was the instrument of spreading abroad the intelligence of every discovery made. The resulting influence of these two causes was to make the fifteenth century eminently one of geographical research and discovery. This research was greatly stimulated by the desire of pecuniary gain. Venice and other cities of the Mediterranean had become rich by traffic with the East. The silks, the spices, the precious gums, the lustrous gold and gems of Persia, Arabia, and India, brought by great caravans over deserts and through unknown wilds, had poured wealth into their coffers. And now the great problem was, how to reach the East, that storehouse of riches, in an easier way; how to find access to it by water; how to substitute the ship for the camel. The Portuguese took the lead in the endeavor to find a new and easier pathway to the East. Gradually they pushed their way down the African coast, and in the year 1484 had sailed fifteen hundred miles south of the equator. A few years later they doubled the southern cape of Africa, and thus encouraged in the expectation of reaching India, changed the name of that cape from Cape of Storms, to Cape of Good Hope. It was while the Portuguese were thus slowly making their way to the East by sailing southward, that Columbus, accepting the theory that the earth was a round rather than a flat body, conceived the idea that the East might be reached by sailing in a western direction. The rotundity of the earth was then believed in by few. Columbus was eighteen years in securing the needful help by which to test his theory. At length he sailed from Spain, and in the autumn of the year 1492 landed upon the Island of St. Salvador. This and the neighboring islands he supposed to be lying off the eastern coast of India, and so called them the West Indies. In a subsequent voyage he touched the mainland near the Orinoco river, but considered it the eastern coast of Asia, and died finally in ignorance of the fact that he had discovered a new Continent. It was reserved to Americus Vespucius, a friend of Columbus, who subsequently crossed the Atlantic and landed upon the South American coast, to give his name to the new hemisphere which had been found.

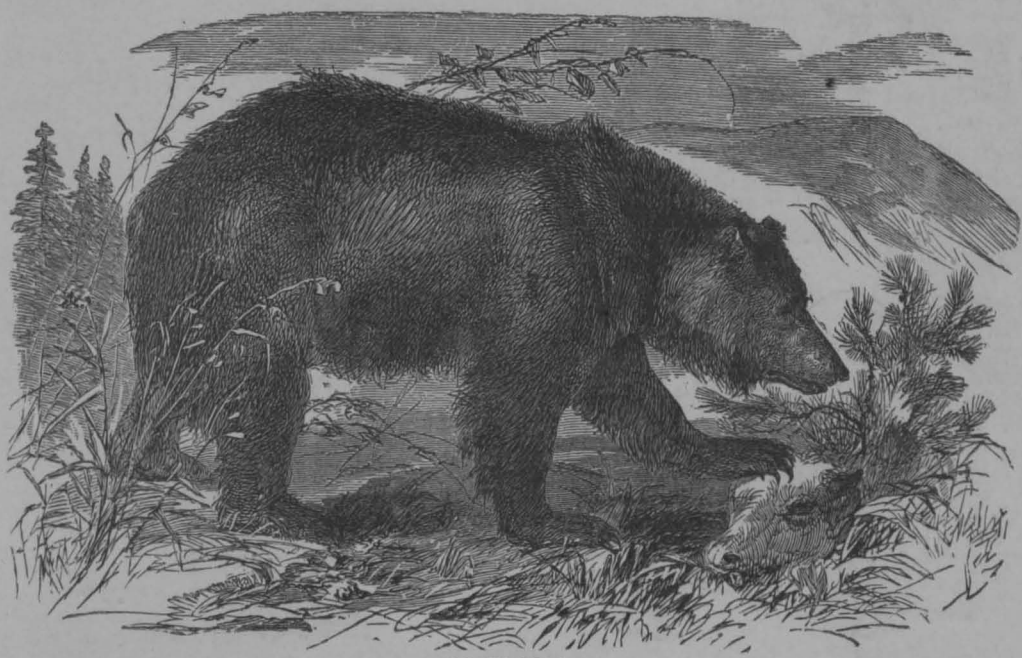
Animated by the same spirit of discovery and the same quest of the riches of the East, which was so generally stirring Europe at this time, the Cabots, father and son, were sailing westward from England, and during the same summer that Columbus touched the shore of South America, Sebastian Cabot discovered what he called New-found-land, and sailed along the New England coast, and as far south as Chesapeake Bay. He failed to find the expected

gold and precious stones of the East, and so his expedition was considered at the time a failure. But he gave to England the best part of a continent. In 1576—three hundred years ago—Sir Martin Frobisher, following Cabot's plan of seeking China and the East by the supposed shorter course of a northwest instead of a western passage, after a stormy and perilous voyage, entered Baffin's Bay. He brought back some black ore or earth, which was supposed to contain gold. It shows the lack of scientific knowledge then, that several vessels were at once sent forth, and with the patronage of Queen Elizabeth, to bring home cargoes of this worthless substance. In the latter part of the sixteenth century, after a hundred years or more of random expeditions in search of the gold and gems of the Indies, Sir Humphrey Gilbert and Sir Walter Raleigh, a half-brother of Gilbert, undertook the work of founding a colony in the new world, having secured from the Queen an extensive grant of land which they named in her honor, Virginia. Gilbert was lost at sea. Raleigh made two attempts to effect a settlement, but they were unsuccessful. His first colonists spent their time in searching for gold, instead of cultivating the soil, and were at last only saved from death by Sir Francis Drake, who passing by on one of his expeditions, took them home to England. Raleigh made a second endeavor to establish a colony, sending out this time families instead of single men. But the fate of the second colony was worse than that of the first. During the absence of the governor, John White, in England, where he was detained three years, the entire colony perished. Discouraged by these failures and having spent $200,000 in the endeavor to found a colony, Raleigh relinquished his patent to others. The present capital of North Carolina, which constituted a part of the extensive grant of Virginia, remains as a memento of his connection with this continent, while history records the fact that it was through his colonists that the potato and the tobacco plant were made known to the European world.

Early in the seventeenth century, James I granted what was then known indefinitely as Virginia, to two companies, the London and the Plymouth. The London company had from the 34th to the 38th parallel of latitude, and the Plymouth company had from the 41st to the 45th. The London company's tract reached from the lower portion of South Carolina, to the middle of the present State of Virginia. The Plymouth charter embraced the land from the present southern point of Connecticut to the northern line of Vermont and New Hampshire, and was called North Virginia. For the sake of peace, the companies were forbidden to make settlements within a hundred miles of each other. The London company sent out a colony under Capt. Newport, in 1607, who planted themselves on the banks of the James river, and called their settlement Jamestown, in honor of the King. This was the first permanent settlement, in America, though Melendez, under Spanish auspices, had founded St. Augustine more than forty years earlier. It is noticeable that from the time of the first settlement at Jamestown, the English are the only nation that have any marked influence upon the history of the United States. For a century, different nations had been exploring the continent and asserting their claims to it. The Spanish Ponce de Leon had landed on the coast of Florida as early as 1512. Narvaez and De Soto had undertaken its conquest, and the latter had traversed the entire Gulf region and reached the Mississippi river. The Pacific coast had also been explored by the Spanish as far north as Oregon. France had visited the new country with her adventurers and explorers, her soldiers and her missionaries. Cartier had ascended the St. Lawrence. Ribaut had landed at Port Royal and established a fort which he called Carolina, in honor of Charles IX, his King. Marquette and La Salle had pushed their way from the St. Lawrence, along the chain of the great lakes, to the Mississippi and down that stream to the Gulf of Mexico; and Louisiana reminds us to-day, by its very name, that the great central region of our country once belonged to France.

The Dutch, too, though more tardily than the Spanish and French, had asserted their claim to a portion of the newly discovered continent. They had entered what is now the harbor of New York, and begun the founding of a New Amsterdam on Manhattan Island. They had built their forts along the Hudson, and up the Connecticut. Dutch Point on the southern

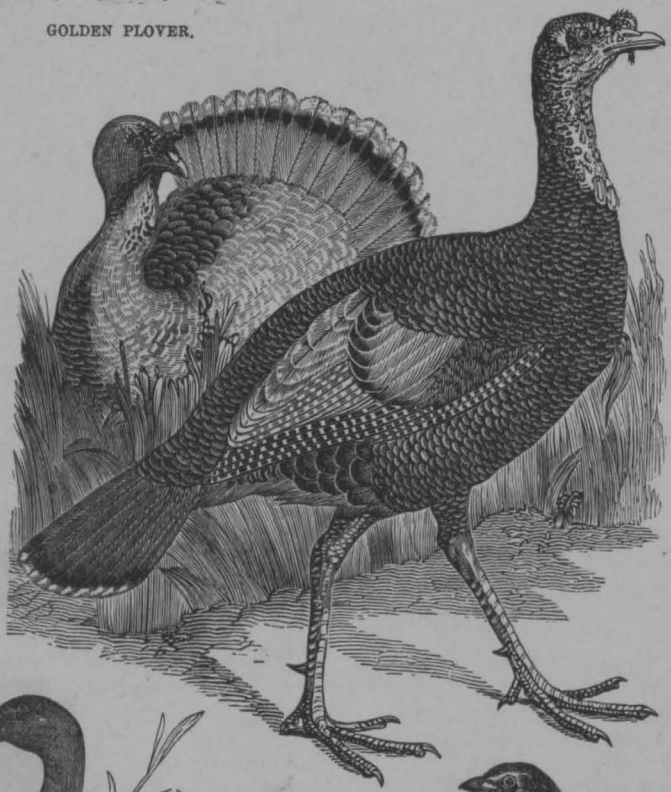
POLAR BEAR



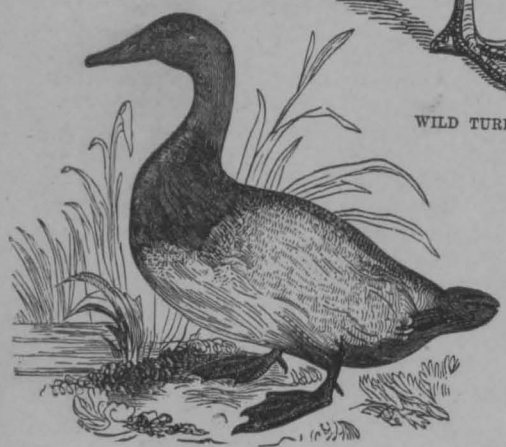
BLACK BEAR.

GOLDEN PLOVER.

PARTRIDGES.



WILD TURKEY.



CANVAS-BACK DUCK.

QUAIL.

border of Hartford, still commemorates the struggle for empire in the New World between the English and the Dutch, the latter of whom claimed the region from the Delaware to Cape Cod, and called it New Netherlands.

But of all this great territory, the English alone held any with a firm and permanent grasp. One by one all others, by treaty, by purchase, or by conquest, have been dispossessed, and our great domain, reaching from the Atlantic to the Pacific, and from the lakes to the Gulf of Mexico, is the undisputed possession of the English-speaking race.

The Plymouth company sent out a colony about the same time that the London company was sending out those who landed at Jamestown. It was only four months after this first settlement in South Virginia, that the colonists of the Plymouth company, under the lead of Popham, reached the New England coast, and entered the Kennebec river. But the Maine colonists, suffering great hardships and losing their leader by death, soon returned to England and discouraged further emigration for a time by the reports they made of the severity of the New England climate. The London company thus gained the advantage of the Plymouth company, and had the honor of planting the first permanent colony on these shores.

But soon after the formation of the Plymouth company, it happened that a band of Christian people, who had been driven from England into Holland to escape persecution, were looking for a place where they could establish themselves in peace and with liberty to order their religious life according to their own convictions of duty. They were poor, and prospects of gain in the New World, which reports held out, were attractive to them. It was a region so far away as to give them a reasonable assurance that the hand of ecclesiastical or political tyranny would not molest them. Their devout religious spirit saw in the conversion of the Aborigines to the Christian faith an ample field for missionary labor, while their love of country inclined them to a land which belonged to Old England. The Pilgrims, therefore, were ready to avail themselves of the help and protection of the Plymouth company. This, however, they failed to secure, and so finally resolved to come to this land, independently of all help. They brought what was better than wealth or titled dignity or the favoring influence of companies or courts. They brought in their own hearts lofty principles and stern virtues which have been a leaven to the whole land. Providentially guided to the rough coast of New England, rather than to the warmer latitudes and more fertile fields in which they expected to settle, their principles and virtues were kept in tone by needful struggles for a livelihood with the rough elements around them. Others, of kindred feeling, soon followed them, and founded the colonies of Massachusetts Bay, New Haven, and Connecticut.

The settlers at Jamestown were mostly gentlemen by birth, members of the aristocratic class, unused to labor, or they were the mere hirelings of such, and sympathized with them in feeling. They were chiefly adventurers in search of gold. They were, for the most part, without families and the consequent ties of domestic and social order. They were poorly fitted for the rough struggles incident to the founding of new States in a wilderness. It is hardly surprising therefore to learn, that before the close of the first autumn, half the first settlers at Jamestown had perished. To John Smith, the colony was indebted for its preservation. He insisted that the colonists should build houses and clear the forests and prepare to become permanent inhabitants and not spend their time in doubtful and precarious searchings for gold. Smith having returned to England on account of his health, the colony was nearly starved to death. Their numbers were reduced from nearly five hundred to hardly more than fifty. The little remnant had finally taken boat to abandon their settlement, when they met Lord Delaware, the new governor appointed in Smith's place, bringing from England new colonists and ample supplies, by which they were so much encouraged that they turned back to Jamestown. But the growth of the colony was slow. The unwillingness of the colonists to give themselves to sober industry exposed them again and again to the danger of famine. They gathered glittering sand for gold and sent it to Europe, only to find its utter worthlessness. But at length the fever of gold hunting abated, and the colonists turned their attention to agriculture,

and other industries. Families began to be formed and a better social life ensued.

About this time, an event occurred which was destined to have a marked influence upon the history not only of the colony, but of the whole country. Thirteen years after the first landing of settlers at Jamestown, and the same year that the pilgrims made the settlement at Plymouth, a Dutch trading-ship came to Jamestown, bringing as a part of its cargo, some African negroes, and disposed of twenty to the colonists. Tobacco, which Raleigh had introduced to the knowledge of Europe, had already become an article of export from the settlements, which now extended for seventy miles along the banks of the James river, and the unpaid labor of the negroes promised to make the cultivation of tobacco still more profitable than it had been. The importation of slaves was therefore encouraged, and their number rapidly increased. Neither the Christian nor the humane sentiment of the world was then so far developed that any wrong was seen in enslaving men, and so the colonists of Virginia, and of New England, availed themselves of the cheaply bought services of slaves. Two hundred and fifty years ago, Christian men and even Christian ministers engaged in traffic in slaves as readily as in any other species of trade. It shows the progress which has been made in moral sentiment, that now slavery has been abolished in almost every country of the globe.

Only two years after the settlement at Jamestown was made, Henry Hudson, an Englishman, who had made two voyages for the purpose of finding a northwestern passage to India, and had penetrated as far as Spitzbergen, sailed down the coast under a commission of the Dutch East India company, as far as Virginia. Then he turned northward again, exploring the coast as he went along. Coming to what is now the harbor of New York, he sailed up the river, which has since then borne his name, supposing that he had at last found a channel which would lead to the much coveted East. He sailed up the stream as far as the present city of Hudson, and then went in a small boat as far as the site of Albany. On the strength of this discovery by Hudson, Holland claimed the region from Pennsylvania to Cape Cod, and called it "New Netherlands." A settlement was soon made by the Dutch on what they called Manhattan Island. This settlement was named "New Amsterdam," and was the foundation of the present city of New York. The Dutch established various trading-posts in the vicinity, for the purpose of carrying on a traffic with the Indians for furs, and they built a fort as far away as Hartford; but from this they were soon driven out by the English settlers in that region. Finally an English fleet, with some recruits from the New England colonies, appeared before New Amsterdam itself, in the year 1664, and the capital of New Netherlands was surrendered by the Dutch. The name of the colony was changed to New York, in honor of the Duke of York, brother of King Charles II, to whom the King had given it.

When the Duke of York became thus possessed of New Netherlands, he sold that portion of his acquisition which lay opposite and south of the Island of Manhattan, to two English noblemen, Lord Berkeley, and Sir George Carteret. The latter had been governor of the Island of Jersey, in the English channel, and so chose that name for his new possessions in America. Lord Berkeley's tract was called West New Jersey, and the two colonies now composing the State of New Jersey, were long known as the "Jersies." These colonies were largely settled by Quakers, and by Presbyterians from Scotland and the north of Ireland, as well as by persecuted people from various regions. The charter of New Jersey said: "No person shall at any time, in any way, or on any pretence, be called in question, or in the least punished and hurt, for opinion in religion."

It is remarkable that many of the original colonies of this country were founded by, or became places of refuge for the oppressed. The New England colonies were settled mainly by those who fled alike from religious and political persecutions from the British government. Delaware was founded as an asylum for "all oppressed Christendom." Georgia was founded as an asylum for the poor and oppressed, and the Carolinas were a place of refuge for the persecuted Huguenots. Pennsylvania had a like character and origin. William Penn, its founder, though rich and highly educated, had been expelled from the University of Oxford, and had been im-

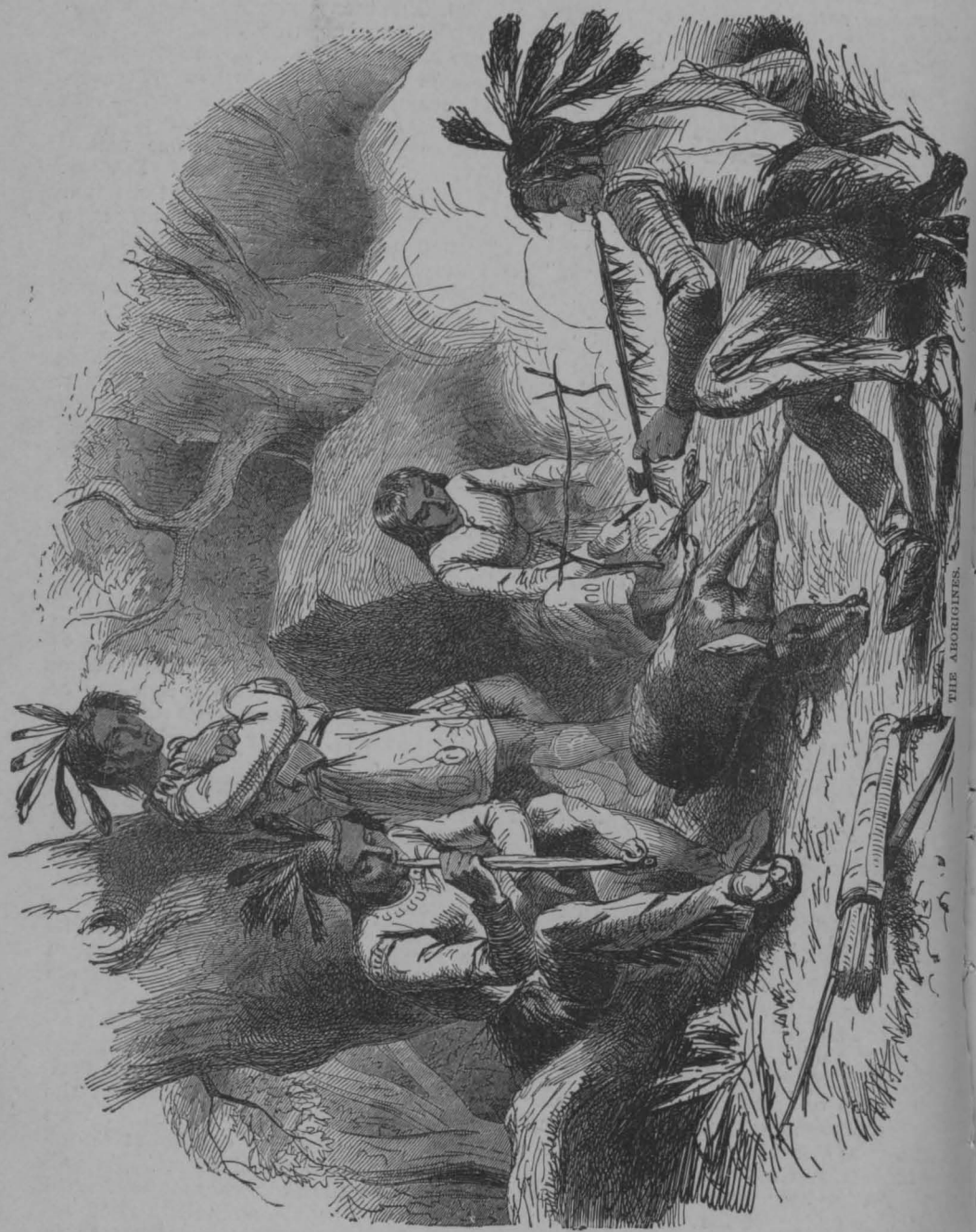
prisoned several times, on account of his sympathy with the Quakers. After spending much money in aiding those who were punished for conscience sake, he determined to found a home for the persecuted. His father, a distinguished admiral in the British service, had loaned the King, before his accession to the throne, a large sum of money, and Penn now proposed to the King to give him a tract of land in America, in liquidation of the debt. This the King was willing to do. Penn called his new possession "sylvania," because it was covered with forests, *sylva*, being the Latin word for "forest." But the King insisted that "Penn" should be prefixed and form a part of the name. This was in 1681. The country had previously been settled in part by the Swedes, as early as 1630. But its growth had been slow. Penn at once sent over large numbers of colonists, as many as two thousand in one year, it is said; and came to this country himself in the following year. The next year he purchased a tract of land of the Swedes, and laid out the city which he named Philadelphia, which means *brotherly love*, and indicates the spirit in which Penn founded his colony. The growth of the city and colony was very rapid; so that Philadelphia in three years had more inhabitants than New York had gained in half a century; and for a long time it was the most populous city in the country. It is only within the present century that New York has become our first city in population or in trade.

The colony founded by Penn was perhaps the most prosperous one of all. The soil and climate of Pennsylvania were attractive. Most of the immigration from the Old World for a considerable time, came to the port of Philadelphia, and as many as twelve thousand Germans are said to have arrived there in a single year. About a third of the people were Quakers. At the close of the colonial period, Pennsylvania was the third in rank of the colonies, though settled much later than many. It was outranked only by Virginia and Massachusetts.

As has been seen in this brief sketch of the founding of the colonies, they were composed of people of various nationalities and conditions, and of different religious beliefs. The early settlers were largely refugees from either religious or political persecution. A large portion of them had been oppressed in some way. While, therefore, they differed in many respects, they were agreed in a common love of liberty and hatred of oppression. It was this which made it possible, in process of time, to create out of many and such different colonies, one united, free and independent nation. But this could not be done at once. It required the experience of these colonies for more than a hundred years, it required their trials for more than a century, to wear away their dissimilarities and different feelings and habits to such an extent that they could be made a truly united people.

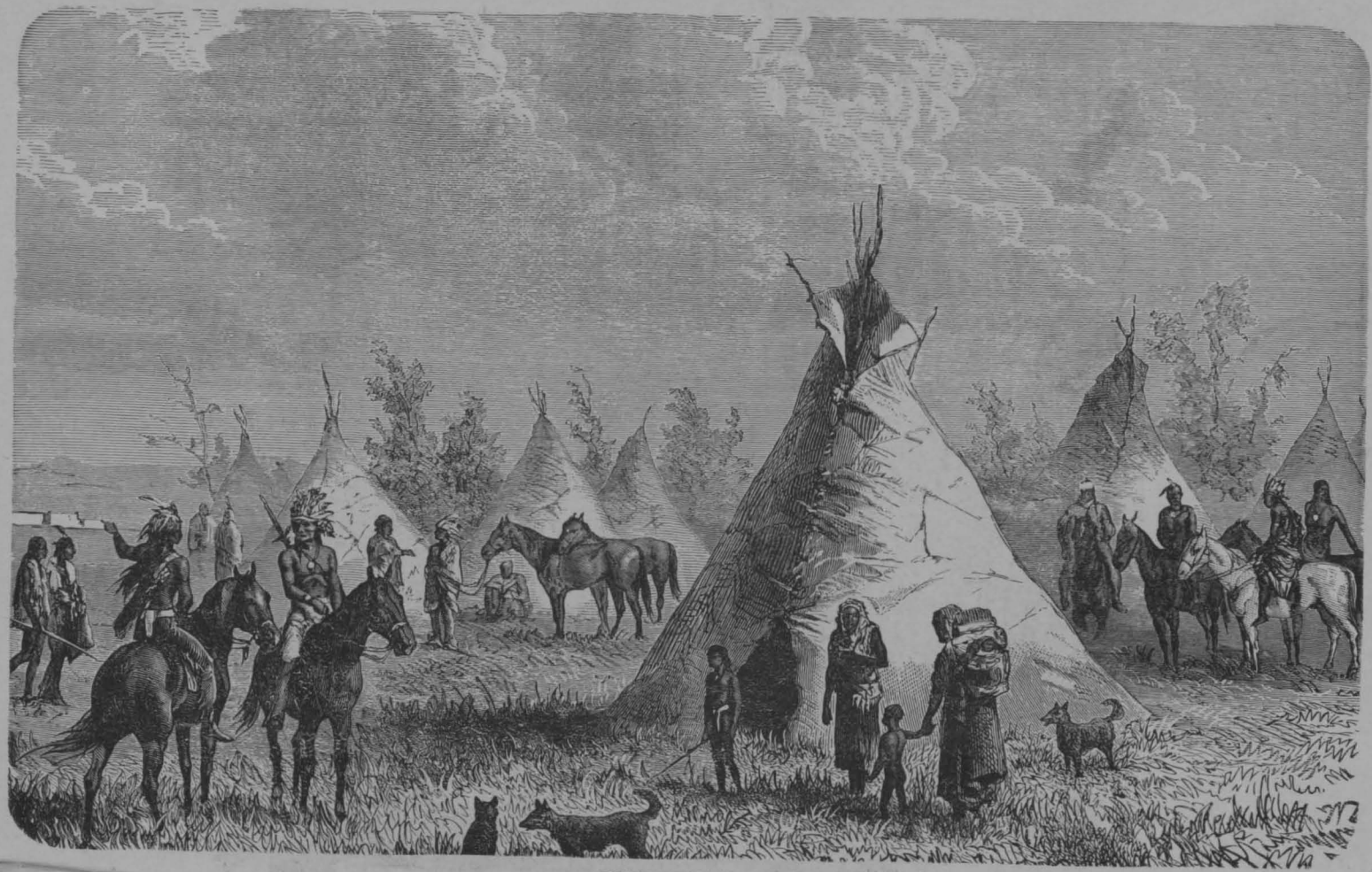
The New England and the Southern colonies were very different in character. The New England colonies were mainly composed of people of high-toned moral character, who came to this country chiefly for the purpose of securing to themselves the rights of conscience and founding a state on the basis of equal rights and privileges for all. All had a voice in making the laws by which these colonies were governed. The more southern colonies were founded by a few proprietors, or by trading companies, whose chief object was to get gain. The mass of the people had no influence in determining the character of the government under which they lived. This was emphatically true of Virginia, the first colony settled, and for a long time, the leading and most powerful colony of all. Its founders were gentlemen or sons of the aristocracy at home. They were adherents of the crown in the great controversy then going on in England, between the King and the people; the struggle for individual and popular rights as against the prerogative of the one man who happened to be at the head of the nation by the accident of birth. They belonged to the party of the cavaliers, so-called, as the founders of the New England colonies belonged to the party of the Puritans, or Roundheads, or the party of the people. The founders of Virginia were also upholders of the established church and opposed to all dissenters. Accordingly they made Episcopacy the established religion of Virginia, and toleration of dissenters was as little known there as in England. The government of the colony was in the hands of a few planters, who owned large tracts of land, and looked

and
be f
A
whi
fluer
colo
year
Jam
pilg
a D
brin
can
the
had
had
from
for
Jame
negr
of to
been
fore
incre
huma
far d
ensla
Virgi
them
of sl
ago,
minis
readil
It sh
made
has b
of the
Onl
James
Engli
for th
passag
far as
under
dia c
he tu
coast
is now
up the
his na
found
much
stream
and the
site of
discov
region
and ca



THE ABORIGINES.

INDIAN ENCAMPMENT.



INDIAN ENCAMPMENT.

LIFE IN NEW ENGLAND, 1770.

down upon those who tilled it, whether black or white, as being of a quite inferior race to themselves.

The New England colonists were generally well-educated, and their first care was to establish good schools in such numbers that the children of every settlement could have access to them without difficulty. In 1671, Gov. Berkeley of Virginia, boasted that there was neither schools nor printing-press in the colony, and he prayed that there might not be one for a hundred years. In 1771 the common people of Virginia were noted for their ignorance, while in Connecticut there was hardly a child that could not read and write. Virginia had allowed the British government to turn loose upon her soil, her convicts, and the dissolute of whom she wished to be rid. New England had been so free from those disposed to commit crime, that at the outbreak of the Revolution, there was hardly such a thing as a prison in which a captured tory could be securely confined.

What was true of Virginia, was true, though in a less marked degree, of Maryland and the Carolinas. They also were colonies belonging to certain great proprietors. In Maryland, Episcopacy was established by law, and the distinctions of caste and rank were carefully maintained. The planters of North and South Carolina lived in lordly style on their great estates, while their slaves and the mass of the whites were in the most dependent condition.

It would hardly seem possible that out of such heterogeneous materials there could ever be formed a union that should constitute a nation. But time and experience, common dangers and common wants, gradually wrought an assimilation of these elements, and made a union not only possible but actual. While New England was illustrating the advantages of a general intelligence, and equal laws with religious toleration, by her steady advancement in wealth and comfort, despite the disadvantages of her rough soil and unpropitious climate, experience was convincing the Southern colonies that the attempt to maintain the aristocratic forms and usages of the Old World, in the wilderness of America, was not only impracticable, but absurd. Some of the planters themselves were soon convinced of the mistake if not of the wrong of slavery, and Jefferson even proposed its abolition in Virginia. There was a constantly growing sentiment in behalf of liberty in political affairs and toleration in regard to religion.

The common dangers of the colonies served also to draw them closer together in feeling all the while. They were exposed, though not in equal measure, to attacks from the Indians, who roamed over the whole country where they had made their settlement. Unmolested at first in their feebleness, because not an object of alarm or danger to the Indians, as their numbers increased and they began to occupy larger spaces of land, the jealousy and fears of the aboriginees led them to attempt the extinction of the whites. The Pequot war, in 1637, led to a confederacy of the New England colonies soon after, for their protection against the Indians, and in the war against King Philip, thirty years later, Rhode Island and Connecticut marched and fought together against the common foe. The Southern colonies were less exposed to the attacks of the red man than those of the North; but the reports of midnight assaults, of burning villages, of families slain by the tomahawk of the savages, drew the colonists together by fear and common sympathy.

But aside from those conflicts with the Indians which would naturally arise from the settlement of the whites upon territory of which the red men had been so long the sole occupants, many and severe conflicts grew out of the rival claims of England, France, and Spain, to almost the whole of North America. The Spaniards, settling in Florida and along the Gulf, claimed possession in a northern direction to the Arctic Ocean. The French, planting themselves in Nova Scotia and along the St. Lawrence, laid claim to all south of them as far as the Gulf of Mexico; while all the grants made by the British government extended from the Atlantic Ocean to the Pacific. It will be seen, therefore, that almost every settlement that could be made upon the North American continent, was exposed to the rival claims of all three of the great European powers. As a consequence of this, the colonists were more or less involved in the wars in which, from time to time, these nations were engaged among themselves. It was a time when the English and French were often in con-

flict. From the year 1689 to the treaty of Paris in 1763, a period of seventy-five years, it may be said that the colonists were exposed to the hazards and sufferings of war for almost half the time. And it was from the barbarities of the Indians that they suffered most. The French made the Indians of Canada and the Ohio valley their allies, and the savages sweeping down from the North, or from beyond the Alleghanies, ravaged the English settlements from New Hampshire to the Carolinas. The colonists, not only in the spirit of loyalty to the mother country, but for self-protection, took up arms against the French and Indians. They organized several expeditions against important points in Canada and the West. They furnished men and money most liberally, and by their aid the English finally gained undisputed possession of the territory which they claimed. They took Quebec and Louisberg, Ticonderoga and Crown Point on the north, and Fort du Quesne, now Pittsburg, on the west. But it was at heavy cost. They lost thirty thousand men. They expended $16,000,000. They experienced all the horrors of Indian barbarity in addition to the ordinary sufferings of war. The war-whoop and the scalping-knife were frequent sounds and sights. Their industry was burdened by taxes which sometimes amounted to two-thirds of their income. And while they suffered thus, their services were undervalued and inadequately requited by the British government. Of their expenses, incurred in their poverty, only $5,000,000 were repaid, while an attempt was made to tax the colonies for the purpose of aiding in paying the expenditures of the home government in securing possession of a continent. British officers had borne off the honors of victory, where colonial officers had been in command or done the decisive work; and colonial troops had been sneered at, when their tactics alone had proved a match for the peculiar warfare of the Indians, and had saved the red-coats themselves.

But if their sufferings were thus severe, and protracted through three-quarters of a century, they served a good purpose in preparing the colonists in due time to become a nation. Their common sufferings united them in feeling, and wore away in large measure whatever of differences and jealousies had originally existed among them. Aristocratic Virginia had become leavened with democratic ideas. In holding their own legislative assemblies and levying taxes, and expending moneys at their own will, and not at the command of Great Britain, the colonists had learned the art, and enjoyed the blessing of self-government. They had learned their own resources in this long trial of adversity, and they had been trained by almost a century of warfare, into a military strength which fitted them, when the day came, to cope successfully even with British power.

But what most of all ensured that the colonies would develop into a nation, was the treatment which they received from the mother country. At the time when the settlements were made along our Atlantic coast, colonies were regarded not as the establishment of a company of people for their own advantage, but for the advantage of the state or kingdom from which they had gone out. The interests of the colonies were little, if at all, considered. The interest and advantage of the mother country alone were regarded. The colonies of Spain were treated as the instruments for the aggrandizement of Spain, by pouring the riches of Mexico and the Indies into her treasury. The colonies of Portugal, France, and the Netherlands, were expected to accomplish like service for those countries. The colonists were nothing. The home country was everything. Her interests were paramount to all others.

In accordance with these generally prevailing ideas in regard to the founding and management of colonies, the English government sought from the first to make the colonies on these shores tributary to her greatness and enrichment, regardless of the comfort of the colonists themselves. The colonists were hedged about with restrictive laws. They were restrained from any pursuit that came in conflict with the industry of the mother country, and confined to the production of such things as she most needed. What they produced they were allowed, with few exceptions, to sell only to her; and the things which they needed, they were permitted to buy only of her. They could not even carry on any considerable trade between themselves. They were forbidden to coin money, however abundant the precious

metals might be in their soil, and however much they might need a circulating medium to facilitate the exchange of products. With interminable forests all around them, they were forbidden to cut down pine trees. They could send the fleeces of their flocks to no places out of the King's dominions. They could export no produce except in British vessels, of which the master and three-fourths of the crew must be English.

Manufactures were sternly repressed. By act of Parliament, the making of hats was forbidden. The manufacture of paper was frowned upon. Iron and copper were allowed to be smelted, but not to be worked up into any articles of use. So determined was the home government that the colonists should do nothing which might come into competition with the English workmen, that a parliamentary commission was sent out to examine and report as to the employments of the colonists. The severe restrictions put upon trade and industry led to the evasion of the laws. An extensive and lucrative traffic sprang up with the West Indies, and even with countries more remote. Goods could be sold in the West Indies for which there was no remunerative market in England. The colonists of New England, in the absence of a fertile soil, early turned their attention to the sea, and became expert sailors and fishermen. With their fish and other products, they carried on a trade reaching from Labrador to the Mexican Gulf, and even to the Mediterranean. They employed as many as one hundred and sixty vessels in the whale fishery. They became great carriers of goods from port to port, and built vessels for sale. By all these means the New Englanders were thriving. But the British government only saw in their prosperity an invitation to oppress them with new restrictions. A tax was laid upon their West India trade.

Thus the burdens of the colonies were all the while increasing. Their industry was taxed or repressed in every direction, for the benefit of a distant government in whose halls of legislation they had no representation and no voice. They could not make a nail with which to fasten a horse-shoe. They could not print a Bible with which to conduct worship in their churches, or at the family altar. The British government seemed infatuated. A few English statesmen, like Burke and Chatham, sympathized with the colonists, and urged that they should be treated not as serfs or enemies, but as fellow-countrymen and friends. But their eloquent voices were lifted up in vain. Their predictions were unheeded. The Stamp Act was passed. The system of oppression was persisted in. And now the colonies, different as they were in their origin, and in various circumstances of their history, found themselves animated by the same controlling feeling, and nearly equally ready to break their connection with the mother country and to assert their independent national existence. Virginia, which had been so loyal of old, and so firm in upholding an aristocratic government and an established church, was as ready to form a republic as was puritan Massachusetts. Patrick Henry was as ready to lift up his voice for liberty, as was Samuel Adams or James Otis; and Virginia was the first of the colonies to propose that they should declare their independence.

Thus far we have sketched only what may be called the external history of the colonies. Something should be said of their inner life, their habits and occupations, in order to understand fully this period of our history.

The chief occupation of the early settlers was Agriculture. The first necessity for them was to clear away the forests and open the ground to tillage. While some of the great proprietors and the governors and agents who acted under them, were rich and could surround themselves with the comforts and even luxuries imported from Europe, the mass of the settlers were comparatively poor. They had to begin life, as it were, anew. Houses and barns had to be built. These were usually constructed of logs framed together, and the crevices were stopped with clay, or such earth as was at hand. The soil, especially in the northern colonies, was rough and hard to till, and the climate was severe. The implements used in husbandry were rude and clumsy at the best. British legislation, as we have seen, repressed manufactures among the colonists, and they were too poor to purchase many tools from abroad. Plows and carts were constructed, therefore, in a coarse way by the farmers themselves, aided as they might be by those who had

DEER.

BISON, OR AMERICAN BUFFALO.

some knowledge of the craft of the carpenter and the wheelwright. Hoes and forks, scythes and axes, were hammered out in a clumsy fashion by the village blacksmith. Yet, with these disadvantages, the colonists made rapid progress in agriculture. The central colonies of New York, New Jersey, and Pennsylvania, then sustained the same relation to the whole colonial territory that the Western States do now to the entire nation. They raised great quantities of corn and wheat. And if the soil and climate of New England were less favorable to agricultural pursuits, the cool waters of her bays, and the long coast stretching to Newfoundland, afforded a most inviting and remunerative fishing-ground, from the avails of which the hardy seamen of Massachusetts and Maine were able to purchase abundant supplies of grain and other desirable products, in exchange for the fish which they carried to the more southern colonies, to the West Indies, and even up the Mediterranean.

But the fields of the South yielded the most lucrative returns to the husbandman. When Raleigh, twenty years before the settlement at Jamestown, learned from the Indians the use of tobacco, and carried that plant to Europe, he established an important date in the history of the world, and ensured at least the pecuniary prosperity of Virginia, almost from its foundation. It is said that a servant of Raleigh, coming into his room one day after his return from America, as he was indulging himself with his pipe, and seeing his head enveloped in a cloud of smoke, dashed a bucket of water over him, supposing his clothes to be on fire. But the new narcotic soon became popular, and multitudes of heads were surrounded by the fragrant smoke of the Indian weed. It was eagerly sought for throughout the European continent. As one has said: "It supplied mankind with a new vice and a new pleasure." It made the coast, from Florida to New Jersey, the most desirable land in the world. It became what the cotton-plant was, a century later, to the whole South, what, in another century still, gold was to California. The gold-seeking adventurers of Virginia, who had nearly starved while neglecting tillage in the search for the shining ore and the glittering sands, soon found that the quickest and most certain gains were to be found in the cultivation of this plant. It was the center on which all life turned. In the scarcity of money, which characterized all the colonies, tobacco became the medium of exchange, and a legal tender for every thing. It passed, like the wampum of the Indians, as the ready payment of all debts. Salaries of school-teachers and clergymen, were fixed at so many pounds of tobacco, and when, in the early days of Virginia, a ship-load of maidens was brought over from England, they were purchased as wives at the rate of one hundred pounds of tobacco apiece. But the demand for wives was so great, that the price soon advanced to one hundred and fifty pounds. Ships came over from England every year, to take in the crops of the great planters on the Potomac and the James, and transport them to Europe. Washington, eminent as a land-owner and agriculturist, watched the loading of his hogsheads of tobacco from his own dock at Mt. Vernon. The production of tobacco increased steadily, as the demand for it increased. As early as 1688, we are told, Virginia exported 25,000 hogsheads, from which the English government drew a revenue of not less than $700,000. At the close of the colonial period it is estimated that the sale of tobacco brought in nearly $4,000,000, annually, to the southern colonies, being about one-third of the entire exports of the country.

Rice was another important product of the colonies, though its culture began long after that of tobacco. The marshes of South Carolina and Georgia were found to be well adapted to the growth of this plant, while a ready sale for it was furnished in England and elsewhere. It soon became a source of large income to the planters. In 1724, thirty years after the first planting of the seed given to the governor of South Carolina by the captain of a Madagascar vessel which had put into Charleston in distress, 100,000 barrels were sent from that colony. In 1761, the rice crop of South Carolina was estimated to be worth $1,500,000. The white population of the colony at that time did not amount to 50,000. It is easy to see that with such revenues, coming largely from the unpaid labor of their slaves, the planters of the Carolinas were able to live in a style of ease and luxury quite unknown, because impossible, among

the husbandmen of the northern colonies.

To the production of tobacco and rice, is to be added, also, that of sugar, indigo, tar, pitch, and rosin. These brought ready and large returns to the cultivators of the soil in the southern colonies, and gave to those colonies a more rapid growth in population and wealth, than fell to the lot of the older colonies of the North. There are no means of estimating accurately the value of the agricultural products during the colonial period. The colonies not being under one general government, as the States are now, no systematic returns were made of the industry of the country. But it has been estimated that the value of agricultural products in the year 1790, with a population of less than 3,000,000, was $150,000,000.

If the southern colonies offered a more inviting field to the agriculturist, the northern colonists supplemented the meager returns of their lands, by engaging largely in commerce. They were the carriers and traders of the colonies. They were as much at home on the water as on the land. They plowed the sea as well as the shore, and toiled with the hook as well as with the hoe. They pursued the cod from Montauk Point to the banks of Newfoundland; and chased the whale along the coasts of Greenland and Labrador. They built vessels, and loaded them with articles of merchandise for the English and other markets; and they built vessels out of their abundant forests for sale. The repressive policy of England forbade them, with only few exceptions, to sail their vessels to other than English ports, while foreign ships were forbidden to enter American harbors. The British government was determined to make the colonies tributary in every way to the wealth and advancement of England, no matter at what discomfort and oppression to the colonies. It was but natural that the colonists should resist what they considered the encroachments upon their rights, and that they should evade if possible, the tax levied upon their toil. Accordingly smuggling was very common. The Yankees built swift ships, which ran in and out with safety from the many harbors of a long coast, which all England's navy was not numerous enough to guard, carrying the products of the soil and the fisheries to the West Indies, to France and Spain, and bringing back precious cargoes of sugars, wines, spirits, silks, and spices. It was estimated that in the year 1743, New England had a thousand vessels employed in trade, besides what were engaged in fishing. England redoubled her exertions to repress all commerce that was not limited to her own ports, and the commerce of the colonies was, by this means, considerably diminished. Their vessels were seized by British cruisers and by the custom house officers. Still their commerce flourished. No dangers of the seas, and no oppressions and vexations of a tyrannical government, could daunt the spirit of the hardy men of New England. Born in a harsh climate, and on a stony soil, they were accustomed to hardship from their birth. All their gains were made by a struggle of some sort. They knew no easy road to wealth. It was not their fortune to live in ease and luxury on the products of other's toil. So they were ever ready to try every means by which they could make gain, though it might be slowly and with great difficulty. They were ready to carry any product of any colony to any port where it could be sold or exchanged for what might be sold in still another market. They carried the fish of the Penobscot or the Banks to the West Indies, and exchanged it for rum, sugar, and molasses. Some they carried to the Catholic fish-eating countries of Southern Europe, and with the proceeds purchased a variety of goods from the shops and warehouses of England. The molasses which they did not sell at home, they distilled into what was known as New England rum, and with it traded with the fishermen of Nova Scotia for fish, with the Indians for furs, and with the slave merchants of the African coast for ivory, gold-dust, and slaves. The West India trade had become to the colonies what the East India trade had been, before the discovery of America, to the commercial nations of Europe; and when, in 1764, the British government, in addition to its other abuses and oppressions, laid a heavy tax upon this trade, followed soon by the passage of the Stamp Act, the colonists were nerved to the point of open resistance, and the revolution may be said to have begun which led on, two years later, to the Declaration of Independence. The first act of

resistance was to enter into an association to abstain from the importation of British goods, and to manufacture for themselves. Non-importation and home-manufacture became the popular cries, and to encourage the production and manufacture of wool, resolutions were passed not to eat lamb and not to patronize any butcher who would kill lambs. They resolved, also, upon a most effective measure of retaliation, in refusing to send any more tobacco to England. The English people felt the check thus given to the export of their woolen goods, and the deprivation of their accustomed indulgence in tobacco, with its incidental revenue, and the government yielded to the pressure brought to bear upon it, and repealed the odious Stamp Act. But the effect of the repeal was nullified by the accompanying declaration, that the colonies were bound by acts of parliament. The repeal was therefore no concession to liberty. The strife went on; new duties and taxes were levied; new resistance was awakened; disaffection and anger increased on both sides, until, in 1775, parliament prohibited all trade with America and the colonies, in retaliation, threw open their ports to all the world. The exports of the colonies just before the revolution are set down as follows:

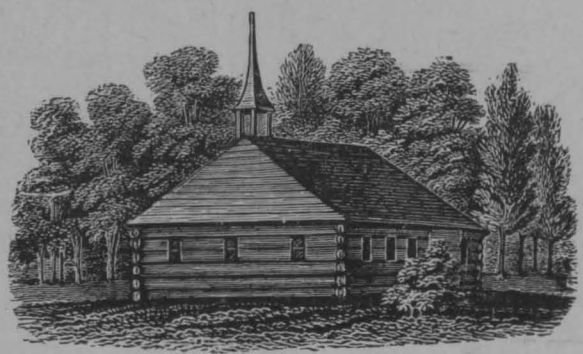
To Great Britain,	£1,531,516
To South of Europe,	552,937
To the West Indies,	747,910
To Africa,	20,277
Total,	£2,852,640

In Manufactures, little progress was made during the colonial period. That grand development of mechanical industry which distinguishes our country to-day, and enables it to compete with the oldest and richest nations of the world, may all be said to have been made since the close of the war of Independence. The repressive policy of England operated upon the manufactures of the colonies more effectively than it could upon their agriculture or their commerce. It was determined that, if possible, nothing should interfere with the workshops of Great Britain. Consequently almost all manufacturing on the part of the colonies was sternly forbidden. The exceptions are hardly worthy of notice. Iron ore might be smelted and run into pigs; a convenient form in which to transport it to the great workshops of England. But the thousand forms into which iron may be wrought for the daily convenience and the daily comfort of life, it might not be wrought into by the colonists. Similar restrictions effectually prevented the manufacture of other metals into objects of use. Here and there, however, the pluck and ingenuity of the colonists, especially in New England, undertook the work of manufacturing. Occasionally an iron foundry was put in operation, and there was considerable done in manufacturing hats. Massachusetts encouraged the making of paper. The manufacture of linen had been begun by some of the Scotch-Irish, of whom there were not a few in different parts of the country. There was also some cloth manufacture of a coarse and cheap kind. But in general, it may be said, there were almost no manufactures, in our understanding of that term, during the colonial period. The spinning wheel that hummed by the kitchen fire, and the hand-loom that wrought the homespun into plain clothing, were almost the only machines which our country knew in its colonial days.

The colonies stretched along the sea coast for a distance of a thousand miles, reaching but a little way inland. The people of the northern colonies were gathered in villages and towns; those of the southern, with the exception of a few places, dwelt upon scattered plantations. Roads were few and poorly built; vehicles were scarce and clumsy of construction. The people were glad to avail themselves of transport by water; but this, before the days of steam, was slow. The voyage from New York to Albany, now made in eight hours, required as many days. Most of the travel was performed on foot or on horseback. A stage-coach, advertised as the "Flying Machine," went from New York to Philadelphia in two days, though the passengers were requested to cross over to the New Jersey side the evening before, in order to get an early start in the morning. The passage can now be made between the same cities in two hours. A coach was advertised to make the round trip from New York to Boston and back in a month. Of course there was little intercourse between the more distant colonies, and even the people of the same colony seldom went far from the neighborhood in which

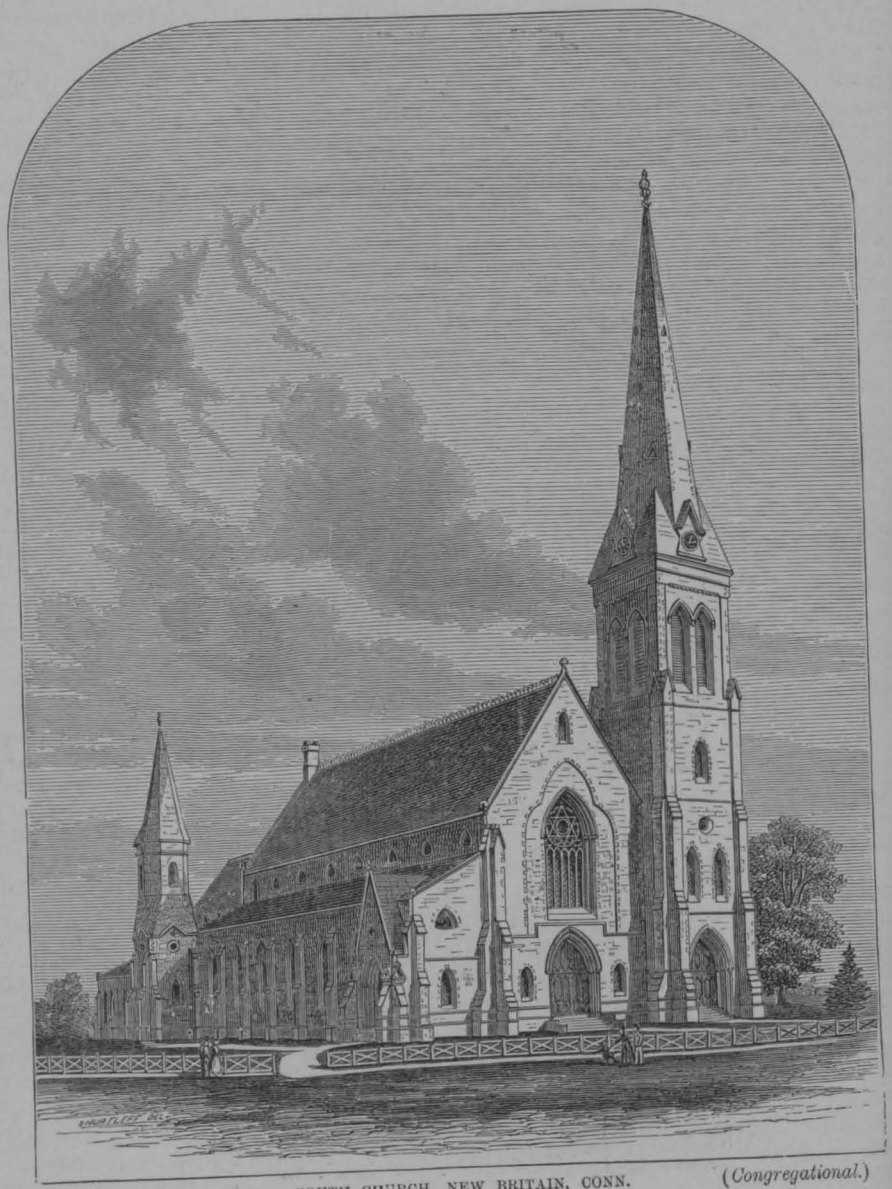
First Church in Connecticut

Ancient Dutch Church in Albany.



Ancient Swedes' Church, Philadelphia.

It is impossible to give anything like a general variety in modern styles of church edifices in our illustrations, they are so numerous; but the specimens of the old and new we here introduce, will give a good general idea of the improvements which have been made.



SOUTH CHURCH, NEW BRITAIN, CONN. (*Congregational.*)

they dwelt. Compared with the people of the present time, the colonists were stationary. Manners and fashions of course, in such a condition of life, changed but seldom. The last Parisian mode was not brought by steamer, and reproduced in ten days on the streets of New York and Philadelphia. The stout home-spun suit, made entirely in the farmer's own dwelling, was good enough for church or the Assembly, and did duty from year to year until worn out. The farmers' wives and daughters made their own dresses, and were content with their plain blue and white gowns, set off with the nicely starched apron. No person in Connecticut whose estate did not exceed £200, could wear "gold or silver lace, or any lace above two shillings per yard." In the cities, there was more of style. Clergymen, magistrates and gentlemen, wore small clothes, with silk stockings, and shoes ornamented with silver buckles. The hair was often powdered, and queues and perukes were not uncommon. Accustomed to the distinctions of rank and dress which prevailed in the Old World, the colonists preserved them, to a considerable extent, in this country, even after they had adopted the theory of equality. But the general characteristic of the colonial period was simplicity in dress, and in the whole matter of living. The houses were usually plain, whether built of logs or of stone. Occasionally in the towns and cities of the North, and more frequently on the plantations of Virginia and the Carolinas, mansions would be erected which emulated the baronial manors of England or France. The furnishings of the houses were also generally plain. No pictures adorned the walls; no carpets covered the floors; no upholstery betokened indulgence or luxury. But there was enough of clothing, and of food, and plenty of good cheer. The forests furnished ample fuel for the great fire-place, which filled almost one side of the combined kitchen and living room, and around the blazing chimney the affections were touched with a kindred glow, and by the light of the flames, many a lesson of history, fortitude, and faith was learned.

In the matter of Education, the colonies differed almost as much as in any other respect, and as much as the States do to-day, nay more; for the school system which was peculiar to the New England colonies, has shown its force and value by establishing itself in all the States of the Union. The early settlers of New England believed in education and intelligence as the best guarantee of freedom, whether in religious or in political affairs. They were intelligent and well educated. Some of them were graduates of the great English universities. They had read their bibles for themselves, and so had dared to think and to say that the forms and ceremonies of the half-reformed English church were not obligatory upon them, were no part of the necessary faith of a Christian. From their same reading of their bibles, they had learned the essential equality of men as to political rights and privileges. They meant that their children, and their children's children, should be like intelligent readers of the word of God, both for the sake of their souls, and for their political comfort. So, without waiting for any formal legislation as colonies, the New England towns and villages, as it were by instinct almost, took measures to ensure the general education of the people. It was only a year after the settlement of Boston, that action was taken for securing the proper instruction of the children by competent school teachers. Connecticut imposed a fine upon every father who neglected the education of his children, or those in his employ as apprentices; and it soon became the law of those colonies, that every settlement of fifty householders should maintain a common school and every one of a hundred families should have, in addition, a school of higher grade. But not content with such provisions for the general instruction of the people, and anxious to preserve in their churches a succession of ministers competent to interpret the scriptures and to teach the people, they took measures to establish colleges. It was only six years after the settlement of Boston was begun, that $2,000 were appropriated for the founding of Harvard University; and for some years afterwards, each family of the New England colonies was expected to contribute annually a peck of corn, or its equivalent in money, to maintain this institution of learning, and collectors were appointed in every town to gather up these precious donations.

In the middle and southern colonies, less ample provision was made for education.

In the middle colonies, it was expected that the minister would teach the children the catechism, and in some cases he acted also as the schoolmaster of his flock. Other schools arose, as the various towns or cities felt the need of them, but there was no establishment of a general system of schools as in New England. The settlers of the middle and southern colonies were not themselves as well educated as those of New England, and they did not feel the importance of general education, as did the people of the northern colonies. The great planters and proprietors were anxious chiefly that their sons and daughters should be educated, and they did not always care for this; but they were willing that the mass of the people should be ignorant. Not a few of them thought that the masses could be easiest controlled when least intelligent, and so sympathized with Gov. Berkeley, of Virginia, when he said in reply to the Lords Commissioners in 1670, "Learning has brought disobedience and heresy and sects into the world, and printing has divulged them, and libels against the best government. God keep us from both!" The governor's wish was in good measure fulfilled, for no newspaper was published in Virginia until 1736, and then only as it was under government control, and no general school-law was established until 1796, though Mr. Jefferson had proposed as early as 1779, a very comprehensive scheme of education. Through the influence of the King, and of members of the church of England, some contributions were made for the establishment of a college in Virginia, and as early as 1620, a superintendent was sent out to take charge of it. The effort seems to have been not very successful, and it was not until 1693, that William and Mary college was founded. Up to the close of the colonial period, the common people of Virginia were noted for their ignorance. The gentry and the rich traders and planters alone, could make any pretension to education.

The condition of Virginia was, in the main, the condition of the other southern colonies. In North Carolina, for fifty years, the provincial authorities discouraged all forms of religious and educational activity not connected with the church of England, and expressly forbade the establishment of printing-presses. In 1764, an act was passed for the building of a schoolhouse in Newbern. Other acts were passed occasionally to promote the establishment of schools in a few places; but nothing seems to have been done for the general education of the people. Similar was the case in South Carolina and Georgia. In all these States, a regard for the religious interest of the people on the part of churches in the countries from which the first settlers had come, seems to have prompted them to contribute funds for the purpose of founding schools or colleges, mainly with the design of promoting religious knowledge and training up a succession of intelligent ministers of the gospel; but no general scheme of education like that of New England was adopted, until after the colonial period. New England was a century, or a century and a half, in advance of the rest of the country in this respect.

At the close of the colonial period, there were nine colleges in the country. Only five, however, were worthy of the name. The colonial colleges, like many of the schools preparatory to them, were substantially church institutions, their pupils being the stock from which the body of the clergy was reinforced. But from these colleges came many of the leading and most influential men. Of the members of the Continental Congress, one-third were graduates of these institutions. It was not until the close of the colonial period, that any special or professional schools were established. A school of medicine gave degrees in New York, in 1769; a sort of theological seminary was founded in Pennsylvania, in 1778; and a law school was established in 1783; but some degree of instruction in law and medicine, as well as in theology, had been given in connection with the collegiate course.

Female education was comparatively neglected in the colonial period, as was that of the deaf and dumb, the blind, and the feeble-minded.

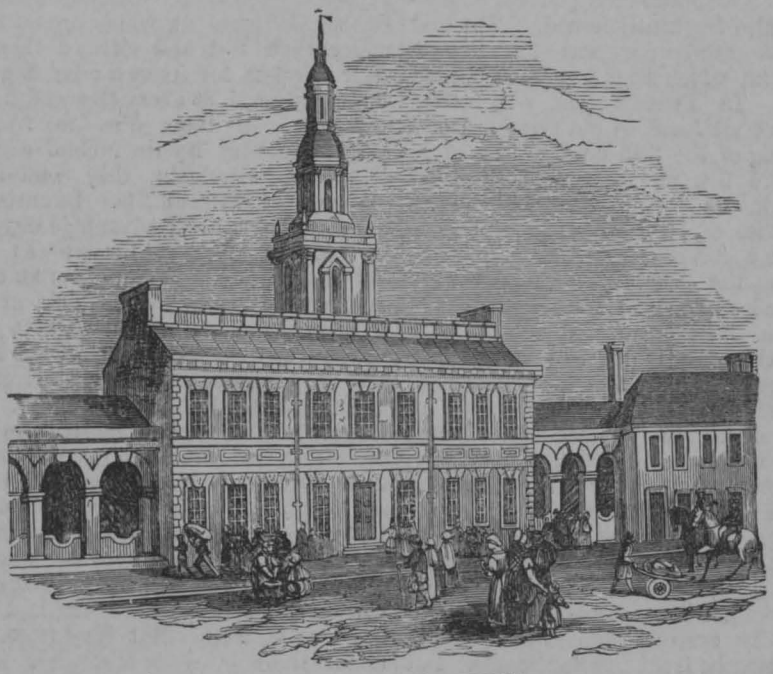
The lack of schools of the higher grade, especially in the southern colonies, was remedied in part by the instruction which was given, in many cases, by the clergymen, who often fitted boys for college, and also trained pupils in preparation for the ministry. These means of education were also supplemented by various public and private libraries, and by two or three Asso-

ciations for the increase and dissemination of science.

The Press, with its aids to knowledge, was established in the colonies, especially those of New England, at an early date. A printing-press was set up in Massachusetts at Cambridge, in 1639; and books soon began to be published. They consisted chiefly of sermons and religious treatises. Pamphlets of a political character were also frequently issued. The first permanent newspaper was the Boston *News Letter*, which began to be published in 1704. In Pennsylvania, a printing-press was established within three years of the landing of the first colony. In 1775, there were five newspapers published in New York, and the same number in each of the cities of Philadelphia and Boston. There were forty-three newspapers in the country at the close of the Revolutionary War; the larger part of them in the northern States. The circulation of papers in Connecticut at this time, was eight thousand copies weekly; which was equal to the whole number in circulation south of Pennsylvania. In Connecticut, almost every man read his newspaper weekly. The Boston *News Letter* was a foolscap half-sheet in size, and this, in those days of slow travel, was deemed large enough to contain the news of a week. There were then no telegraphs nor railroads, hardly any post-offices or post-roads. News was two months coming from Great Britain, and six months from Constantinople. But the papers and pamphlets of the colonial time did good service. The common school and the printing-press diffused intelligence throughout the land, and patriotism found in these its most efficient support. No agency, perhaps, was more influential in this respect than Thomas Paine's pamphlet, entitled "Common Sense." It was published in 1776, attained a wide circulation, and had much to do in shaping the public mind in favor of independence, and in preparing the way for the Confederation which soon became the Nation.

Such, in brief, was the condition of our country during the colonial period. In the lapse of nearly a century and three quarters from the landing of the first settlers at Jamestown, the colonists had increased so as to number almost 3,000,000; but altogether did not equal the present population of Pennsylvania or Ohio. They had made a slow and toilsome progress, contending with the greatest difficulties. Beginning on a new continent, and with a new climate, far away from the seats of civilization and the institutions of religion and established government, they had to contend at the outset with the wilderness, and bear the privations of a pioneer life. Frowned upon rather than fostered by the British Government, which owned the soil under their feet and claimed them and their services for its own advantage, they were oppressed at every step and in every industry. In their distance from the mother country lay their chief guarantee of safety. Gradually they secured the comforts of civilized life. Luxuries they knew not; but every advantage was gained by arduous toil, and success was wrung out of adversity. They were often obliged to carry the musket to the field of labor, along with the hoe and the plow, to protect themselves from the attacks of the Indian, and they were compelled to go armed also to their places of religious worship. Their trade was restricted of its freedom; their commerce was limited to narrow channels; their industry was burdened with taxes in the levying of which they had no voice. Instead of being treated as children, they were made to be hewers of wood and drawers of water for an unkind mother, who dwelt far away from them, and treated them as outcasts. But they were patient under their burdens and their wrongs; they bore poverty and privation with little murmuring; they maintained their loyalty when forbearance had ceased to be a virtue. Even after their grievances had become so severe that they were forced to take up arms against the foreign soldiery that had been sent to New York and Boston, to overawe and repress the feeling of liberty, they had no purpose to sever their connection with the mother country. They were only struggling to maintain what they considered to be their rights under the government of that country, and to resist oppression. The Continental Congress declared expressly: "We have not raised armies with the ambitious design of separating from Great Britain and establishing independent states." The colonies would have been content to remain as colonies, if Great Britain would have removed what they regarded as unjust

taxes, and had given them some representation in the parliament which made laws for their government. But there was no word of kindness and no relenting on the part of the mother country. Sterner measures of tyranny were adopted. The colonial governors were superseded by military governors, sent over from Europe, with troops to enforce their authority. Boston was put in a state of siege. The battles of Lexington, and Concord, and Bunker Hill followed. A year afterwards, after long patience and long debate, the second Continental Congress declared that: "*The United colonies are, and ought to be, Free and Independent States.*"



CONGRESS HALL, PHILADELPHIA.

FAC SIMILE OF CONTINENTAL MONEY.

THE NATIONAL PERIOD.

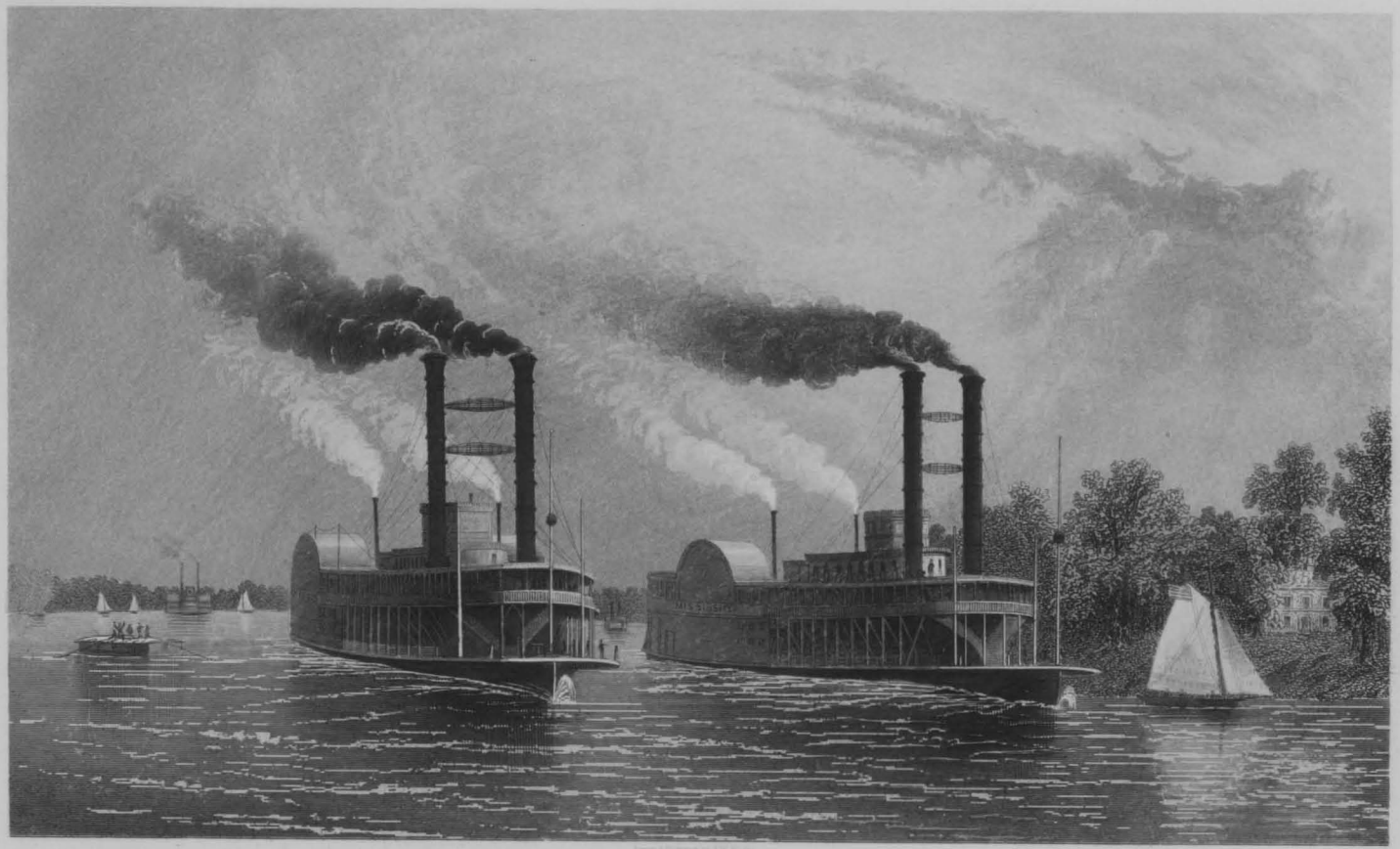
The War of the Revolution, which secured our independence, was no sooner over than our country began to make rapid advancement. This advancement has been specially observable in respect to Agriculture and the Mechanic Arts. The removal of the restrictions placed upon trade and commerce by the British navi gation laws, at once opened the way for the exportation of the products of our fields, and their exchange for many articles of foreign fabric of which the people of this country felt the need. This stimulated improvement in the method of agriculture, and in the instruments used for its prosecution. Perhaps there is nothing which marks more distinctively the last century, not only in our own land but in many other countries, than its advancement in the art of husbandry, and in the invention and fabrication of machines and tools by which human labor has been saved while at the same time its products have been increased.

The advancement made in agriculture, during the first century of our national existence, is indicated in a word almost, when we say that during the last hundred years agriculture has become a science as well as an art. Mechanical agriculture was well advanced at the close of the colonial period, though farming tools were comparatively rude and poor, and by no means as numerous or as well adapted to the different processes of husbandry as they now are. But the great science of Chemistry has arisen and come to its present development within the nineteenth century, and this has changed almost entirely the character of agriculture. From being a mere mechanical drudgery, or a traditional process of sowing and reaping according to the phases of the moon or the old saws of the Indians, or of grandfathers and great grandfathers, Agriculture has become one of the exact sciences, and its processes are carried on in accordance with the known and invariable laws of nature. Its methods are intelligent, and its results sure as never before. Instead of being a mere round of mechanical labor, an uninterrupted tax and strain upon the muscles, it is a work which engages the mind not less than the body, and as it brings all the fields of knowledge under contribution in the prosecution of its various aims, it makes the calling of the farmer one of the most intelligent as well as most elevating and pleasurable of the callings of man.

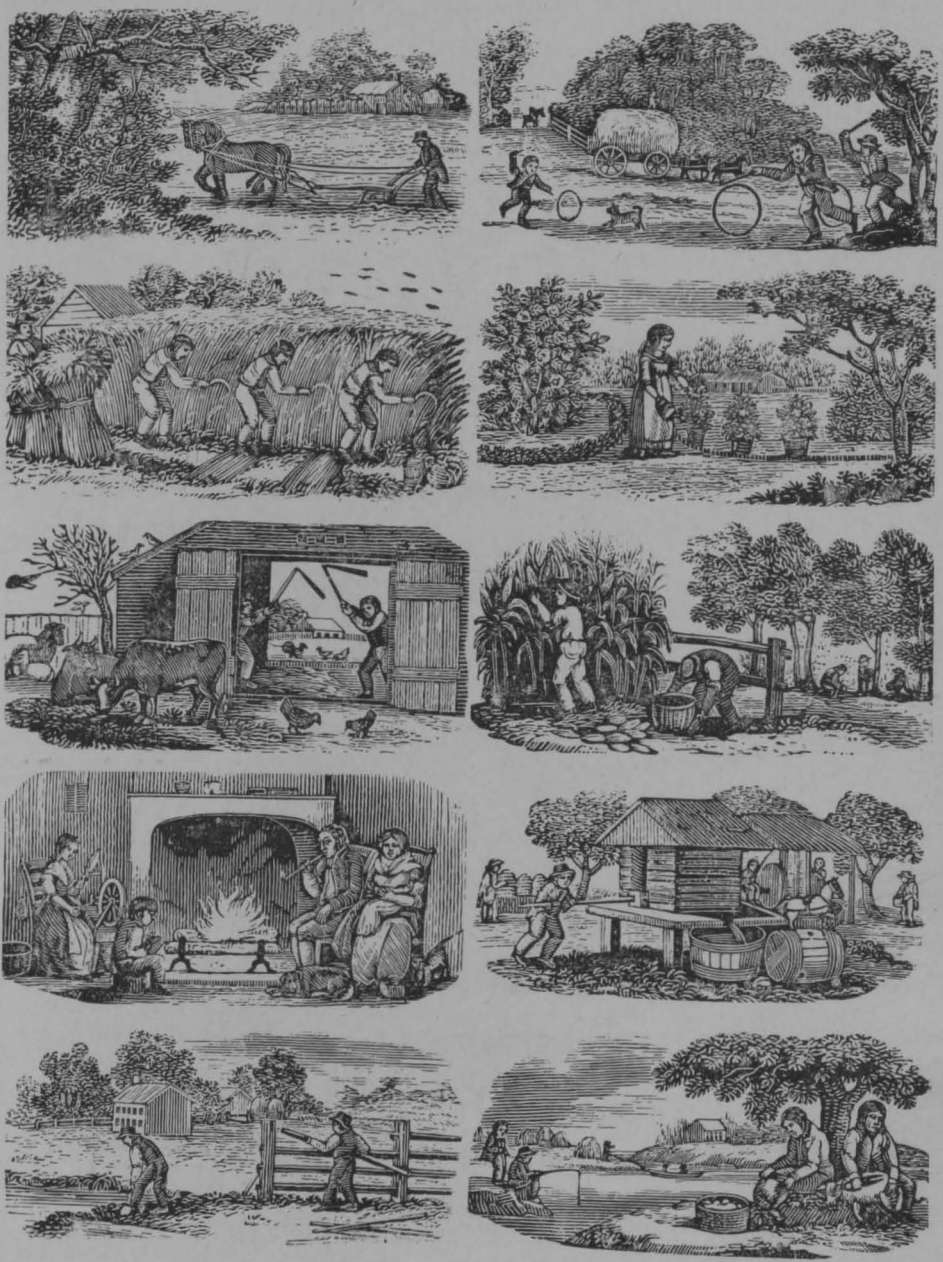
The other so-called natural sciences, as well as that of chemistry, if they have not had their origin in the century just closed, have been very greatly developed during this period. The laws regulating the growth and reproduction of plants and animals, involving the whole matter of tillage and the feeding and housing of cattle, have been brought to light, or made much more plain than before by their careful study and the numerous experiments which have been made in reference to them during the period measured by our national history. The results are seen in the superior grasses upon which our live stock are now fed, as compared with the wild and coarse grasses of the earlier times. They are seen in the larger and better crops of various kinds now raised, and in the improved quality of our live stock of all sorts. The cattle of the colonial period were of very inferior quality, and they were so poorly fed that oftentimes they could hardly raise themselves from the ground without help. The average weight of cattle brought to the Smithfield Market, in London, a hundred and fifty years ago, is said to have been not more than three hundred and seventy pounds. The weight of cattle in our own country was even less. Now it is over eight hundred pounds, and it is not very rare that we find yearlings that

THE BEGINNING

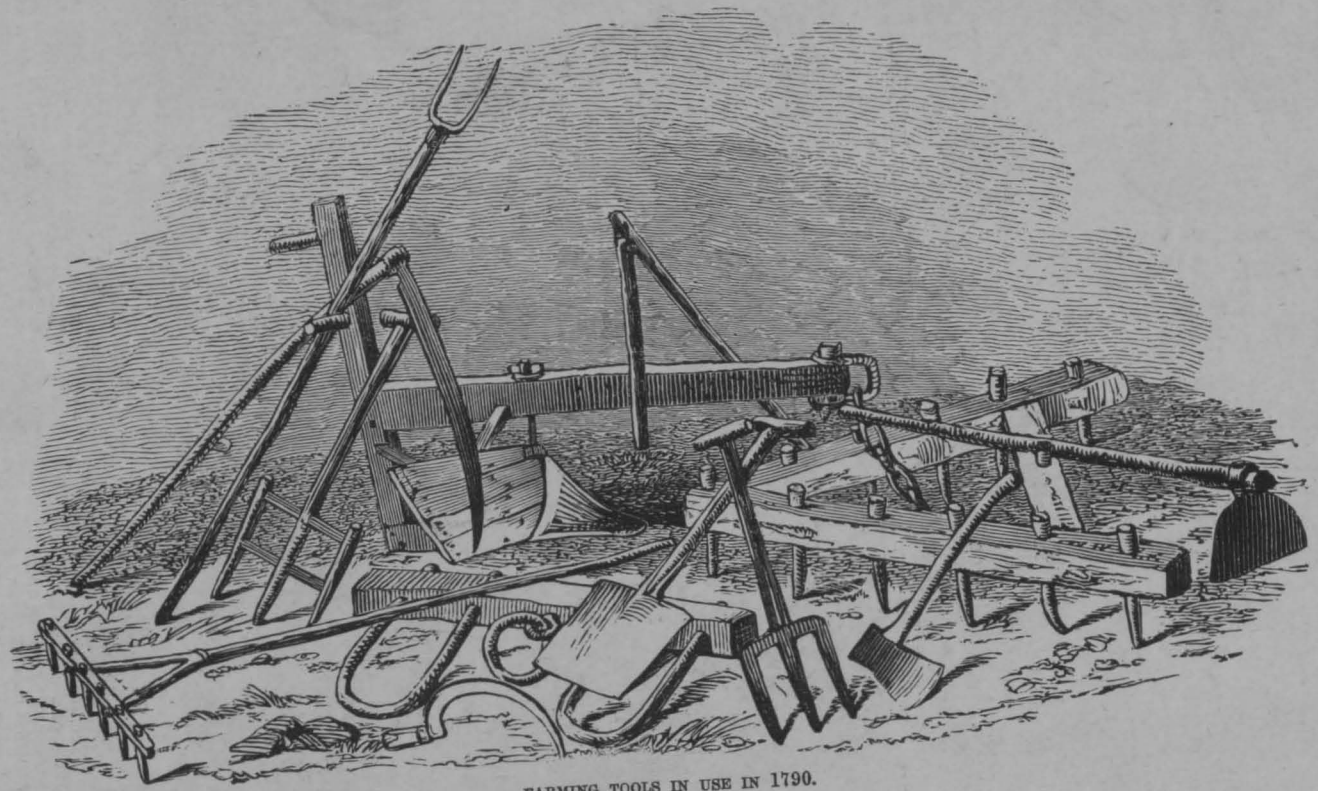
THE BEGINNING



ON THE MISSISSIPPI

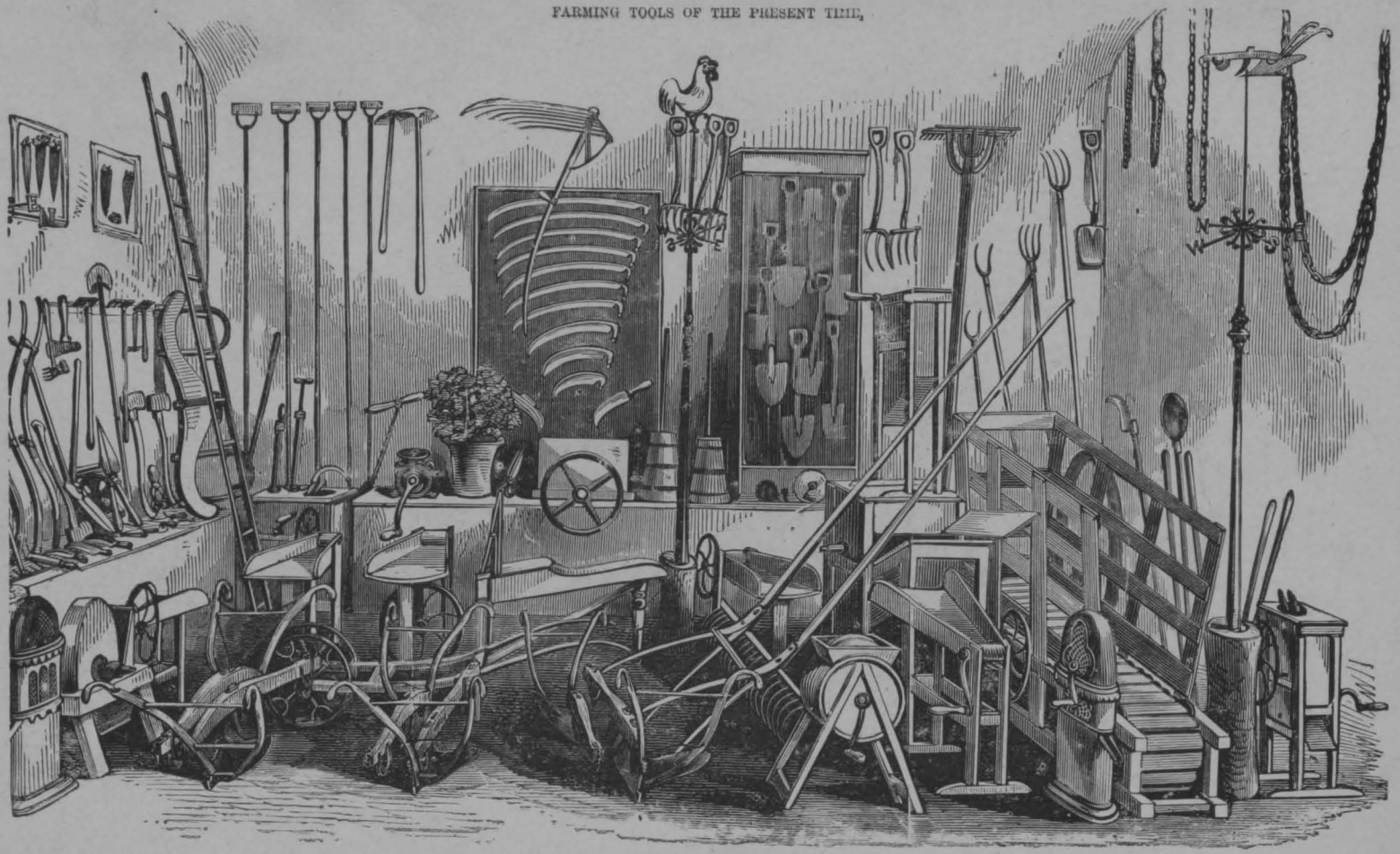


The Thomas Farmer's Almanac, from which the above engravings were taken, was about the only agricultural literature the farmers had in the early days of the Republic. The cuts also represent the style of engravings of those days. The Almanac informed the readers in what changes of the moon to plant various vegetables, such as squashes, cucumbers, beans, etc. The illustrations also showed people in which month certain work should be done, such as plowing, threshing, making cider, mending fences, etc.. the time to take comfort by sitting around the fire, rolling the hoop, and the like. It may surprise young people to learn that said Almanac issued weather probabilities for the whole year in advance. Along down the column of figures giving the day of the month would be inserted, "About this time look out for rain," "High winds and rain," "We may expect snow-storms about this time," etc. Of course it was a very fine thing to know what the weather would be all the year round, but the trouble was the probabilities often proved to be very improbable.



FARMING TOOLS IN USE IN 1790.

FARMING TOOLS OF THE PRESENT TIME.



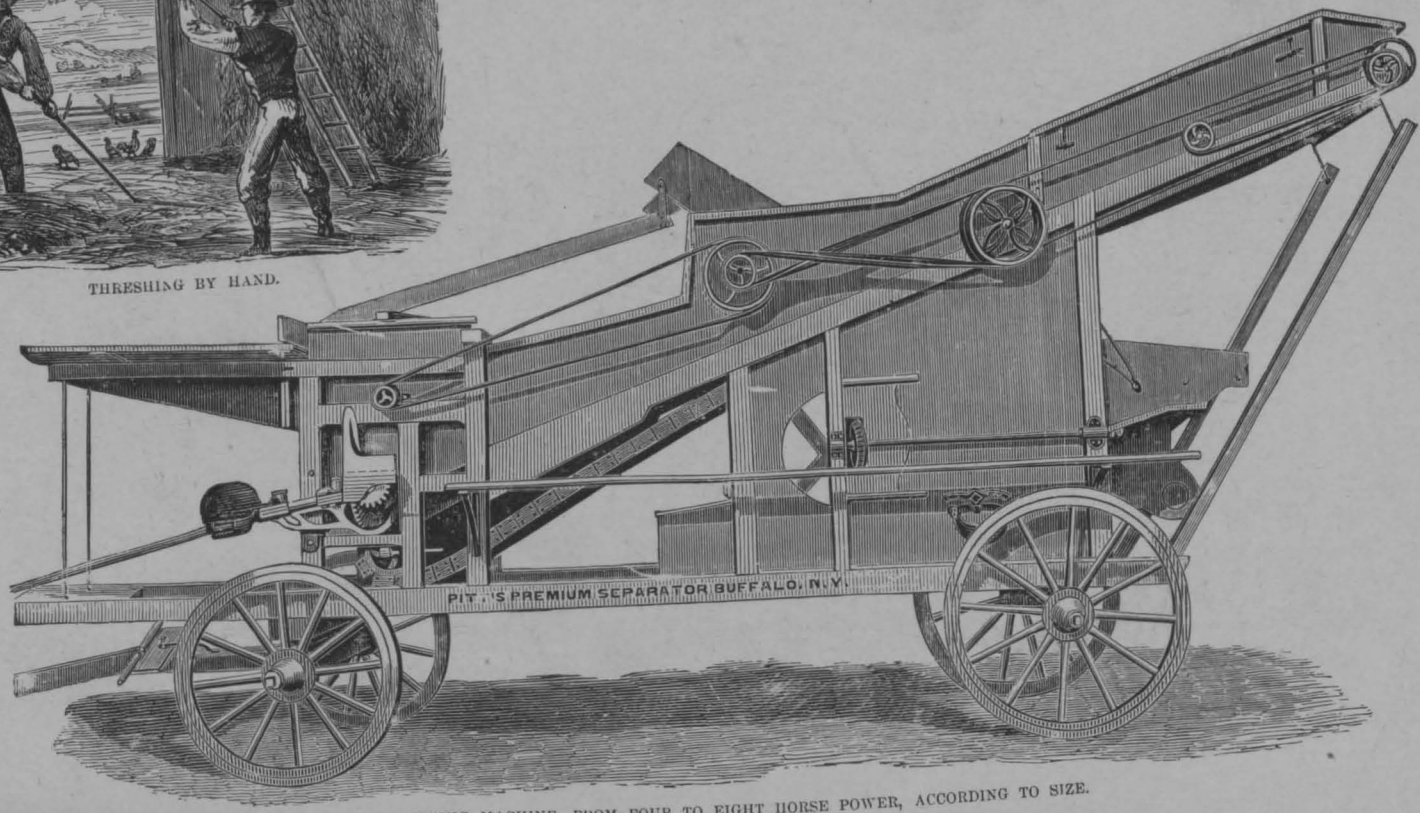
THE FARM.

HAY-TEDDER.

HAY-TEDDER.

THRESHING BY HAND.

One man gets out from ten to fifteen bushels per day. Machines vary in size from four to twelve horse power. Twelve-horse power and fifteen men get out from six hundred to twelve hundred bushels per day, according to kind and condition of grain.



THRESHING MACHINE, FROM FOUR TO EIGHT HORSE POWER, ACCORDING TO SIZE.

Old-fashioned way of mowing.

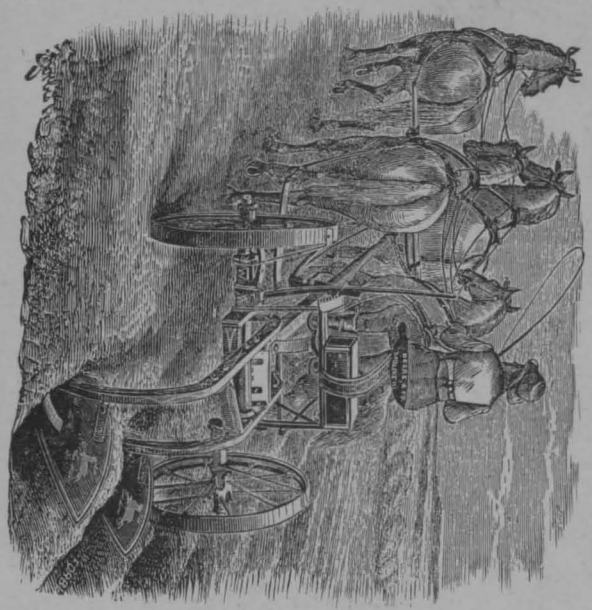
"EXCELSIOR MOWER" WORKING WITH THE CUTTER BAR ELEVATED AND RIGHT WHEEL PASSING THROUGH A DITCH.

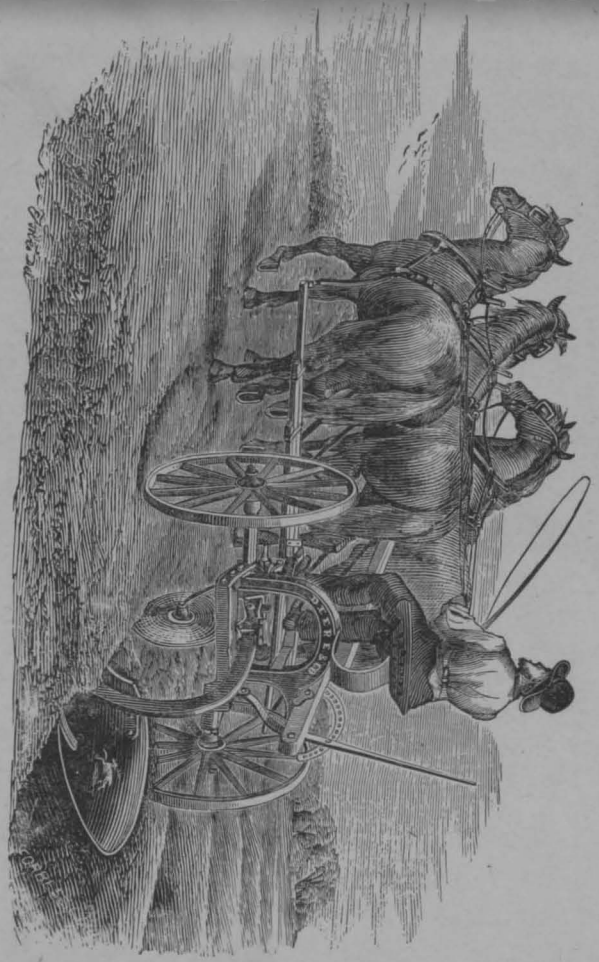
Old-fashioned way of reaping.

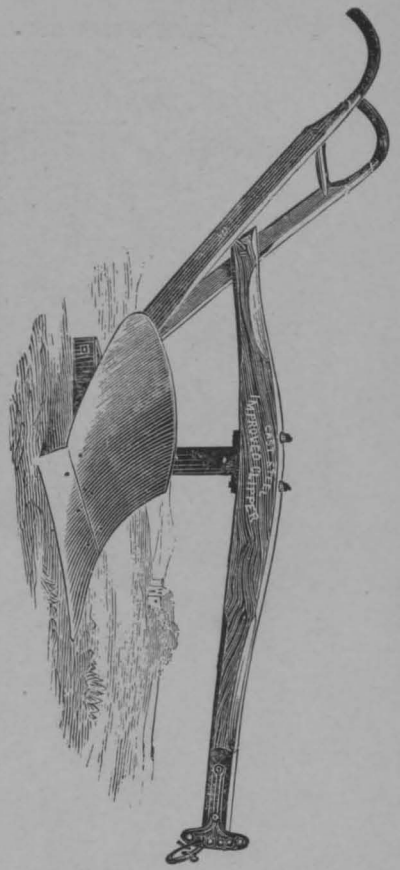
WHEELER'S PATENT REAPER AT WORK.

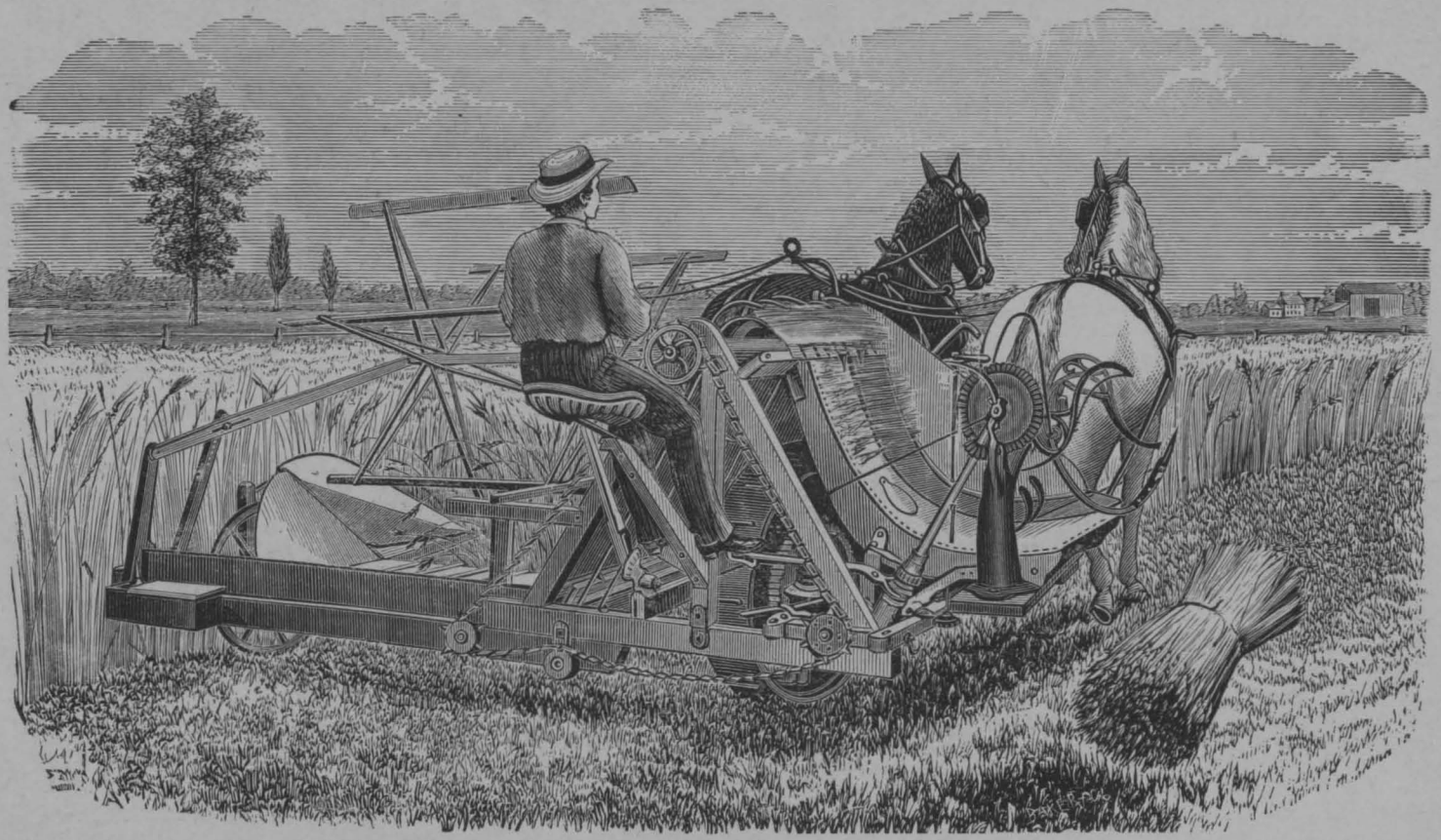
1.—HIGHLANDER PLOW.
2.—THE KING OF SULKY PLOWS.
3.—THE DEERE GANG PLOW.

DEERE & COMPANY., MOLINE, ILL.









WOOD'S HARVESTER COMBINED WITH LOCKE'S SELF-BINDER. WALTER A. WOOD, HOOSICK FALLS, N. Y.

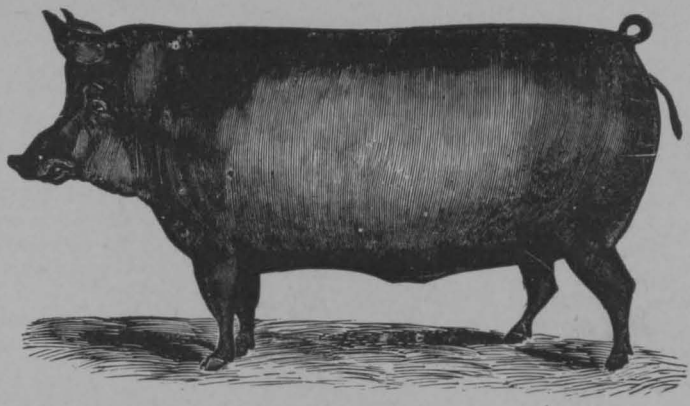
SOUTHERN PINE WOODS HOG.

WESTERN BEECH NUT HOG.

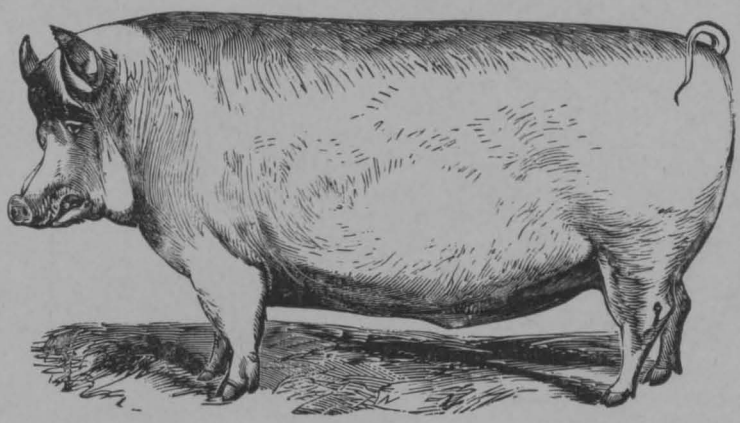
will reach the weight of a thousand pounds. This shows, in a single respect, the advancement of agriculture. The increase in the value of cattle for beef, and for the production of milk, butter, and cheese, which has been effected by the careful and scientific system of breeding which has been in operation during the last century, is almost beyond computation. The same is true of the development of the breeds of sheep, whether for the production of mutton or wool. The like is true also of swine and horses, whether the latter are considered in respect to their working qualities, as draught animals, or their contributions to business or pleasure, by their combined strength and speed. At a sale of cattle which took place in the state of New York, a few years ago, one hundred and nine head brought the remarkable price of $382,000, or an average of more than $3,500 each. This shows the importance which is now attached to the breed of animals. If the farmer, by securing the proper blood in his stock, can gain an additional weight of one or two hundred pounds of beef in each animal within a given period of growth and feeding, or if he can increase the quantity or the quality of the milk given by his cows, he can afford the considerable outlay of money necessary to exchange his scrubs for Durhams, or Jerseys, or Ayrshires. No sum in arithmetic is simpler or plainer.

The same is true in regard to the use of improved varieties of seed for the various farm crops, as well as the better methods of cultivation which science and experience together have caused to be adopted. The vegetables of our gardens and fields show a great improvement over those in use a hundred years ago.

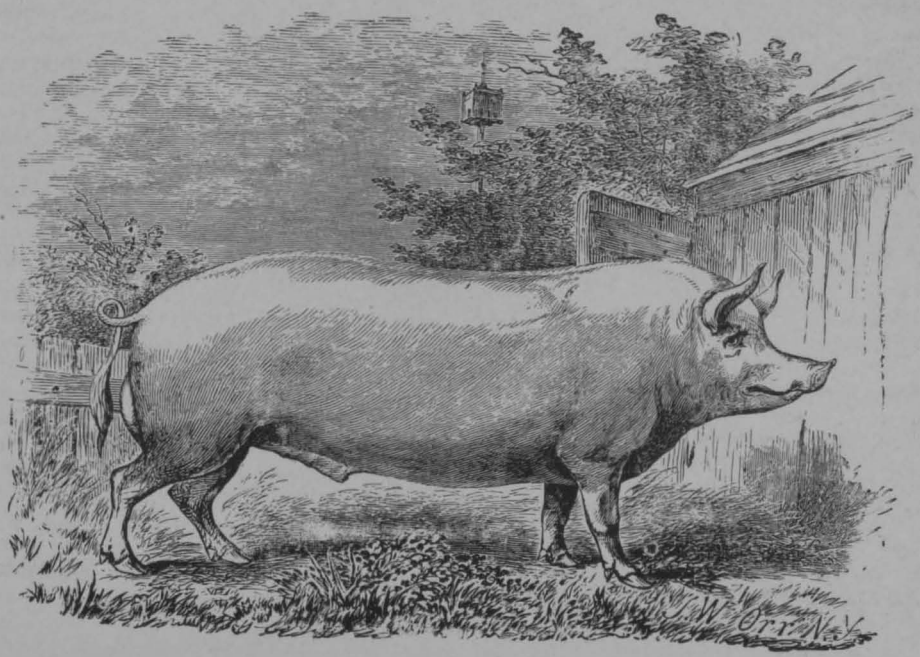
Allusion has been made to the improvement which has been effected in the implements or tools in use for the purpose of carrying on the work of agriculture. Hardly anything is more noticeable, in the history of the century just closed, than the great change which has taken place in the instruments used for agricultural purposes. There is hardly a tool now in use which was used by our forefathers a century ago. They have all been superseded by tools and instruments every way better adapted to their purpose. The plow of 1776, was a rude and clumsy affair, requiring several yokes of cattle and the constant and arduous exertion of two men, besides the driver, to accomplish its work, which was inefficient at the best. The plow of 1876 is almost a work of art. The results of careful and repeated experiment, and the nicest deductions of scientific and mathematical knowledge, have been combined to give it the shape and structure best calculated to fit it for its proper work at the least expense to men and cattle. This is a great gain, economically considered. Much more land can be plowed at the same cost of labor than formerly, while at the same time, the work is done in a better manner. In the early days of our history, the industry of the people was almost wholly confined to agriculture, and they had little left of the products of the field, after supplying their own wants. Now, less than half of our working population are engaged in agriculture. One-fifth of our people to-day live in cities. But in addition to the supply of the wants of those who till the fields, and the millions of our people who are engaged in trade or manufactures, we are able to send abroad to meet the wants of other nations, more than 100,000,000 bushels of grain annually. This result is largely attributable to the improvement which has been made in agricultural implements. It has been estimated that the improvement in these implements which has been made during the last half-century, has doubled the productive power of every farm laborer. As an illustration of the effect of machinery in agriculture, we may take the threshing machine, now in so common use. Ten bushels of grain was considered a good day's work for a man threshing in the old way, with the flail. The threshing machine, with eighteen men to work it, will thresh, clean, weigh, put into sacks, and pile up ready to be taken away to market, two thousand bushels of grain in a day. That is, each man's labor would furnish more than a hundred bushels now in place of the ten under the old system. The extent to which machinery for agricultural purposes has come into use is remarkable. The demand for it has led to the establishment in our country of two thousand manufactories of farming implements. Another evidence of the demand for machinery in the processes of husbandry, may be found in the fact that the Patent Office issues more

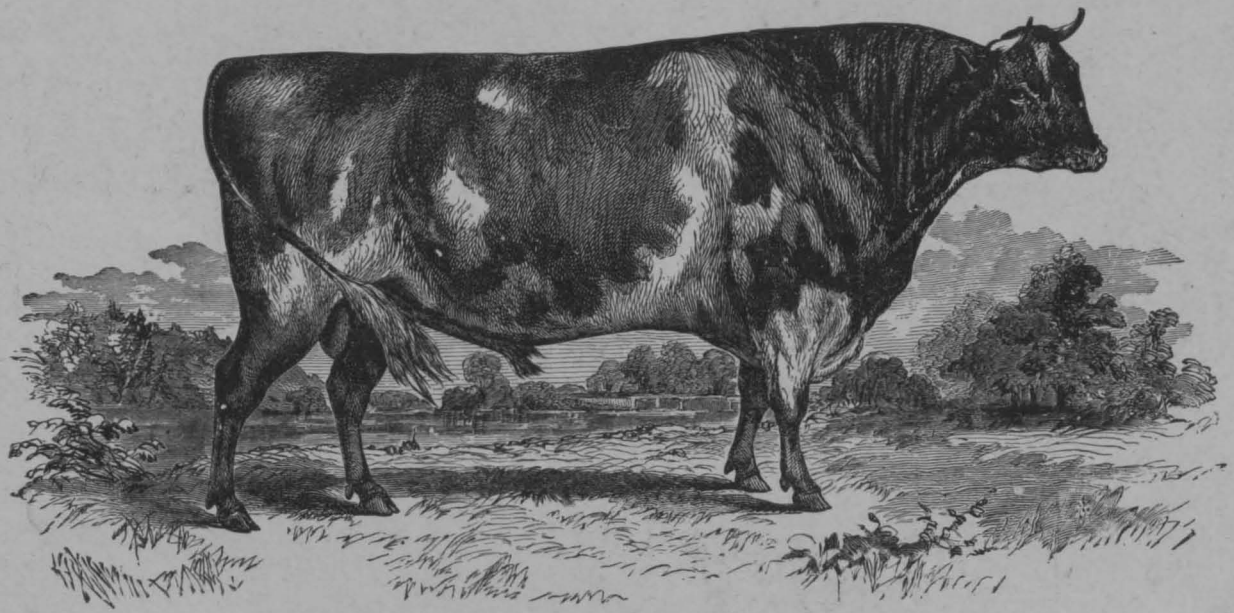


IMPROVED ESSEX.

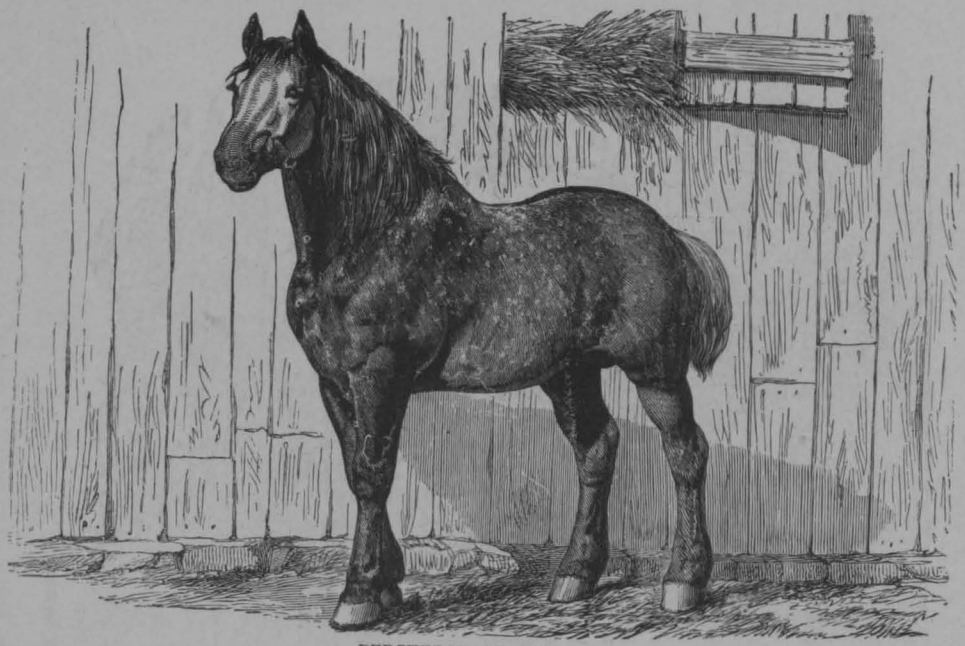


IMPROVED SUFFOLK.

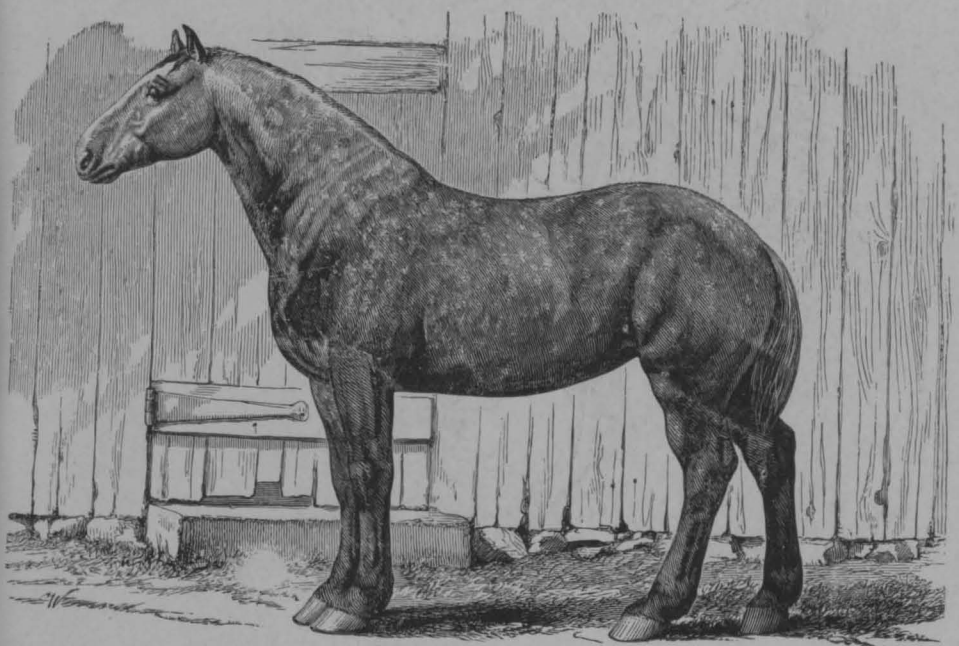




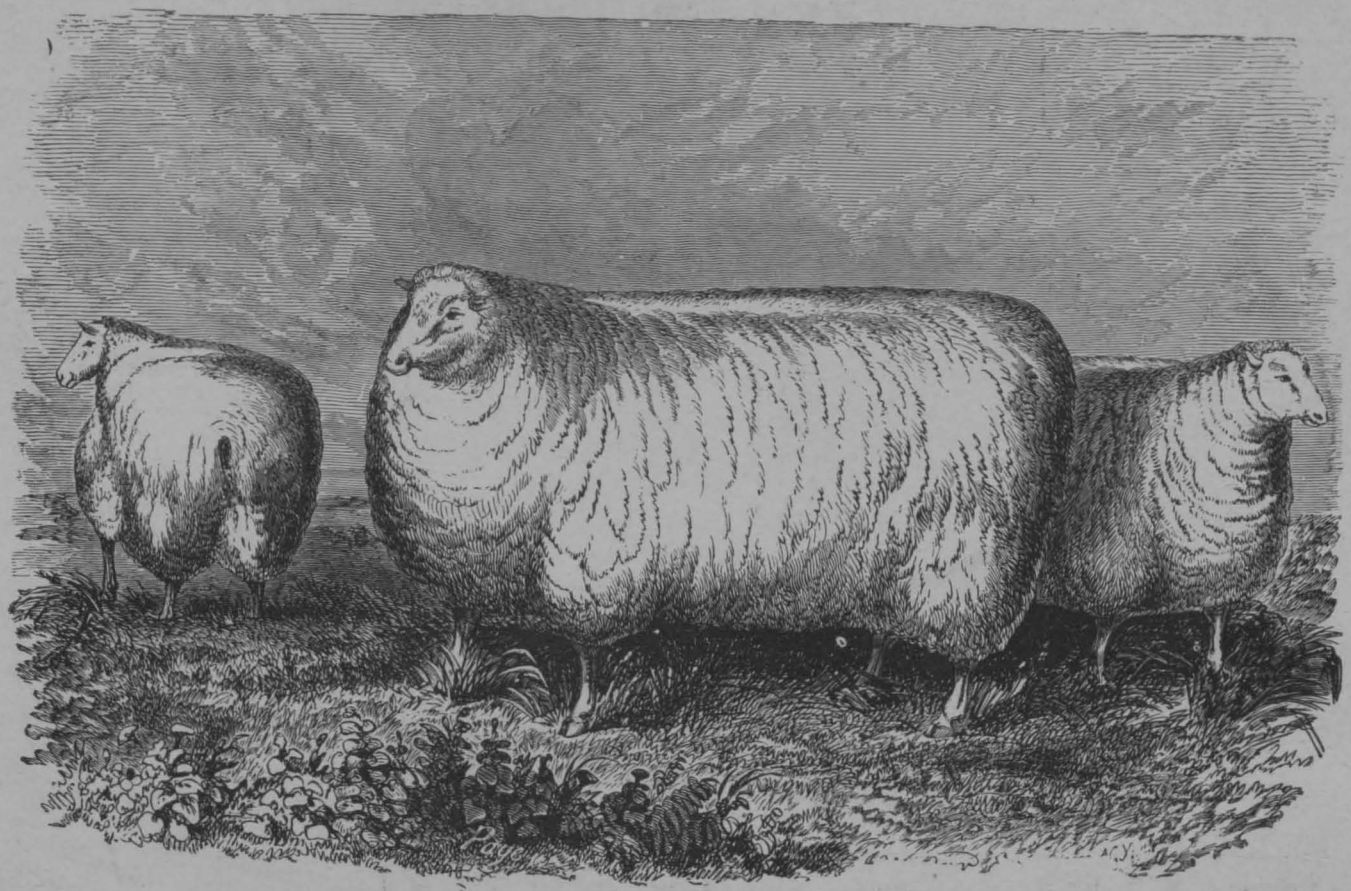
AYRSHIRE BULL.



PERCHERON STALLION.



PERCHERON MARE.



SOUTH DOWNS.

HAULING COTTON TO MARKET.

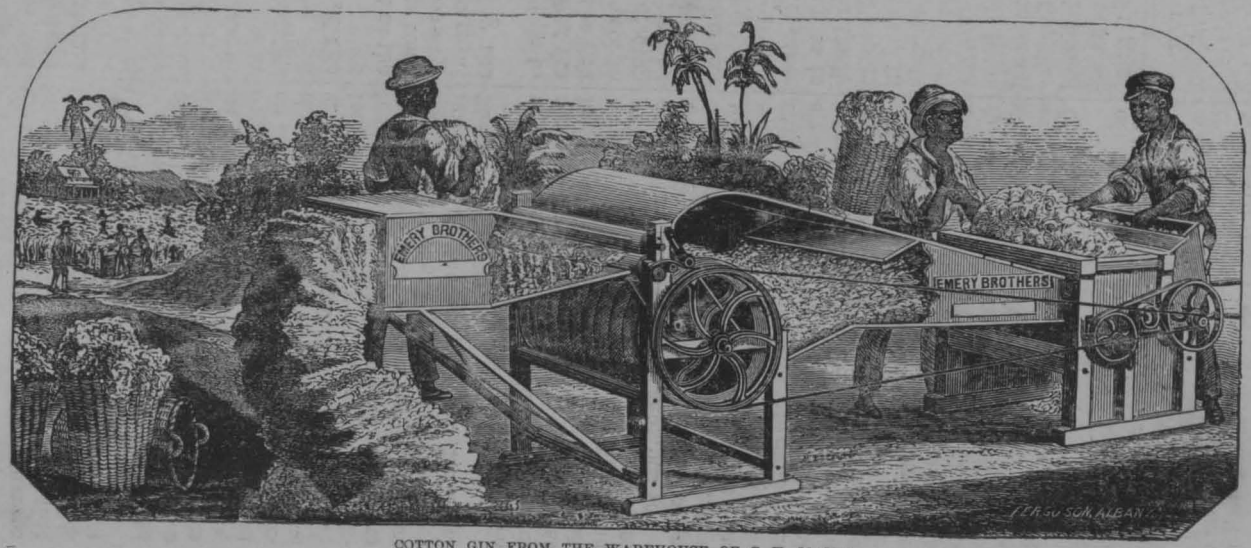
HAULING COTTON TO MARKET.

PICKING COTTON.

The season of cotton picking commences in the latter part of July, and continues without intermis-
sion to the Christmas holidays. The work is not heavy, but becomes tedious from its sameness. The
field hands are each supplied with a basket and bag. The basket is left at the head of the "cotton
rows;" the bag is suspended from the "picker's" neck by a strap, and is used to hold the cotton as it is
taken from the boll. When the bag is filled it is emptied into the basket, and this routine is continued
through the day. Each hand picks from two hundred and fifty to three hundred pounds of "seed cot-
ton" each day, though some negroes of extraordinary ability go beyond this amount.

If the weather be very fine, the cotton is carried from the field direct to the packing-house; but
generally it is first spread out on scaffolds, where it is left to dry, and picked clean of any "trash" that
may be perceived mixed up with the cotton. Among the most characteristic scenes of plantation life is
the returning of the hands at nightfall from the field, with their well-filled baskets of cotton upon their
heads. Falling unconsciously "into line," the stoutest leading the way, they move along in the dim twi-
light of a winter day, with the quietness of spirits rather than human beings.—*Harper's Magazine.*

COTTON CLEANING BEFORE THE INVENTION OF THE COTTON GIN.



COTTON GIN FROM THE WAREHOUSE OF C. V. MAPES.

than a thousand patents a year for improvements in agricultural implements and machinery. The rapid increase of the use of these machines also, is shown by the fact that while the value of those made in 1850 was reported to be $7,000,000, their annual production had risen in 1870 to $50,000,000. While the entire value of farming implements and machinery was estimated to be in 1850, $151,587,638, it is reported in the census of 1870, as $336,878,429. At the same time, the value of farms in the United States in 1850 is set down as $3,271,575,426; and in 1870 at $9,262,803,861. These figures show in an impressive way the rapid growth of the agricultural interest in this country.

If we turn now from this glance at the implements of agriculture, and notice some of the products of tillage in our country, we shall see yet more clearly the great advance which has been made during the century just closed.

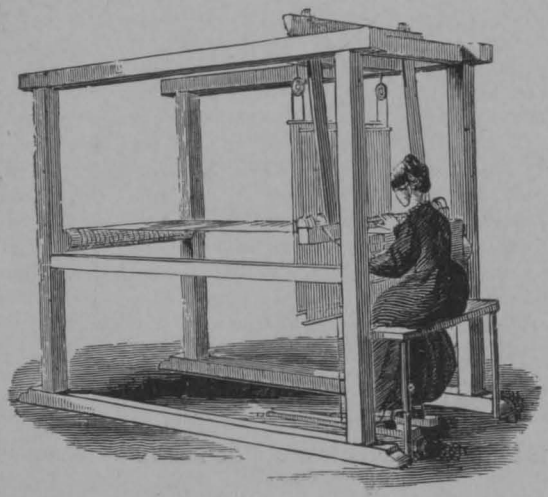
When the first English settlers came to this country, they found in the hands of the Indians, a new plant, useful for food, which soon became the leading crop of the colonists, and continues to be the leading crop of the country. The colonists learned from the Indians how to cultivate it; and to distinguish it from the various European grains, wheat, rye, barley, which the English call by the collective name "corn," they named this Indian corn. No other grain is equal to it in the many uses to which it is adapted, and in intrinsic qualities. It early became an article of export from the colonies; the amount exported in 1770 being 578,349 bushels. The exports of this grain increased but slowly, however, until the last forty or fifty years. Within that period, the opening of the rich fields of the West by means of the Erie canal and the various lines of railroad, together with the rapid introduction of agricultural machinery, have led to an enormous increase in the production of this great staple. In 1850 the yield of corn was nearly 600,000,000 of bushels, and in 1873 it was reported at 932,274,000. The growth of Wheat in our country is only second to that of corn. It was one of the earliest of exports; the colonists being permitted to send it not only to Europe, but to the West Indies and elsewhere. But as late as 1810, we sent abroad only 325,024 bushels of wheat, and 798,431 barrels of flour, while now, the annual yield of the wheat crop is nearly 300,000,000 bushels.

It is hardly more than a century since the potato ranked as one of the staple crops of the farm. It was not until 1840 that the census reported the amount of this crop, which was then 108,298,060 bushels; now it has reached 165,047,297 bushels.

As we have seen in our survey of the colonial period, tobacco early became the leading product of that time. For a while its cultivation extended rapidly; then as, owing to the method of culture, it proved an exhausting crop to the soil, the production fell off considerably in the regions where it had long been the chief agricultural staple. But its culture has been extended, during the last thirty years, into the northern and western portions of the country, and the annual yield may be set down as on the average not far from 300,000,000 pounds.

But if tobacco was the one great staple of colonial agriculture, and even formed, as it did, the medium of exchange, at least in the middle and southern colonies, another plant has gained an equal and greater prominence during the century of our national existence. Columbus found Cotton growing in Cuba, on his first voyage to this continent, and Pizarro found it in Peru as long ago as 1552. During the colonial period it was introduced here from the West Indies, and was quite extensively cultivated in gardens and on small patches of ground, all the way from Georgia to New Jersey, and was used for domestic purposes. A few bags of it were also exported even before the Revolution. But so little was it then cultivated, that a shipment of eight bales from Charleston in 1784 was seized by the custom-house officers in England, on the ground that so large an amount could not have been produced in the United States.

A great impulse was given to the growth of cotton in this country by the invention of the cotton-gin, by Eli Whitney, in 1793. This was a machine for separating the seeds of the cotton from the fiber in which they were imbedded, and the removal of which by hand was a slow and tedious process. The success of Whitney's machine was complete. It so cheapened the cost of cotton as to create new demands for it, and make it soon the most important article of commerce. The prosperity



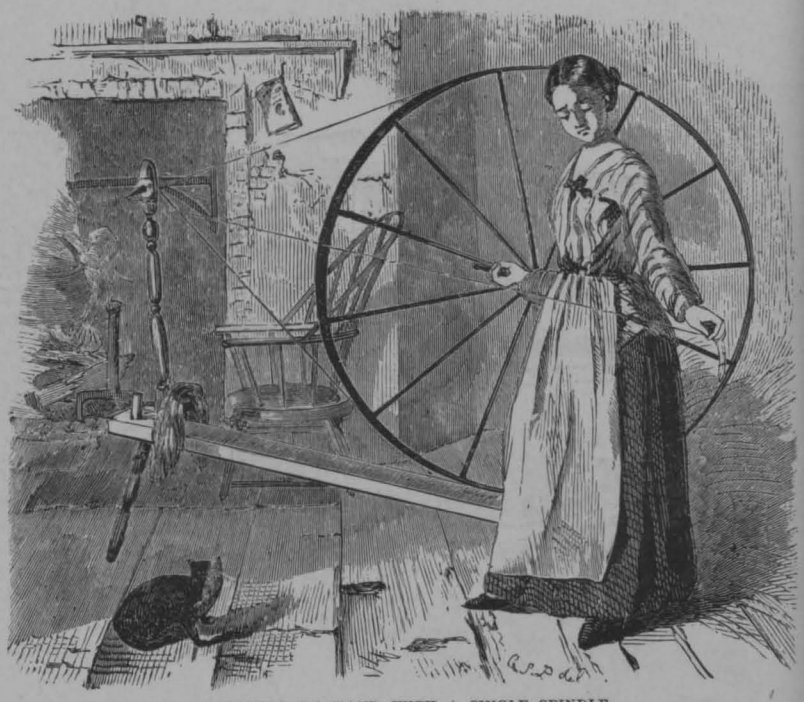
HAND LOOM.

POWER LOOM. ONE GIRL ATTENDS FOUR.

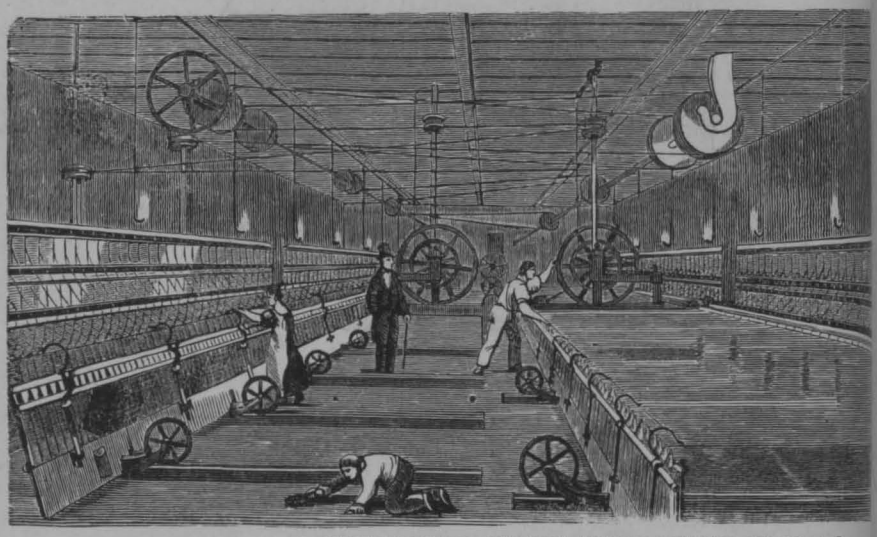
than a tho
ments in
chinery.
these mac
that while
was repor
productio
000. Wl
implemen
to be in 1
in the ce
At the s
the Unit
$3,271,57
803,861.
pressive
agricultu

If we t
implemen
of the p
we shall
advance
century j

When
this count
Indians, a
soon beca
ists, and
of the c
from the
to disting
grains, v
English c
they nan
grain is
which it
ties. It
from the
1770 bei
of this gr
until the
that peri
of the W
and the
with the
machine
crease i
staple.
nearly
1873 it
The grow
second t
earliest c
mitted t
to the W
late as 1
bushels



SPINNING BY HAND WITH A SINGLE SPINDLE.



THE MULE SPINNER IS GENERALLY DRAWN OUT AUTOMATICALLY BY STEAM OR WATER POWER.

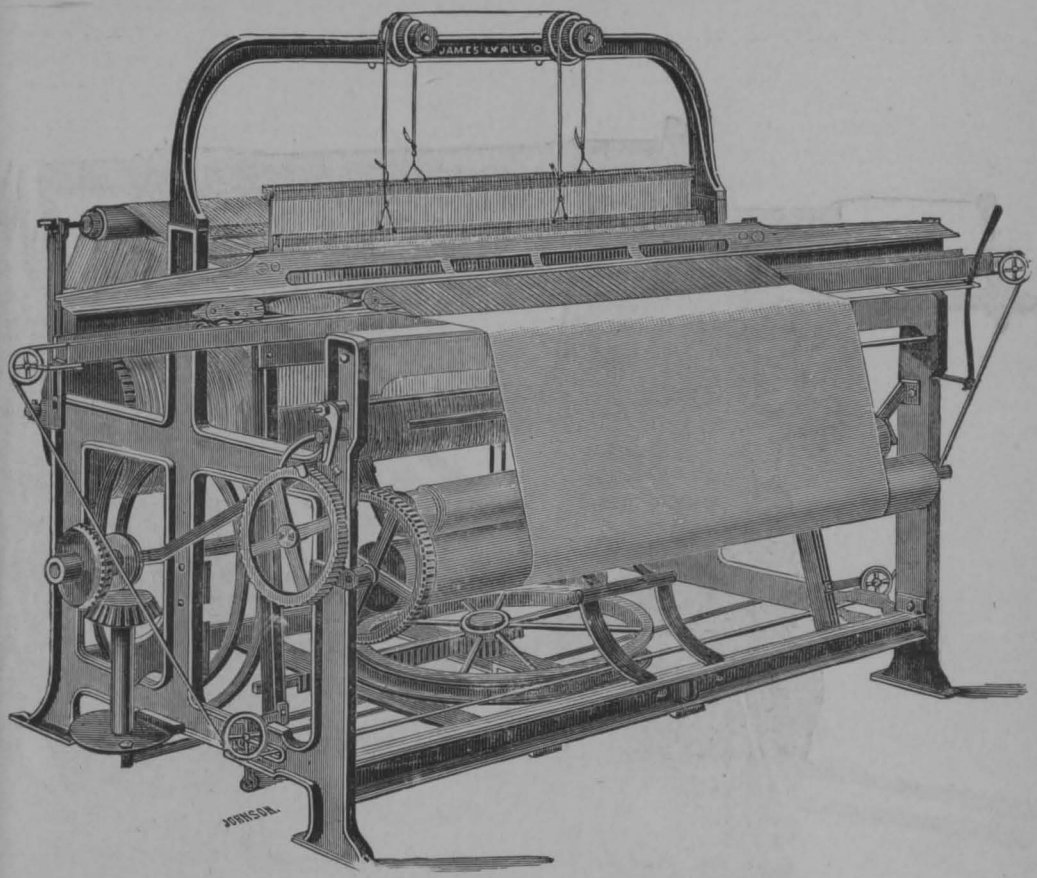


Fig. 1.—LYALL'S PATENT POSITIVE MOTION POWER LOOM—COMPLETE.

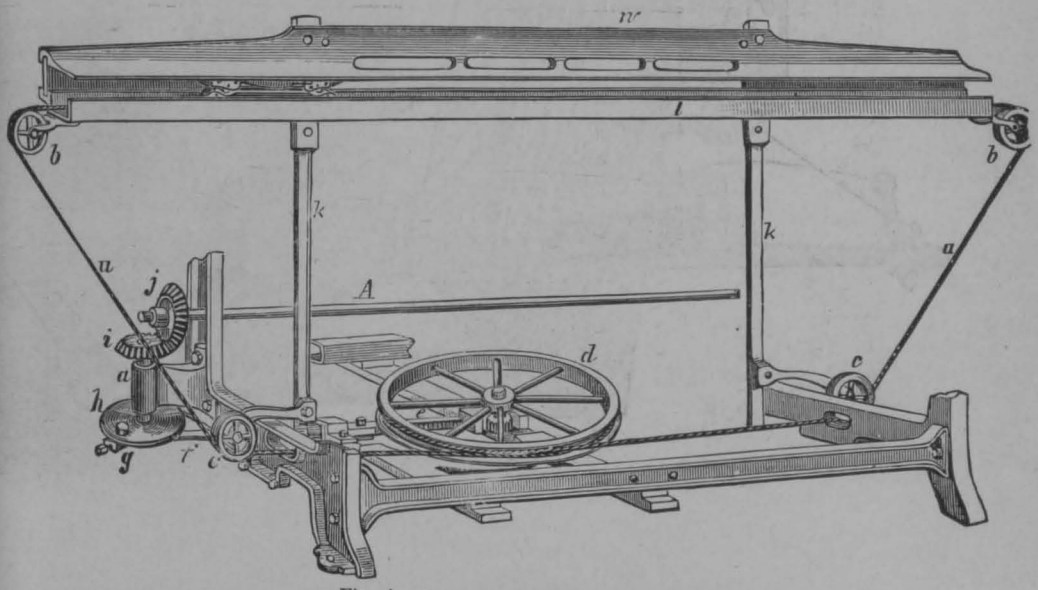
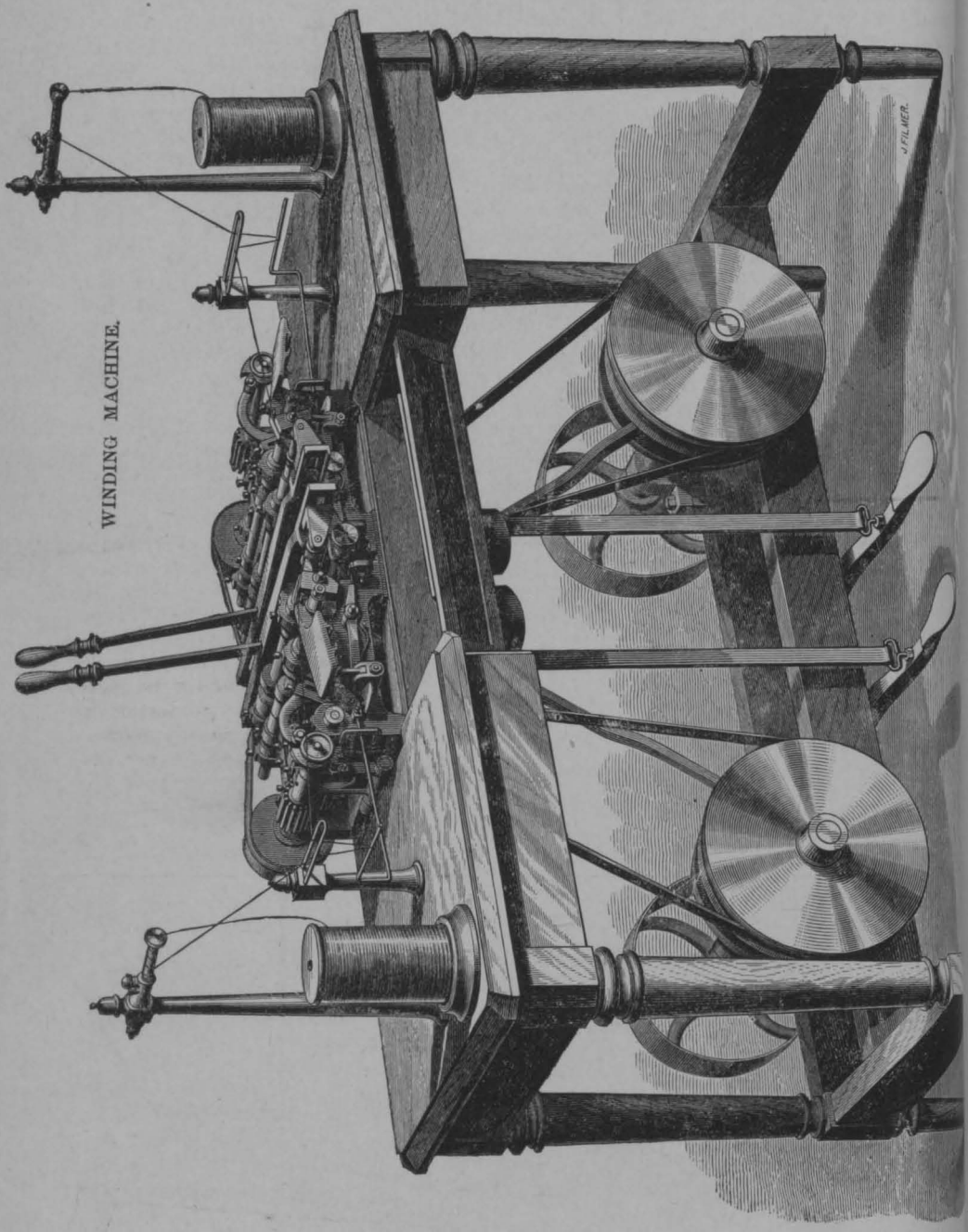


Fig. 4.—SHOWING MOTION OF SHUTTLE.

than a thou
ments in a
chinery.
these mach
that while
was report
production
000. Wh
implement
to be in 1
in the cer
At the sa
the Unite
$3,271,57
803,861.
pressive
agricultur

If we t
implement
of the pr
we shall
advance
century ju

When
this count
Indians, a
soon beca
ists, and
of the c
from the
to disting
grains,
English
they nan
grain is
which it
ties. It
from the
1770 bei
of this g
until the
that per
of the V
and the
with the
machine
crease i
staple.
nearly
1873 it
The gro
second t
earliest
mitted
to the V
late as
bushels



WINDING MACHINE.

and the peace of nations has been dependent upon our cotton crops. While cotton had been known from the earliest times, and in India, for instance, had been wrought into fabrics famous for their delicacy and beauty, yet so long as its preparation for the loom and its weaving were done by hand, it could not come into extensive use. But about the time of Whitney's invention, or a little before, Wyatt and Arkwright, and Hargreaves had invented and perfected their machines for spinning cotton, Cartwright had patented his power-loom, and Watt had prepared the steam-engine to furnish the power with which to spin and weave to any extent that might be necessary. The American cotton was found to be superior to that of India or any other country for manufacturing purposes. Soon, therefore, there arose a great demand for our cotton, and the monopoly of this staple was in our hands. In 1792 our export of cotton was only four hundred and nineteen bags, weighing 138,328 pounds. In three years it increased to more than 6,000,000 pounds. The increase in production and of exports was rapid and steady from that time onward, with the exception of the period of our late civil war. In 1825 the production of cotton in the United States was 720,027 bales, averaging 300 pounds to the bale. In 1872 the production was 3,930,508 bales, averaging 464 pounds to the bale, and the exports amounted to 2,679,986 bales. The bulk of our shipments of cotton go to Liverpool, the source of supply for the myriad spindles and looms of the great manufacturing district of England. But the wide range of the demand for our cotton will be seen from the following table of exports for the year 1872–3:

PORTS.	BALES.	PORTS.	BALES.
Liverpool	1,842,117	Barcelona	52,194
London	336	Santander	1,280
Glasgow	701	Malaga	7,753
Queenstown, Cork, etc.,	50,487	San Sebastian, etc.,	2,543
Cowes, Falmouth, etc.,	11,455	Genoa	36,470
Havre	251,172	Trieste	2,947
Rouen	1,731	Salerno	844
Amsterdam	32,404	Narva	5,903
Bremen	191,586	Cronstadt	56,227
Hamburg	24,691	Revel	51,426
Antwerp	25,387	Helsingfors	1,060
Rotterdam	15,706	Mexico	997
Gottenburg and		Other Ports	788
Stockholm	10,136		
Uddevalla	1,650	Total,	2,679,986

The cultivation of Sugar was hardly known in the colonial period, the first sugar plantation having been made in 1758. The growth of the sugar-cane is confined to the southern portion of our country, where alone the heat is sufficient to bring it to maturity. Louisiana and Texas yield the larger portion of sugar produced, though some is furnished by all the Gulf States. In 1861 the sugar crop of Louisiana amounted to 459,410 hogsheads. The civil war nearly destroyed the sugar industry of the country, and the production in 1870 had risen only to 144,881 hogsheads. But with the recovery of the southern states from the effects of the war, and especially with the introduction of machinery better calculated than that now in use to effect the extraction of the saccharine matter from the cane, the production of sugar is likely to be very largely increased.

We can only glance at some of the other agricultural products of the country, as showing the advancement which has been made during the century just closed The progress made in the cultivation of grasses, and the production of hay, is very noticeable. In the time of the early settlers the cattle almost starved sometimes for the lack of proper forage. A great change has taken place, both in Europe and in this country, in respect to the cultivation of grasses, both for pasturage and for the making of hay. The increase of production in our own country has been specially marked during the last half-century. According to the census of 1840, the hay crop of the United States was 10,248,168 tons. In 1850 it was 13,838,624 tons; in 1860 it was 19,083,896 tons, with a value of not less than two hundred and nine millions of dollars. And in 1870 it was 27,316,048 tons, with a value of not less than three hundred and fifty millions of dollars, a greater amount than that of any other agricultural product, except Indian corn. If to the hay crop be added that of grass, we have an amount nearly equal to that of corn and wheat combined.

The establishment of state and county agricultural societies, with their exhibitions, and the publication of various agricultural papers and magazines, as well as books, all or almost all within the last century, and most of them within the last half-century, have greatly stimulated the cultivation of the products of the garden, and the orchard, until now these have reached

than a thous
ments in ag
chinery. Tl
these machi
that while tl
was reporte
production
000. Whil
implements
to be in 18
in the cens
At the san
the United
$3,271,575,
803,861.
pressive w
agricultura
If we tu
implements
of the pro
we shall s
advance w
century ju
When t
this countr
Indians, a
soon becar
ists, and
of the cc
from the
to distingu
grains, w
English c
they nam
grain is
which it i
ties. It
from the
1770 beir
of this gr
until the
that peri
of the W
and the
with the
machine
crease i
staple.
nearly
1873 it
The gro
second t
earliest
mitted
to the V
late as
bushels

MAKING READY FOR CULTIVATION.

CULTIVATION OF SMALL FRUITS.

large proportions. The cultivation of fruit was rare in the early history of the country. At the close of the Revolution. and long afterwards, it would have been impossible to find in the whole country, the number and varieties of good fruits which may now be found in any good farming town. Most of the favorite varieties of the present day were then unknown. The fruit crop of the country was of so little importance, that it was not thought worthy of a place in our statistics even so late as 1830; now it amounts to nearly $50,000,000 annually. The American Pomological society was established in 1848. It is less than fifty years since two or three small nurseries supplied all the wants of our country and Canada. Now there are probably as many as three thousand nurseries, and probably a hundred millions of trees are sold every year, and their value is not less than $30,000,000. California has recently become as distinguished for its fruits and its grains, as formerly it was for its gold. Fifteen years ago, the apple trees in that state scarcely numbered a hundred thousand. Now there are more than two million trees in bearing. Of peach trees, there are more than a million and a half. Pears have become so abundant that they are brought over the Rocky Mountains and are found in the markets of our eastern states. Grape vines have increased from three hundred thousand in 1855, to forty millions in 1870. The value of the grape crop of California alone, is probably not less than $10,000,000; while that of the whole country is probably twice that. While there has been this great increase in the production of the fruits of the orchard, those of the garden have increased in like measure. The strawberry, only a few years ago, a luxury almost, is now so abundant in our markets, and so cheap, that it is within the reach of all. The same is true of many other small fruits, and of the nicer garden vegetables. The census of 1870 gives the value of market garden products at $20,719,229.

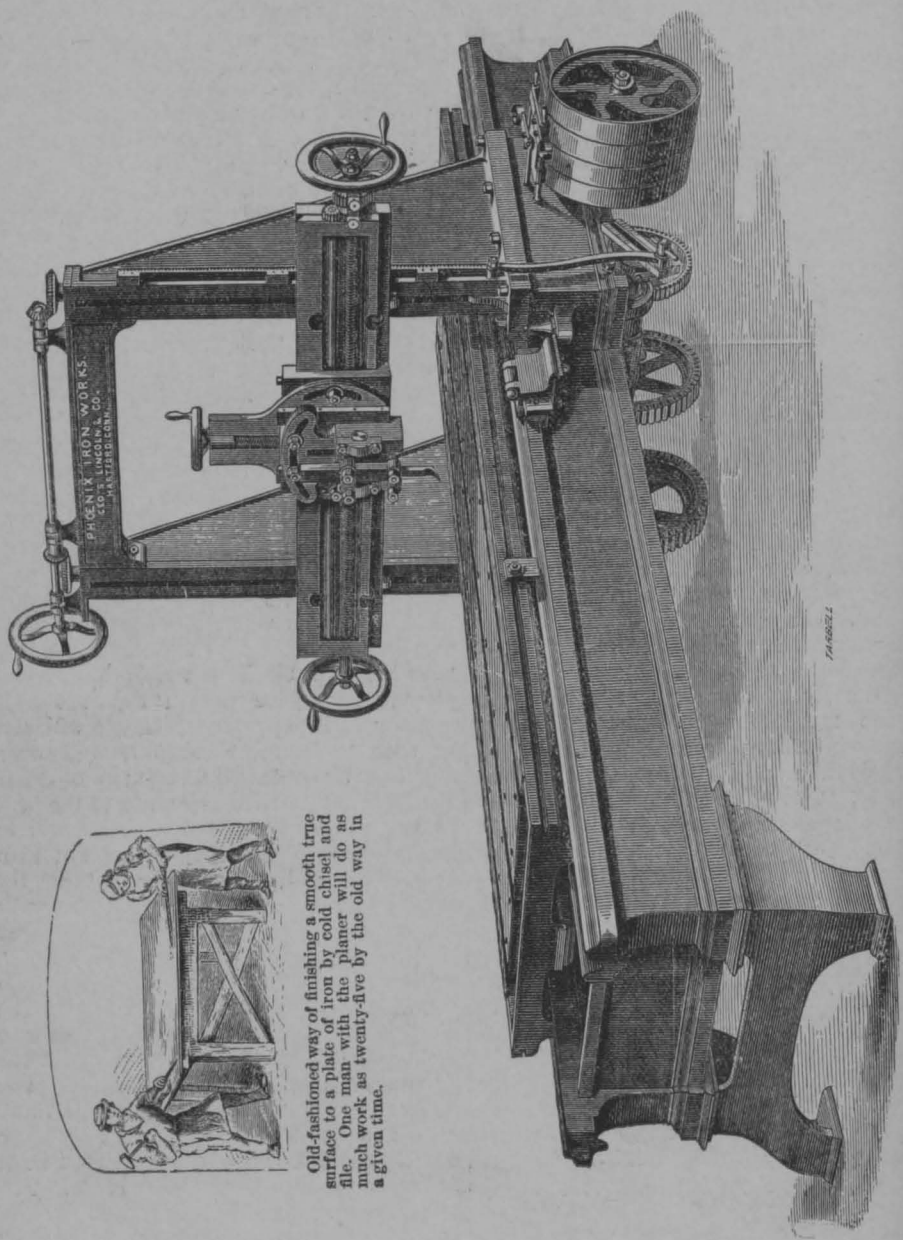
MECHANICAL INVENTIONS.

We have said that the century just closed, or the first century of our national history, is specially characterized by advancement in Agriculture and in Mechanical invention. It may fitly be called the Century of Invention. In whatever aspect or relation we look upon life in our country during this period, we shall be struck with its connection with mechanical inventions and contrivances, and cannot but see how greatly life has been influenced and modified by them. If we look at the life of the farmer, for example, we shall see this. Before the Revolution, the farmer had few tools and those of a rude and clumsy sort. He had a plow, and yet this was so rare that one plow often did service for a whole neighborhood, and it was an inefficient thing at the best. It was hardly an improvement upon the plow of the ancient Romans, or that of the rudest people we now know. The farmer also had a hoe, a spade, a pitchfork, a scythe, and an axe. All these were rough and clumsy instruments however, and required a great outlay of human strength in their use. The farmer's life was then almost wholly a work of manual toil and sheer muscular exertion. Contrast it with the farmer's life at the present day. Go into the husbandman's barn. You will see mechanical inventions all around you. The very structure of the building abounds with them. And as you go out into the fields you find that not only does every farmer have his plow, but he probably has several plows, adapted to use in different soils and for various purposes. These will also be seen to be most carefully and even scientifically contrived instruments. They are so adjusted with reference to the laws of traction and resistance as greatly to lessen exertion on the part both of man and beast. It has been estimated that the annual saving of labor in our country by the improved mechanism of the plows now in use amounts in value to $10,000,000, and that $1,000,000 is also saved yearly in the cost of the plows themselves. The plow is but an illustration of what is true in respect to all the tools used by the agriculturist. Mechanical ingenuity has improved when it has not superseded those in use a century ago, while it has also added to them a great number of most useful and labor-saving contrivances. The old, heavy, clumsy blade called a hoe, which exhausted a good deal of strength in merely swinging its weight through the air, has been supplanted by a variety of light instruments which do its work, not only in an easier but in a more effec-

than a thousa
ments in agr
chinery. Th
these machin
that while th
was reported
production h
000. While
implements
to be in 185
in the censu
At the sam
the United
$3,271,575.4
803,861. T
pressive wa
agricultural

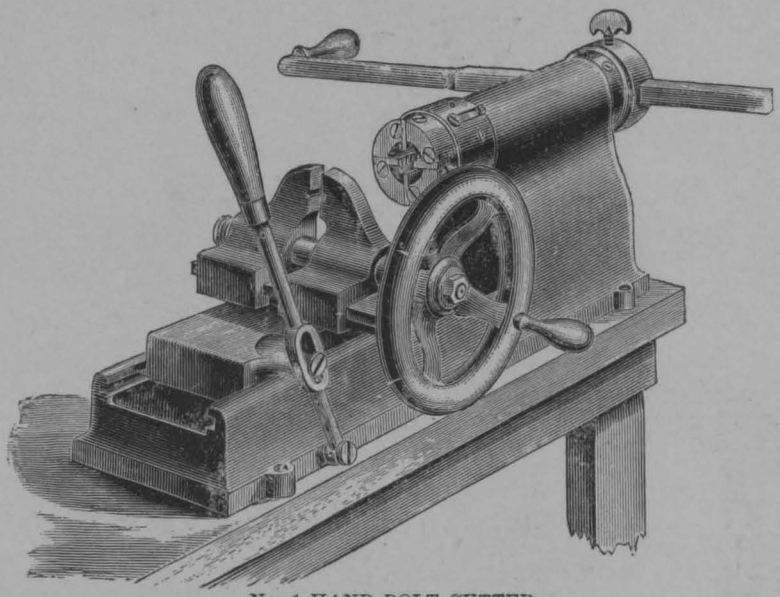
If we tur
implements
of the prod
we shall se
advance wh
century just

When th
this country
Indians, a n
soon becam
ists, and c
of the cou
from the I
to distingui
grains, wh
English cal
they name
grain is e
which it is
ties. It e
from the c
1770 being
of this gra
until the l
that perio
of the W
and the v
with the r
machinery
crease in
staple. I
nearly 6
1873 it
The grow
second to
earliest of
mitted to
to the W
late as 18
bushels

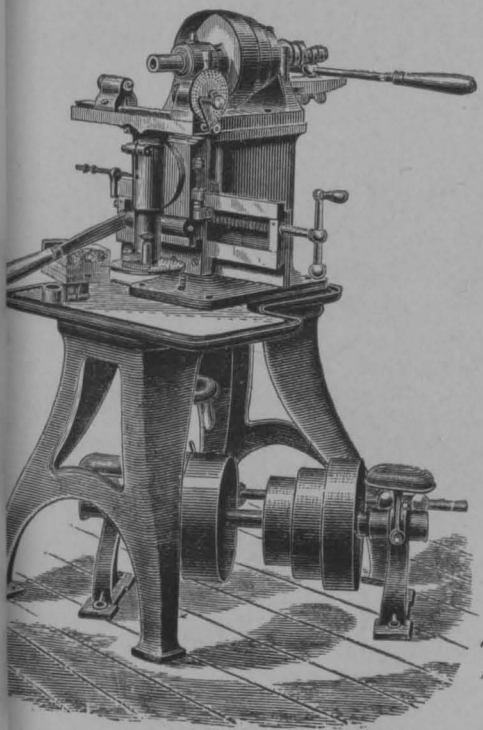


PLANER FOR PLANING IRON.

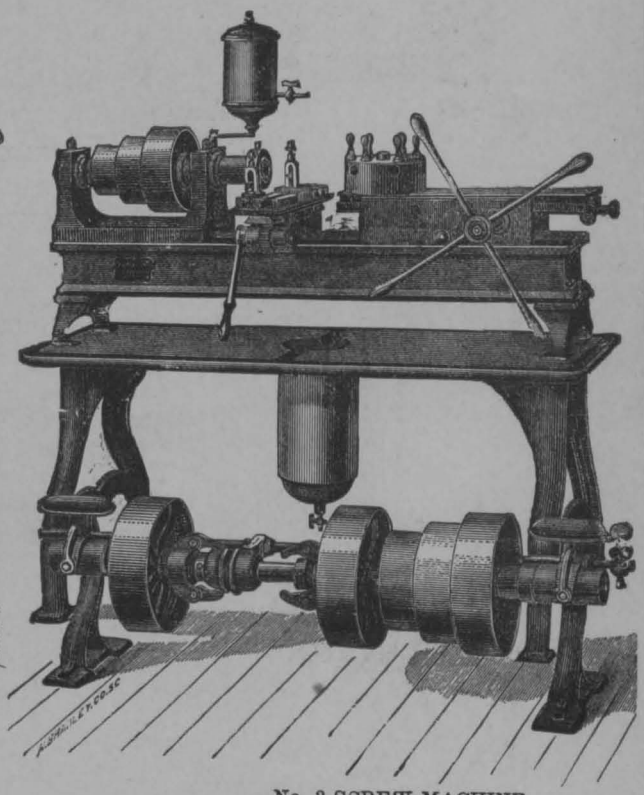
Old-fashioned way of finishing a smooth true surface to a plate of iron by cold chisel and file. One man with the planer will do as much work as twenty-five by the old way in a given time.



No. 1 HAND BOLT-CUTTER.



INDEX MILLING MACHINE.



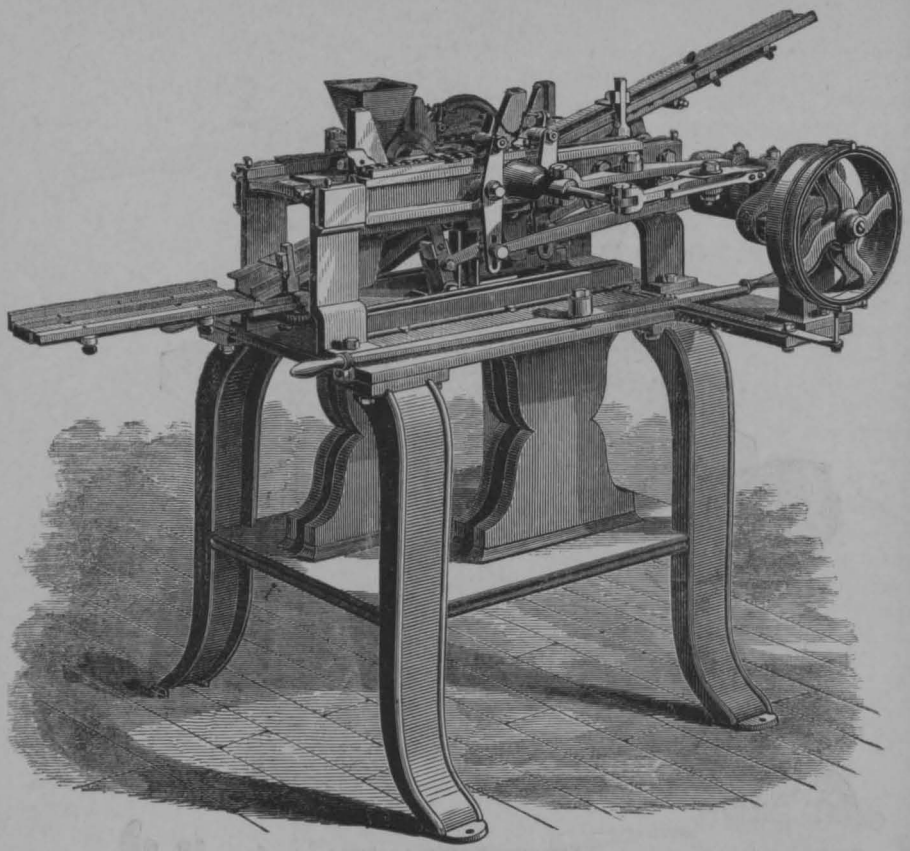
No. 3 SCREW MACHINE.

The Pratt & Whitney Company, Hartford, Conn.

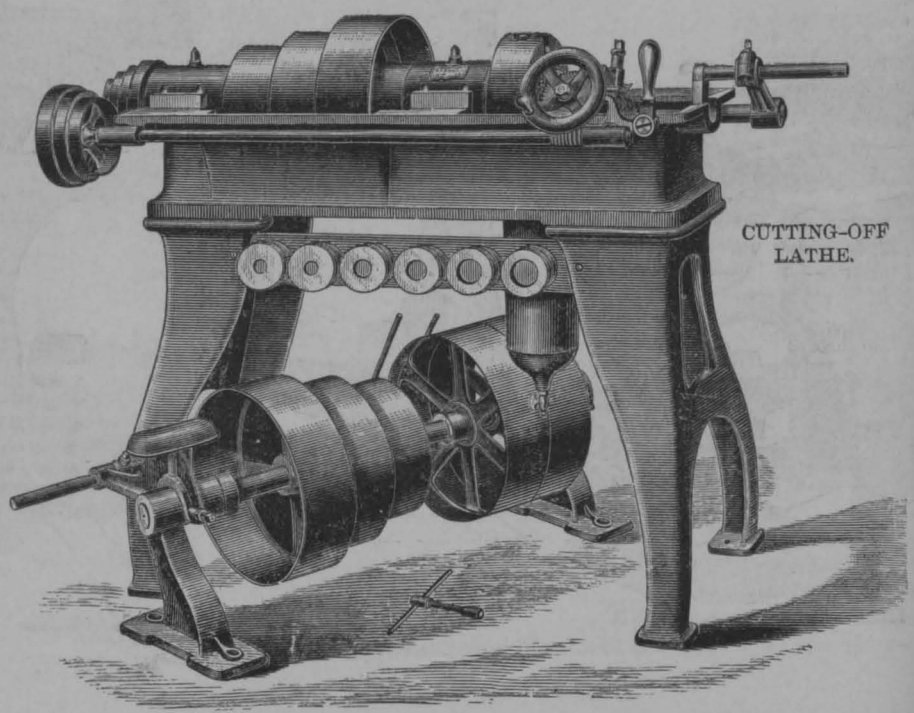
than a thousan
ments in agri
chinery. The
these machine
that while the
was reported t
production ha
000. While
implements a
to be in 1850
in the censu
At the same
the United S
$3,271,575,4
803,861. Th
pressive way
agricultural i

If we turn
implements o
of the produ
we shall see
advance wh
century just

When the
this country,
Indians, a ne
soon became
ists, and co
of the coun
from the In
to distinguis
grains, wh
English call
they named
grain is eq
which it is
ties. It ea
from the co
1770 being
of this grai
until the la
that period
of the We
and the va
with the ra
machinery,
crease in
staple. In
nearly 60
1873 it
The growth
second to
earliest of
mitted to
to the We
late as 18
bushels o



TICKETING MACHINE.



CUTTING-OFF LATHE.

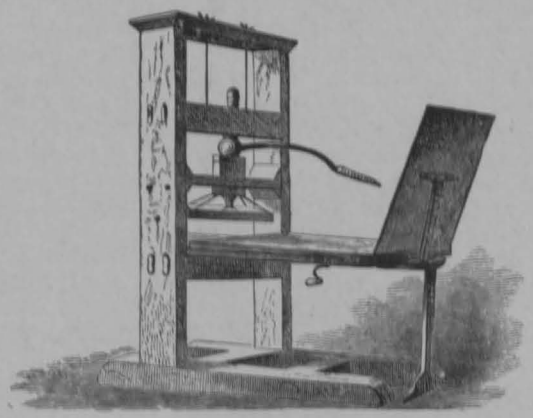
tive manner. The horse-hoe and the cultivator in many forms have released the farmer from much of the arduous labor of former days, while they have enabled him at the same time to work more advantageously than before. So the scythe has not only been greatly improved, but has led to the invention of the mowing machine, by which one man does the work formerly done by six, and the sickle has given place to the harvester, and the fork to the tedder. In fact, with our contrivances of various kinds, our drills, and weeders, and cultivators, and numerous other tools and machines, it may be said that from the sowing of the seed to its ingathering and its preparation for food, the whole work of the husbandman is done by the aid of mechanical contrivances which lighten his labor and make it greatly more efficient. And these tools and contrivances have all come into being during the century now closing. The farmer's life is completely changed by them. Farming is made by them an altogether different thing from what it was.

Similar is the case with the other occupations and callings of men. The mechanic of this day calls to his aid hundreds of ingenious tools and contrivances which were unknown a century ago, and which, by enabling him to do his work both better and quicker than formerly, increase the demand for it. The surgeon and dentist have in daily use manifold ingenious inventions which were altogether unknown in the time of our forefathers. Indeed there is no class among all the classes of our people which does not reveal in its daily life its indebtedness to the mechanical inventions of the century just closed. Our houses and our workshops, our stores and our factories, are full of them. The records of the Patent Office are very instructive in regard to this subject. Previous to 1790, patents securing to the inventors the exclusive right to use their inventions were granted by the states separately and not by the general government. But the character of the century, as one of mechanical invention, is shown very clearly and impressively by the statistics of our own patent office as well as that of Great Britian. For the ten years ending with 1800, there were 306 patents issued in this country. In the next decade, the number increased to 1,086. From 1830 to 1840, the number arose to 5,488. In the decade ending with 1860, 23,140 patents were issued and during the ten years ending with 1870, the number granted reached 79,612. That there has been a peculiar activity of the inventive powers of our own people, is shown by the fact that, with a population in the two countries not far from the same, there have been issued in the United States during the last decade mentioned, more than twice as many patents as were issued in the same time by the patent-office of Great Britain. The repressive laws of England, forbidding as they did all forms of industry that would come in competition with her workmen at home, prevented the development of mechanical ingenuity here, except to a limited degree. But when those restrictions were removed by our becoming an independent nation, our free institutions as well as our necesities as a new community, far removed from other countries, stimulated at once the inventive faculties of our people. Single inventions might be mentioned which have been of great benefit not only to our nation but to the world. It was but a few years after the close of the war of Independence, that Whitney invented the cotton gin, which has been the instrument of developing an industry second in importance to no other in our country. It has produced clothing material adapted to the wants of the most civilized as well as the rudest nations of the world, and by thus offering so desirable a fabric, it has led to many important though subsidiary inventions, which have brought the manufacture of cotton to its present state of perfection, and given employment and support to thousands and tens of thousands in the workshops of our own country and of Europe. The inventions of Evans and Rumsey, and Fitch, and Fulton, in connection with the steam-engine and the steamboat, have revolutionized the travel and the commerce of the world. Before the invention of the steam-engine the coal of England and the greater coal fields of our own country were almost valueless. But with that invention and the use of coal for the generation of steam, there began a constantly increasing demand for this new fuel, as a motive power for the world's industry. It stimulated mechanical invention by providing the power requisite for

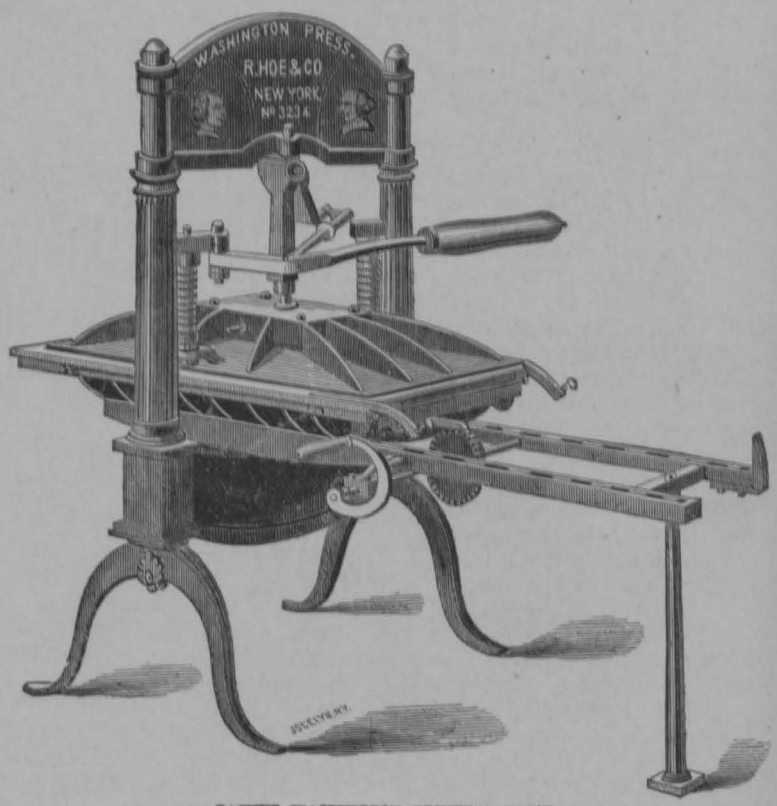
than a thousan
ments in agric
chinery. The
these machine
that while the
was reported t
production ha
000. While
implements a
to be in 1850,
in the census
At the same
the United S
$3,271,575,42
803,861. Th
pressive way
agricultural in

If we turn
implements of
of the produ
we shall see
advance whi
century just

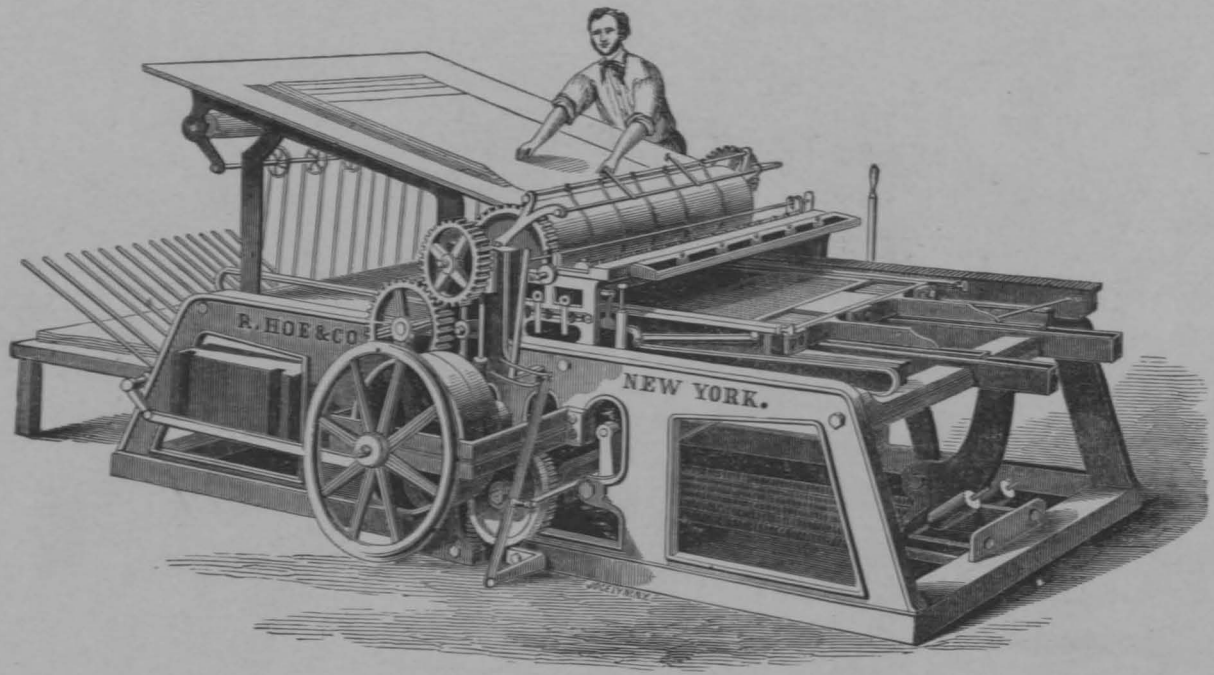
When the
this country, t
Indians, a ne
soon became
ists, and co
of the coun
from the In
to distinguish
grains, whe
English call
they named
grain is equ
which it is a
ties. It ear
from the col
1770 being
of this grain
until the las
that period,
of the West
and the vari
with the rap
machinery,
crease in t
staple. In
nearly 600,
1873 it w
The growth
second to th
earliest of e
mitted to s
to the West
late as 1810
bushels of



FRANKLIN PRESS.



PATENT WASHINGTON PRINTING PRESS.

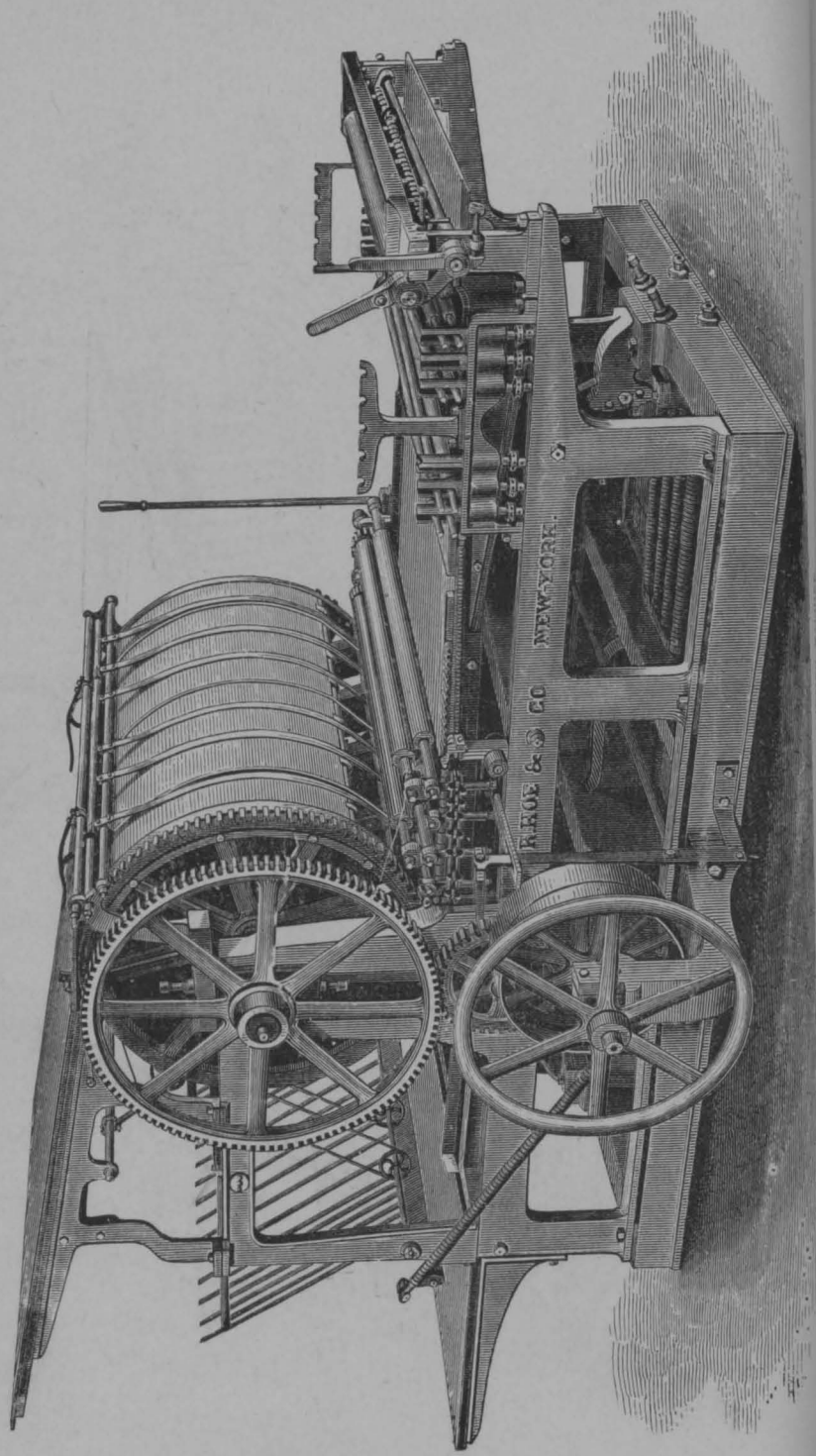


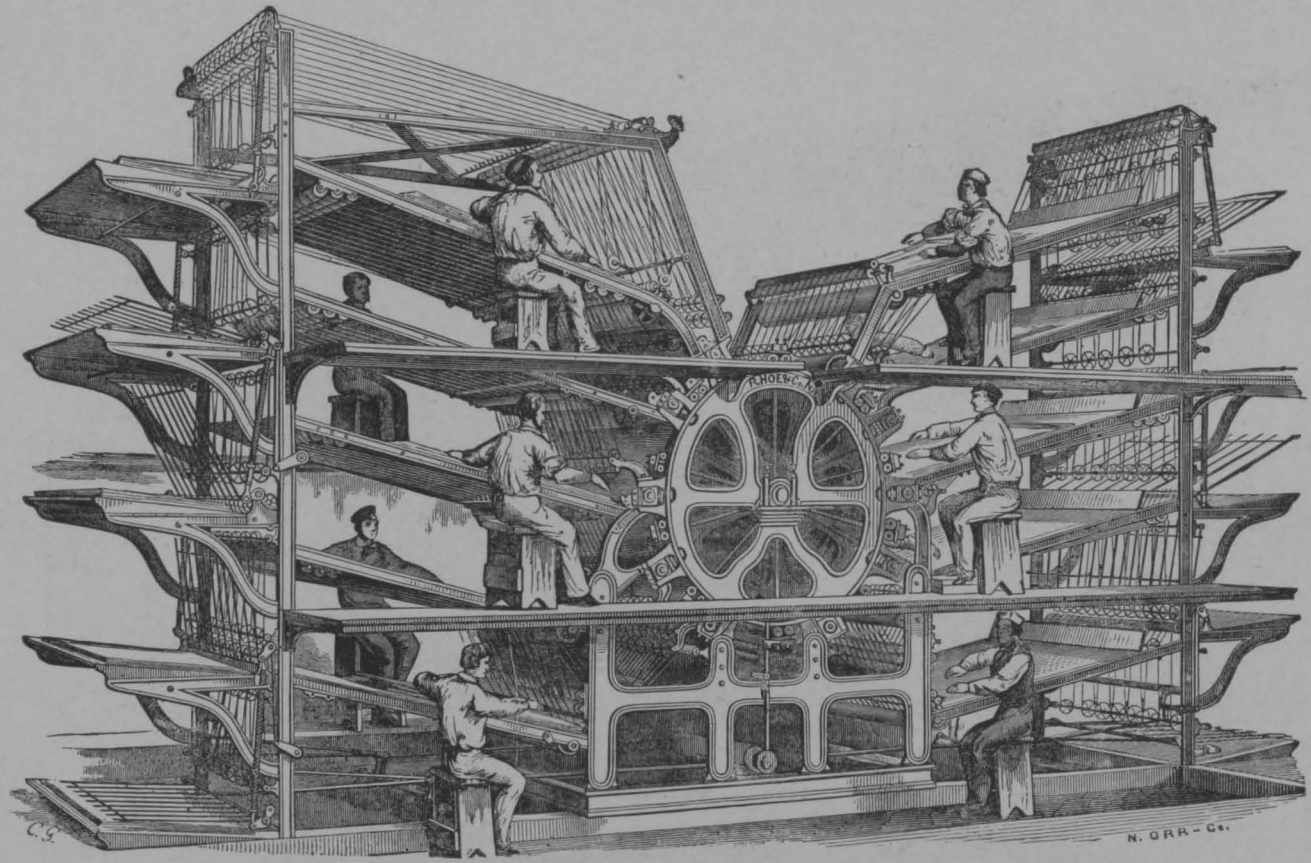
PATENT SINGLE SMALL CYLINDER PRINTING MACHINE.

than a thousand
ments in agric
chinery. The
these machines
that while the
was reported to
production had
000. While t
implements an
to be in 1850,
in the census
At the same t
the United St
$3,271,575,426
803,861. Thes
pressive way
agricultural int

If we turn n
implements of a
of the product
we shall see y
advance which
century just cl

When the fi
this country, th
Indians, a new
soon became th
ists, and conti
of the country
from the Indi
to distinguish it
grains, wheat,
English call by
they named t
grain is equal
which it is ada
ties. It early
from the coloni
1770 being 57
of this grain in
until the last f
that period, th
of the West b
and the variou
with the rapid
machinery, ha
crease in the
staple. In 18
nearly 600,00
1873 it was
The growth of
second to that
earliest of exp
mitted to sen
to the West In
late as 1810, w
bushels of wh



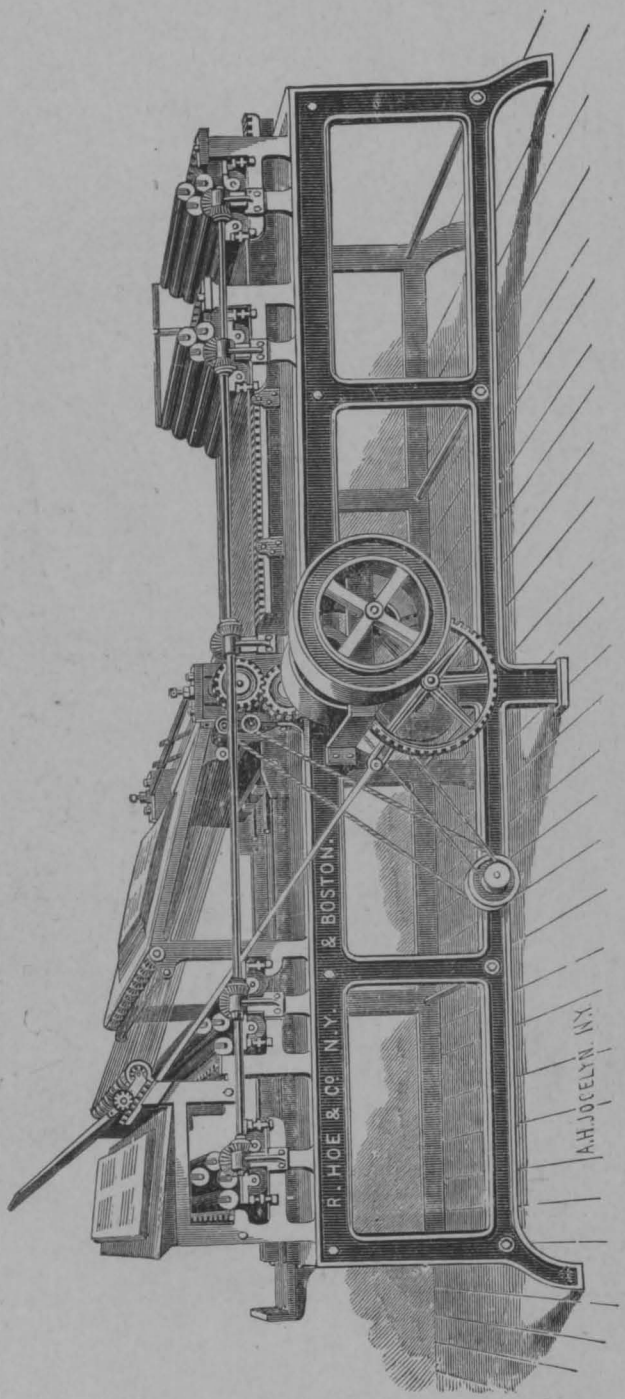


TEN CYLINDER TYPE-REVOLVING PRINTING MACHINE.

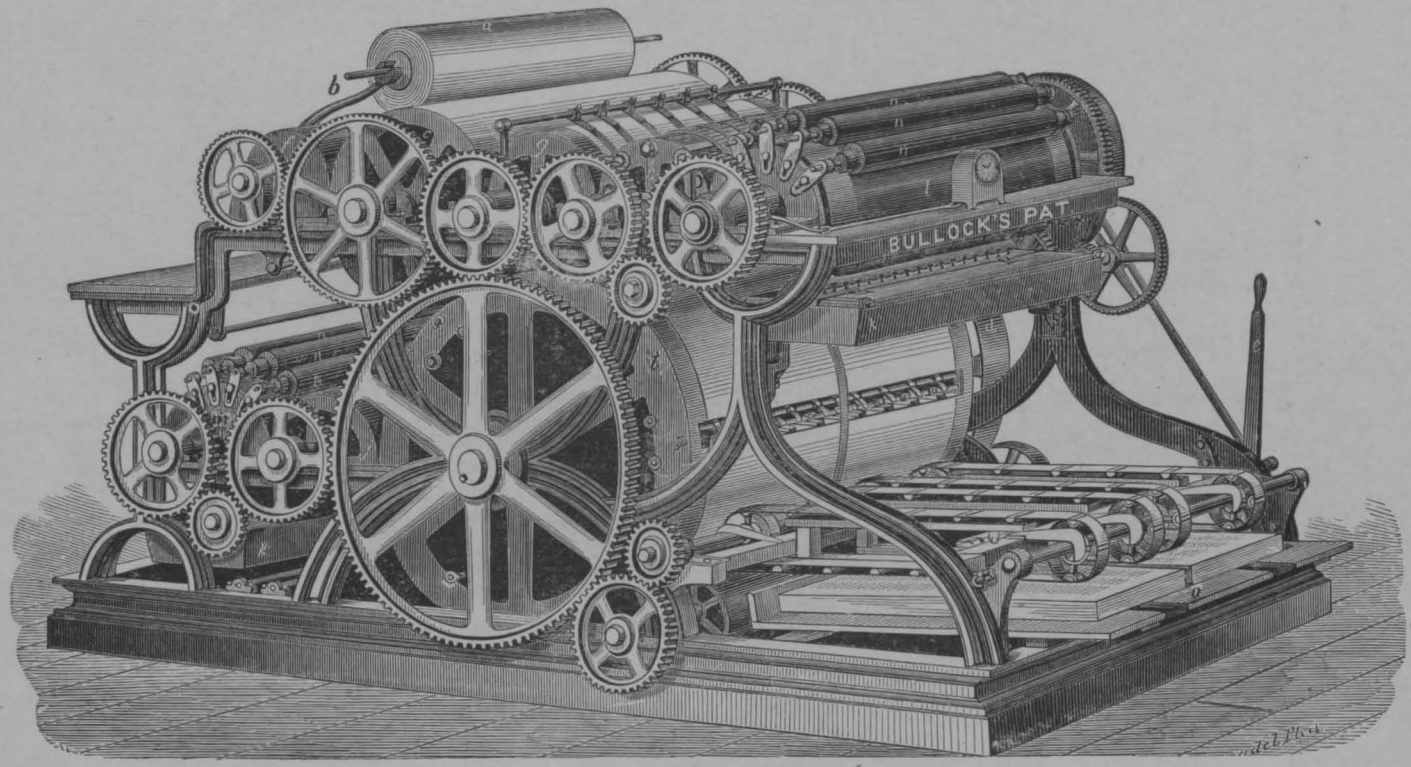
than a thousand
ments in agricu
chinery. The r
these machines
that while the v
was reported to
production had
000. While th
implements and
to be in 1850, $
in the census c
At the same ti
the United Sta
$3,271,575,426;
803,861. These
pressive way t
agricultural inte

If we turn nc
implements of a
of the products
we shall see ye
advance which
century just clo

When the firs
this country, the
Indians, a new p
soon became the
ists, and contin
of the country.
from the India
to distinguish it
grains, wheat,
English call by
they named thi
grain is equal
which it is adap
ties. It early
from the colonie
1770 being 578.
of this grain inc
until the last fo
that period, the
of the West by
and the various
with the rapid i
machinery, hav
crease in the
staple. In 185
nearly 600,000
1873 it was
The growth of
second to that o
earliest of expo
mitted to send
to the West Ind
late as 1810, we
bushels of whe



FOUR COLOR PRINTING MACHINE.



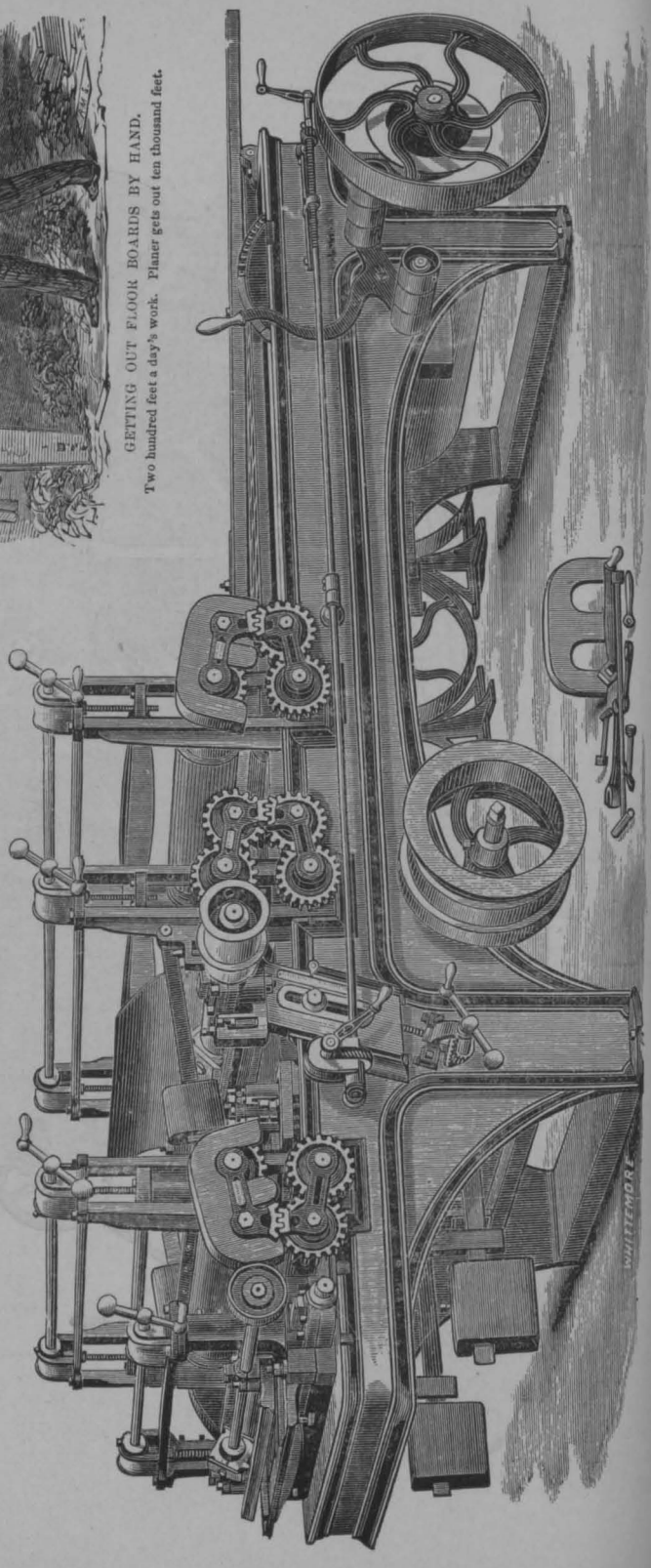
THE BULLOCK PRINTING PRESS

than a thous
ments in ag
chinery. T
these machi
that while tl
was reporte
production
000. Whil
implements
to be in 185
in the censu
At the sam
the United
$3,271,575,4
803,861. T
pressive wa
agricultural i

If we turn
implements o
of the produ
we shall see
advance whi
century just

When the
this country,
Indians, a ne
soon became
ists, and cor
of the coun
from the In
to distinguish
grains, whea
English call l
they named
grain is equa
which it is ad
ties. It earl
from the colo
1770 being 5
of this grain i
until the last
that period, t
of the West
and the vario
with the rapid
machinery, ha
crease in th
staple. In 1
nearly 600,0
1873 it was
The growth of
second to that
earliest of exp
mitted to sen
to the West In
late as 1810, w
bushels of wh

GETTING OUT FLOOR BOARDS BY HAND.
Two hundred feet a day's work. Planer gets out ten thousand feet.



the effective, and at the same time most economical use of all possible machineries. It set spindles and wheels in motion every where. It covered the sea with ships that held their course despite storms and adverse winds, and it covered the land with a net-work of railways that offered every facility to transit and to travel, and bound states and nations together in the interests of mutual commerce and a common interest. And crowning these inventions and developments of industry, the invention of the magnetic telegraph by Morse, has almost annihilated time and space, has brought the ends of the world together in closest intercourse, and chronicled for each man's daily reading at his fireside, the passing history of the world. Through its reports published by our signal service and in other ways, it has given increased safety to commerce, and added certainty and confidence to trade; it has given assurance to the husbandman amid the vicissitudes of the weather; it has lent itself as the aid of Justice by its swift report of crime and its speedy pursuit of the culprit, and it has lessened the anxieties of domestic and social life by its instant replies to all inquiries of interest and affection.

These are some of the more marked mechanical triumphs of the first century of our history. But all along that century there have been others only less important than these. The improvement of the printing-press, from the slow and crude machine which Franklin used, to the lightning press of Hoe, or the perfected press of Walter or Campbell, may be mentioned as one. This has multiplied books and papers and made knowledge cheap and accessible to the million. The inventions in connection with the manufacture of paper, by which, instead of the sheets made one by one, by the slow and tedious hand-process, it is reeled off to us in rolls measured by the mile in length, have called for the new presses and made possible their swift distributions of news and their cheap supply of books.

The sewing machine, an invention of the last few years, has offered its aid as a nimble servant of the household, and may almost be said to have revolutionized domestic life. The steam hammer of Nasmyth, doing at once the most ponderous and most delicate work; the revolver pistol of Colt and the Gatling gun, exceeding in execution the famous Mittrailleuse; the lathe and the numerous machines and engines for working in wood and metal; we have room only thus to allude to. To describe them at all or particularize them, would be to go quite beyond our limits. To go into one of our great machine-shops, is to go into a museum of wonders, where one is astonished to find not only to how many things machinery is applied, but how delicately and ingeniously the various machines and engines work for the accomplishment of their results. A living spirit seems to be in the wheels, as in the vision of Ezekiel.

And all this is the product of the last century. It has all come into being since the declaration of our independence.

MANUFACTURES.

The whole manufacturing system is the outgrowth of these mechanical inventions of the century past, as it has also stimulated them. The factory system may be said to have begun with the building of Slater's cotton mill in 1790. He first successfully introduced into this country the inventions of Arkwright, Hargreaves, Crompton, and Cartwright, which had been getting a foothold in England during the previous twenty years. Before these inventions, and that of Whitney, by which the cotton fiber was readily separated from the seed, cotton had been spun and woven in many countries by the slow and tedious process of hand labor. The cotton fabrics of India, where the manufacture of cotton by hand originated, had long been famous for their delicacy and exquisite finish. Old writers speak of their "fairy-like" texture. The Rev. Mr. Ward states that muslins are made in India so fine that four months are required to make one piece, which is then worth five hundred rupees ($250). "When this is laid on the grass, and the dew is on it, it cannot be seen."

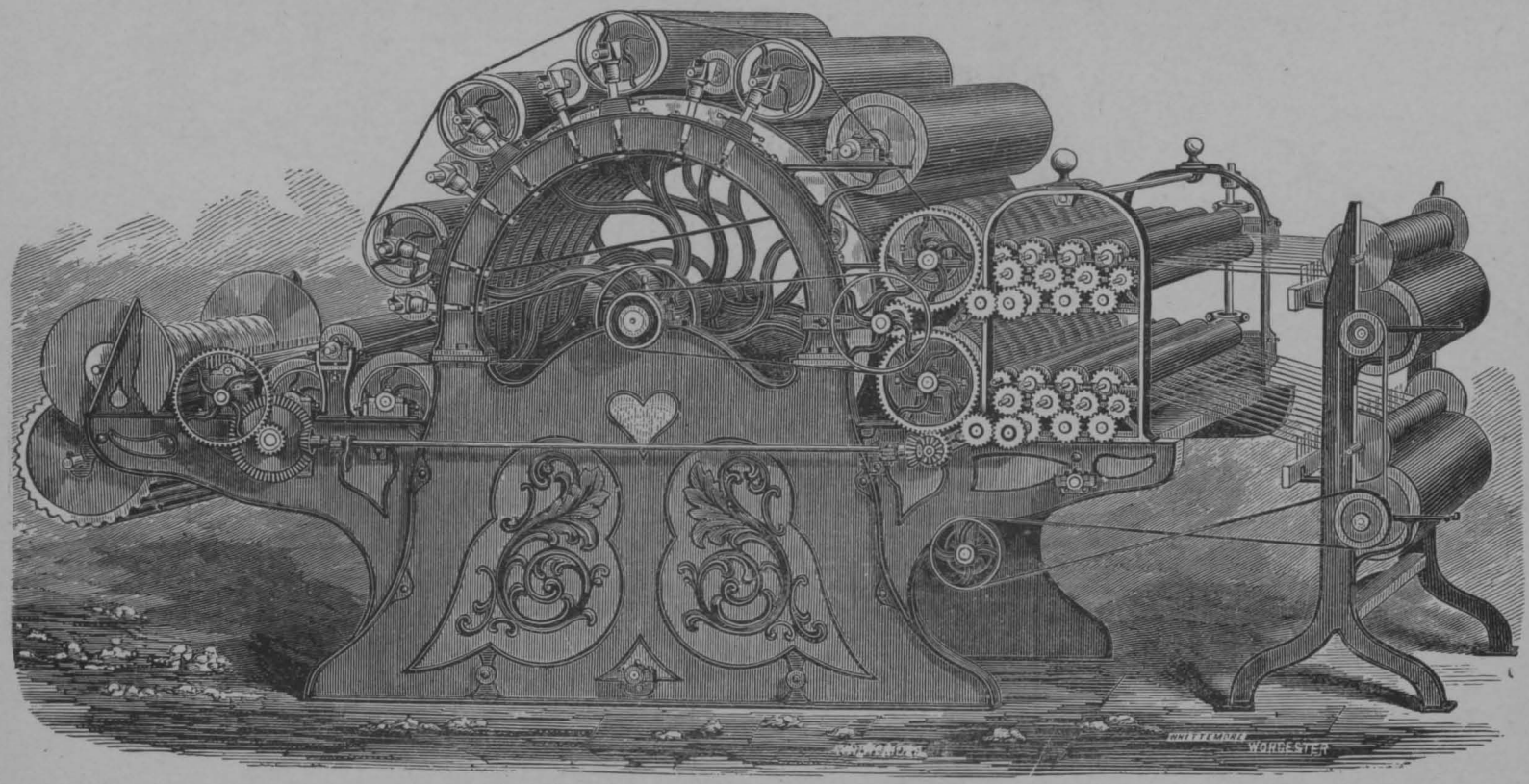
But it was not until these modern inventions for the cheap and rapid working of cotton had come into being, that it could become an article of general use, and so an important article of commerce. Indeed, it was not until the soil and climate of the southern portion of our country were found to be peculiarly adapted to the production of a kind of cotton superior to any other for the manufacture of cloth, that the factory system, as it now exists, could

than a thousa
ments in agr
chinery. Th
these machin
that while the
was reported t
production ha
000. While
implements a
to be in 1850,
in the census
At the same
the United St
$3,271,575,42(
803,861. The
pressive way
agricultural int

If we turn r
implements of a
of the product
we shall see y
advance which
century just clo

When the fir
this country, the
Indians, a new p
soon became the
ists, and contin
of the country.
from the India
to distinguish it
grains, wheat,
English call by t
they named this
grain is equal t
which it is adapt
ties. It early be
from the colonies
1770 being 578,3
of this grain incre
until the last fort
that period, the c
of the West by r
and the various li
with the rapid int
machinery, have
crease in the pr
staple. In 1850
nearly 600,000,0(
1873 it was re
The growth of Wh
second to that of c
earliest of exports;
mitted to send it
to the West Indies
late as 1810, we se
bushels of wheat,

HAND CARDING.

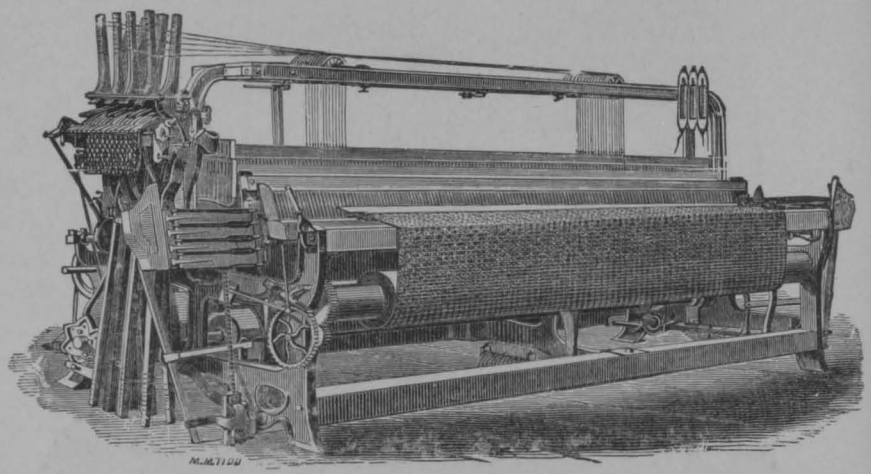


IRON FRAME FINISHER CARD MACHINE.

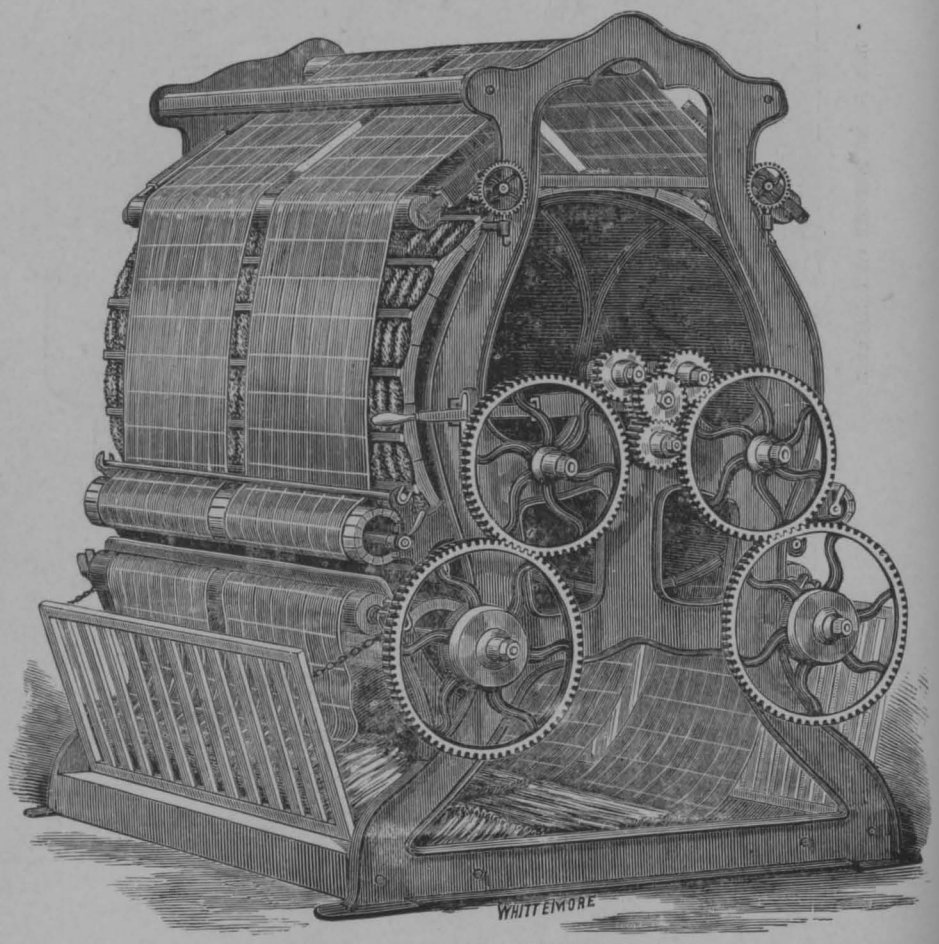
than a thousan
ments in agri
chinery. The
these machine
that while the
was reported t
production ha
000. While t
implements ar
to be in 1850,
in the census
At the same t
the United St
$3,271,575,426
803,861. The
pressive way
agricultural int

If we turn r
implements of
of the product
we shall see y
advance which
century just cl

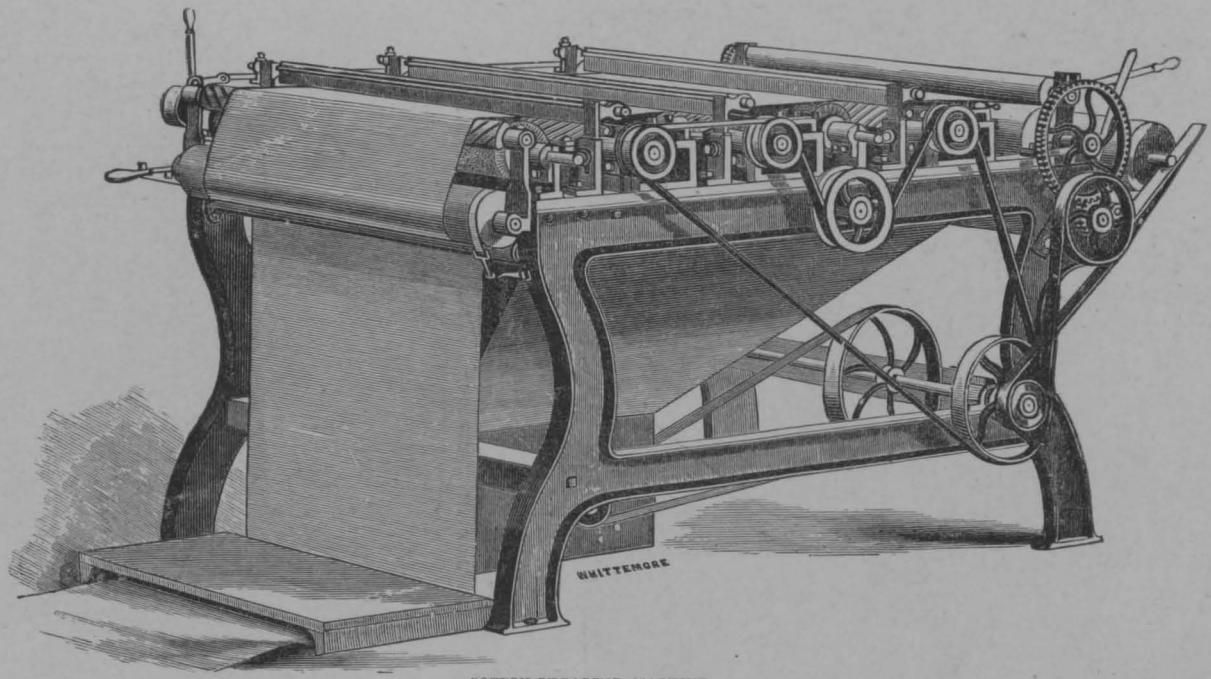
When the fi
this country, th
Indians, a new
soon became th
ists, and conti
of the country
from the India
to distinguish it
grains, wheat,
English call by
they named th
grain is equal
which it is adap
ties. It early
from the coloni
1770 being 578.
of this grain inc
until the last fo
that period, the
of the West by
and the various
with the rapid i
machinery, hav
crease in the
staple. In 185
nearly 600,000
1873 it was
The growth of
second to that o
earliest of expor
mitted to send
to the West Ind
late as 1810, we
bushels of whe



CROMPTON IMPROVED FANCY LOOM.



MARBLE'S GIG, OR, CLOTH-NAPPING MACHINE.



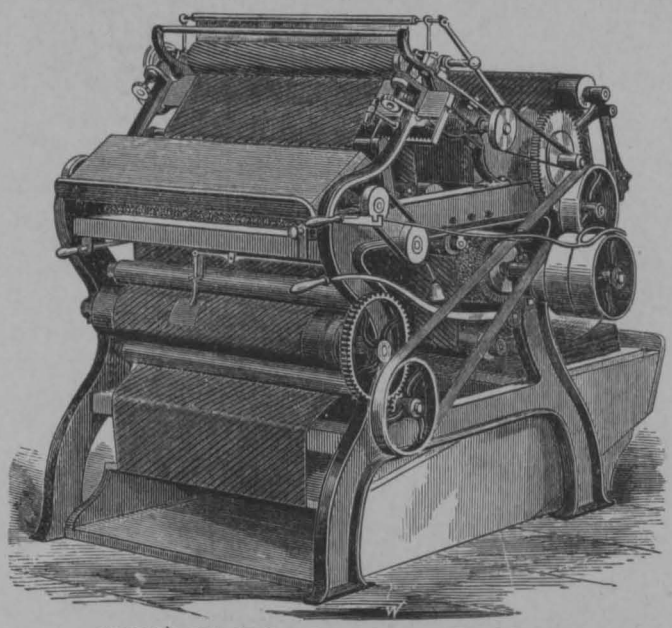
COTTON-SHEARING MACHINE,

(For Shearing Cotton Prints, Tickings, Drillings, Denims, &c.)

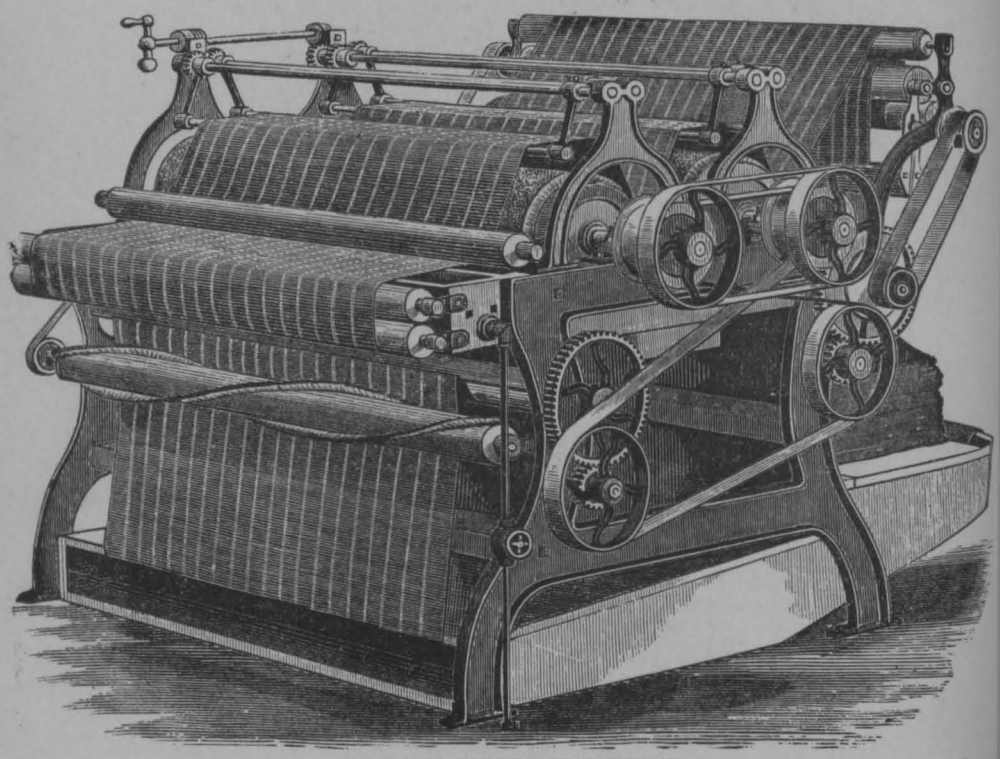
than a thousan
ments in agric
chinery. The
these machines
that while the
was reported tc
production hac
000. While t
implements an
to be in 1850,
in the census
At the same t
the United St
$3,271,575,426
803,861. Thes
pressive way
agricultural int

If we turn n
implements of a
of the product
we shall see y
advance which
century just clo

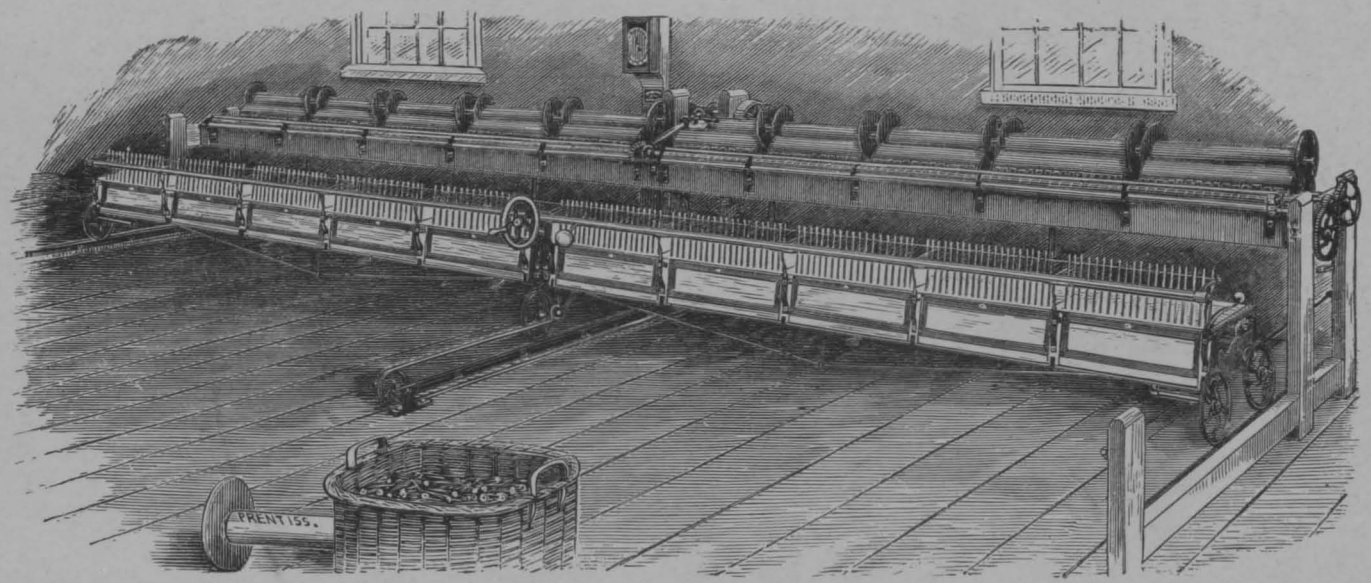
When the fir
this country, the
Indians, a new
soon became th
ists, and contir
of the country
from the India
to distinguish it
grains, wheat,
English call by
they named th
grain is equal
which it is adap
ties. It early
from the colonie
1770 being 578,
of this grain inc
until the last fo
that period, the
of the West by
and the various
with the rapid ir
machinery, have
crease in the
staple. In 185(
nearly 600,000,
1873 it was
The growth of W
second to that of
earliest of export
mitted to send i
to the West Indi
late as 1810, we
bushels of whea



MARBLE'S IMPROVED PERPETUAL SHEARING MACHINE,
(For Woolen Goods.)



IRON FRAME DOUBLE-ACTING BRUSHER,
(For the last operation in Cloth-finishing.)

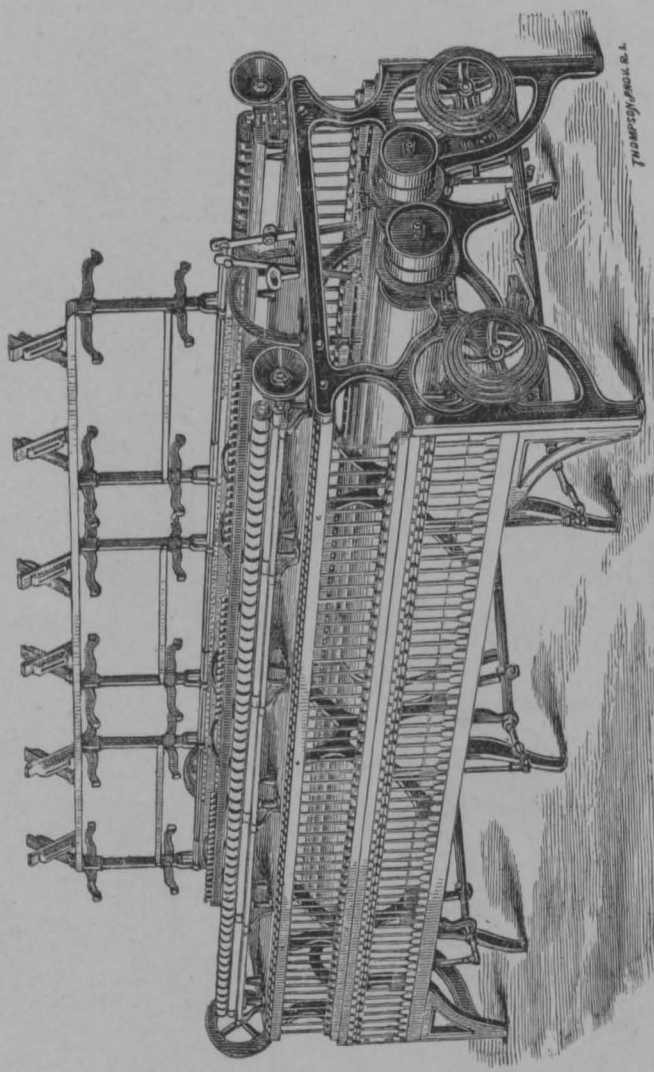


200 SPINDLE SPINNING JACK.

than a thousand
ments in agricu
chinery. The r
these machines
that while the v
was reported to l
production had
000. While th
implements and
to be in 1850, $
in the census o
At the same tin
the United Stat
$3,271,575,426;
803,861. These
pressive way th
agricultural inter

If we turn nov
implements of agr
of the products c
we shall see yet
advance which h
century just close

When the first
this country, they
Indians, a new pla
soon became the l
ists, and continue
of the country.
from the Indians
to distinguish it fr
grains, wheat, ry
English call by the
they named this I
grain is equal to
which it is adapted
ties. It early beca
from the colonies;
1770 being 578,349
of this grain increas
until the last forty
that period, the ope
of the West by me
and the various line
with the rapid intro
machinery, have le
crease in the proc
staple. In 1850 th
nearly 600,000,000
1873 it was repo
The growth of Whea
second to that of cor
earliest of exports; t
mitted to send it no
to the West Indies a
late as 1810, we sent
bushels of wheat, a



DOUBLE-CYLINDER TWISTER.

be established. Up to the time of the American Revolution, the cotton manufacture in England was in a very primitive state. The raw material was drawn chiefly from the West Indies. It amounted to only forty thousand bales a year, and was worked up by the hand-process. Now the cotton grown in the United States forms the largest part of the raw material used by the extensive cotton mills of England, and American cottons are on sale in all the markets of the world. By the mule spinner, as it is called, three thousand spindles are managed by one man, who thus does the work of three thousand persons under the hand-spinning system which prevailed a hundred years ago. The invention of the power-loom completed the machinery necessary for working cotton into fabrics, and in 1831 there were reported $40,614,984 invested in the manufacture of cotton in eleven states of the Union. There were seven hundred and ninety-five mills at that time, containing 1,246,503 spindles, and 33,506 looms. By these factories, 230,461,990 yards of cloth were made, and 77,757,316 pounds of cotton were used. The census of 1870 gives the capital invested in the manufacture of cotton in this country as $140,706,291. The number of mills was nine hundred and fifty-six; the number of looms 157,310. The consumption of cotton was 398,308,257 pounds.

The history of Woolen manufacture in this country reaches much farther back than that of cotton. As early as the year 1662, the Assembly of Virginia, for the encouragement of manufactures, offered prizes for the best specimens of linen and woolen cloth. The first manufacture of woolen cloth in a public and formal way was made by some Yorkshire immigrants at Rowley in Massachusetts, where they erected a fulling mill. The Dutch settlers of New York also engaged in the manufacture of woolen. As early as 1708, complaint was made to the English Board of Trade, that the woolen and linen manufactures of the colonists had advanced so far that they made three-fourths of these materials in use by them, and that if measures were not taken to check this industry, it was likely to go so far as to injure the British manufactures. The English could not very well forbid the colonists making the goods necessary for their own clothing; but as they soon became so enterprising as to make woolen hats for export, Parliament enacted in 1732 that "no hats or felts should be exported from the colonies." After the Revolution the manufacture of wool increased rapidly. It was no longer confined to the production of the well-known "homespun" of the colonial times. Factories were built in which cloths were made which soon came into competition with those made abroad. It is said that Arthur Schofield established a woolen mill in Pittsfield, Massachusetts, about the year 1808, where goods were made of such quality that they were sold in the New York market for British broadcloths, and that they were bought as such by a Pittsfield merchant and brought back to the place where they were made. So early and so rapidly was the woolen manufacture developed that it is said that just before the war with England in 1812, woolen cloth was made and sold for $1.06 a yard, equal in quality to British goods which were sold at $3.50 a yard. The woolen manufacture has been subject to great fluctuations, the causes of which it is not for us here to trace. The price of wool has varied greatly and often rapidly, and this of course has had a very great effect upon the manufacture of this staple. By the census of 1840, the capital invested in the manufacture of woolens in this country was more than $15,000,000, employing 21,000 persons and producing goods to the value of $20,696,000. The progress made in the woolen manufacture since then is shown by the following figures taken from the census reports:

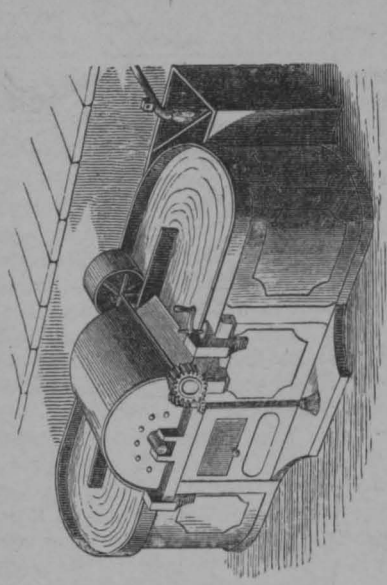
	1850.	1860.	1870.
Number of Establishments..	1,559	1,260	2,891
Hands Employed....	39,252	41,360	93,108
Capital Invested. ...	$28,118,000	$30,862,000	$108,998,000
Value of Products..	43,207,000	61,894,000	177,963,000

If our woolen manufactures have needed and have sought the help of a tariff tax upon foreign woolens, in order to secure their own development; certain it is that we have now reached the point where we can compete with the world on equal terms. If we can not have the benefit of the cheap labor of the Old World, by our machinery, and by what is better than machinery, the intelligence of our workmen and capitalists, we are able to make a large variety of woolen fabrics equal in

than a thousand p
ments in agricul
chinery. The ra
these machines
that while the va
was reported to b
production had r
000. While the
implements and
to be in 1850, $1
in the census of
At the same tim
the United State
$3,271,575,426;
803,861. These
pressive way th
agricultural intere

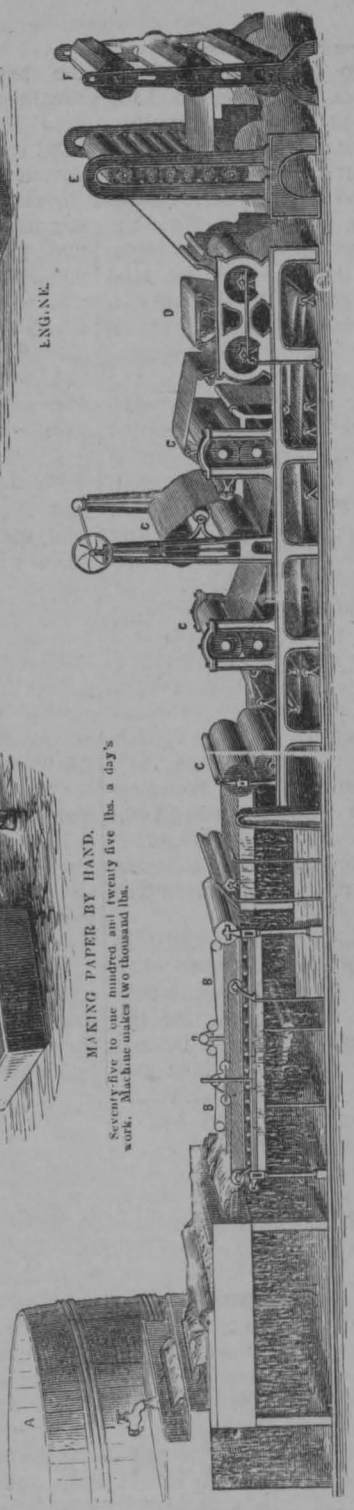
If we turn nov
implements of agr
of the products
we shall see yet
advance which h
century just close

When the first
this country, they
Indians, a new pla
soon became the l
ists, and continu
of the country.
from the Indians
to distinguish it fr
grains, wheat, r
English call by th
they named this
grain is equal to
which it is adapte
ties. It early bec
from the colonies;
1770 being 578,34
of this grain increa
until the last forty
that period, the o
of the West by m
and the various li
with the rapid intr
machinery, have
crease in the pr
staple. In 1850
nearly 600,000,00
1873 it was re
The growth of Wh
second to that of c
earliest of exports;
mitted to send it
to the West Indies
late as 1810, we se
bushels of wheat,



ENGINE.

MAKING PAPER BY HAND.
Seventy-five to one hundred and twenty five lbs. a day's work. Machine makes two thousand lbs.



FOURDRINIER PAPER MACHINES.

The pulp is drawn from the stuff-chest A into the va. and screen G; passing along over the Fourdrinier wire or fine wire-cloth B B, it enters on a heavy felt which passes between several sets of rolls C C C C, by which time the paper becomes well formed; it then passes through the dryers D, which are heated by steam; thence to the finishing rolls or calenders; from these to the reels. The pulp on leaving the stuff-chest we should say consists of 49-50ths of water. The process of draining is very rapid in passing over the wire-cloth; in addition to the natural drain, it passes the flat surface of half round copper cylinders punctured with holes; these are exhausted by suction pumps. Machines are from 50 to 70 and 80 feet in length, and 4 to 7 feet in width. For want of room we show only two drying cylinders and one stack of finishing calenders. From four to eight of the former and one to three of the latter are used, exact duplicates. When paper is sent to market in reams instead of rolls, there is a cutter attached which cuts the paper the required size; it consists of revolving shears, one blade stationary. There is also a sizing apparatus [illegible] The whole is moved by a system of gearing and pulleys (not shown, being back

texture and quality to those which are produced by the looms of England and Germany. Less than a hundred years ago, it was something to be spoken of that Washington was dressed, on the occasion of his inauguration as President, in a suit of home manufacture. Our woolen manufacture now needs no such encouragement as that was designed to afford, and that a President should be dressed in cloths made in our own looms would no longer be a thing to excite remark.

PAPER.

It is quite in keeping with the intelligence of the American people that one of the earliest to be developed of its manufactures was that of Paper. William Rittenhousen, a German, erected a paper mill in the neighborhood of Philadelphia, about the year 1690. As early as 1728 Massachusetts passed an Act for the encouragement of the manufacture of paper. The Assembly granted to Daniel Henchman and others the right of making paper, on condition that within the first fifteen months they would make one hundred and forty reams of brown paper, and sixty reams of printing paper. The first mill established in New England was erected two years later, at Milton, near Boston. Small as it seems now in comparison with the great establishments devoted to the manufacture of paper, it was of importance enough to attract the notice of the English Board of Trade, which had the supervision of the occupations of the colonists, and made searching inquiry into them to see how far they might interfere, or threaten to interfere, with the employments of craftsmen in the mother country. The report of the Board of Trade says: "By a paper mill set up three years ago, they make to the value of £200." There were only three paper mills in the country at this time; but their number increased with considerable rapidity, and Coxe in his "Views of the United States," says there were in 1794, forty-eight mills in Pennsylvania. In 1789, Mr. Clymer of Pennsylvania stated in Congress that there were fifty-three mills within range of the Philadelphia market, and the annual product of the Pennsylvania mills was 70,000 reams. Philadelphia, as the seat of government at this time, naturally became the center of the paper manufacture, as it was of the printing of the country. Dr. Franklin told the French traveler De Warville, that he had himself established eighteen mills. Having gotten their paper mills at Milton, it is hardly surprising that Robert Saltonstall was fined five shillings, not long after, by the General Court of Massachusetts, for presenting a petition on a small and bad piece of paper.

The extent and character of the new mill as well as of the paper business of the time may be gathered from the following advertisement, which appeared in the weekly *Rehearsal*, of Boston, in 1732:

"Richard Fry, Stationer, Bookseller, Paper-maker, and Rag merchant, from the city of London, keeps at Mr. Thomas Fleet's, printer, at the Heart and Crown, in Cornhill, Boston, where said Fry is ready to accommodate all Gentlemen, Merchants, and Tradesmen, with setts of Accompt books after the most acute manner for twenty per cent. cheaper than they can have them from London. I return the Public Thanks for following the Directions of my former Advertisement for gathering rags, and hope they will continue the like Method, having received upward of Seven thousand weight already."

But the few mills were not able to supply the demand for paper, even in the earliest times, as will appear from the following advertisement, which appeared in the Boston *Evening Post*, in 1748:

"Choice Pennsylvania Tobacco paper is to be sold by the publisher of this paper at the Heart and Crown, where may also be had the Bulls or Indulgencies of the present Pope, Urban VIII., either by the single Bull, Quire or Ream, at a much cheaper rate than they can be purchased of the French or Spanish priests."

The explanation of this is that several bales of "Indulgencies," printed on good paper, but only on one side, had been captured by an English war vessel from a Spanish ship, and being thrown on the market, had been purchased by the Boston printer, who saw a chance to make money by printing cards and other things for his customers on the backs of the captured Bulls and Indulgencies of the Pope.

The first paper mill in Connecticut was established at Norwich in 1768, under the promise of a bounty from the General Assembly. In two years it seems to have

than a thousand p
ments in agricult
chinery. The rap
these machines al
that while the val
was reported to be
production had ri
000. While the
implements and
to be in 1850, $1
in the census of
At the same time
the United States
$3,271,575,426; a
803,861. These f
pressive way the
agricultural interes

If we turn now
implements of agri
of the products of
we shall see yet
advance which ha
century just closed

When the first
this country, they f
Indians, a new plan
soon became the le
ists, and continue
of the country.
from the Indians
to distinguish it fro
grains, wheat, ry
English call by the
they named this I
grain is equal to
which it is adapted
ties. It early beca
from the colonies;
1770 being 578,34
of this grain increas
until the last forty
that period, the op
of the West by me
and the various lin
with the rapid intro
machinery, have l
crease in the pro
staple. In 1850 t
nearly 600,000,00
1873 it was rep
The growth of Whe
second to that of co
earliest of exports;
mitted to send it n
to the West Indies
late as 1810, we ser
bushels of wheat,

turned out two hundred reams of writing paper and five hundred reams of wrapping paper, and then was considered so well established that the government patronage was withdrawn. As we have said, the manufacture of paper was begun at an early period in Pennsylvania. Just before the battle of the Brandywine, messengers were sent to a mill in Lancaster county for a supply of paper for cartridges. The mill, which also happened to have a printing establishment connected with it, being out of any unprinted paper, the patriotic proprietors sent to the Continental army several wagon loads of an edition of Fox's *Book of Martyrs*, which were torn up and made into cartridges. This reminds one of the New England clergyman who, when the supply of wadding for the guns gave out, in one of the battles of the early times, brought forth the hymn books from the church and said: "Give 'em *Watts*, boys."

In 1789, the *Bibliotheca Americana*, published in London, stated that the people of North America at that time manufactured paper in sufficient quantities to supply their own needs. Alexander Hamilton also, Secretary of the Treasury, in his famous report, in 1791, upon the manufacturing industries of the country and the means of promoting them, represents the paper manufacture as one of the branches of American industry which had reached the greatest perfection, and was "most adequate to national supply."

By the year 1810, the demand for material for paper had so far outran the supply from our own country that large importations of rags from Europe began to be made, particularly from Italy. These importations have continued to increase with the increasing demand for paper, which has come to be an article second to no other perhaps in the importance of the services it renders to man. As the means of communicating thoughts, of diffusing valuable ideas, recording discoveries and inventions, furnishing the records of trade and the bills of exchange for the world's commerce, as well as the permanent records of history and the volumes which fill the libraries and contain the literature of nations, what is more precious than paper, so common and so cheap? It is a noteworthy fact in this connection that the great demand for books and newspapers and writing paper on the part of the intelligent and well-educated people of this new country, should find its supply so largely in the cast-off rags of the poor and ignorant masses of the Old World. Italy in rags, ministers unconsciously to the intellectual, the highest life of America.

In 1846, 9,897,706 pounds of rags were imported; of which 8,002,865 pounds were from Italy. In 1860, the amount imported had increased to 43,300,000 pounds, of which Italy furnished 30,310,000 pounds. The quantity of rags used in the United States in 1860 was nearly 200,000,000 pounds, and in 1869, it was estimated that the quantity used was not less than 1,170,000,000 pounds. The rapidly increasing demand for paper material has led to the trial during the last fifteen years, of various articles as a substitute for rags, as the supply of this material had become altogether inadequate. As long ago as 1772, indeed, a book was printed in Germany, made up of sixty specimens of paper, made from as many different materials. Any fibrous material will make paper; but the practical question is, can any particular article of this kind be furnished in sufficient quantity and at a price so cheap as to compete with other and ordinary paper stock. Straw is now used largely in the manufacture of wrapping paper, straw-board and some sorts of *papier maché*, as well as for newspapers. Basswood and several other of the lighter kinds of wood have also come into extensive use in the making of the cheaper class of papers.

The vast increase in the consumption of paper in our country is not due merely to the increased production of books, papers, and magazines, great as that production has been, doubling every few years and far outrunning that in any other country. Within the last ten or twenty years paper has come into extensive use for a variety of purposes to which it was never before applied. Millions of dollars worth of paper are annually consumed in the manufacture of collars, cuffs, and other articles of clothing. In the form of felt or heavy board, it enters largely into the construction of our houses, as a roofing and sheathing material. It is made into twine, into boxes and doors, into pails and

barrels, and many other articles of use and ornament.

The slow process of making paper by hand has been altogether superseded by machinery, except in the case of a few particular kinds of paper, for which there is only a limited demand. In 1800, by the hand process, it took three months to convert rags into finished paper. Now twenty-four hours are sufficient for this. For thirty or forty years past, the beautiful Fourdrinier machine has been in extensive use. By this machine, what, under the old hand process, required two weeks for its accomplishment, is now done in a few minutes. Within the distance of thirty or forty feet, a stream of fluid pulp is converted into a continuous sheet of paper ready for the printer, and all this, including the sizing, calendering, and pressing, occupies perhaps not more than two minutes. The census of 1860 gave the following statistics in regard to the manufacture of paper:

MANUFACTORIES OF THE UNITED STATES.

States and Territories.	No. of Establishments.	Capital.	Cost of raw material.	Male hands.	Female hands.	Cost of labor.	Value of product.
Connecticut	55	$1,860,000	$1,527,672	698	502	$342,996	$2,453,258
Delaware	2	280,000	286,439	66	27	29,292	385,000
Georgia	4	171,000	72,400	52	26	20,904	146,300
Illinois	2	47,103	43,075	29	12	13,080	59,938
Indiana	10	147,500	56,785	64	26	25,548	140,200
Kentucky	1	125,000	68,500	25	35	19,200	122,000
Maine	14	519,100	535,539	223	183	100,834	949,645
Maryland	25	272,800	300,759	155	69	51,228	513,690
Massachusetts	99	3,589,860	3,313,162	1,494	1,845	800,692	6,170,127
Michigan	5	46,500	62,837	53	35	16,248	127,000
New Hampshire	24	425,000	378,596	207	126	95,580	701,209
New Jersey	36	990,000	997,109	461	254	179,940	1,582,703
New York	126	2,039,000	1,394,210	1,411	446	433,028	3,059,776
North Carolina	6	121,850	54,600	54	35	53,916	165,703
Ohio	29	875,500	737,246	512	212	197,448	1,332,241
Pennsylvania	84	1,917,920	1,313,841	690	392	256,656	2,367,263
Iowa	1	12,000	6,600	8	5	3,924	17,400
South Carolina	3	111,000	53,000	38	19	16,044	96,500
Tennessee	2	14,500	10,200	11	13	4,500	28,000
Vermont	12	139,500	152,306	87	55	35,688	227,800
Virginia	9	154,500	130,165	11	38	41,678	270,000
Wisconsin	5	133,000	99,135	56	37	23,988	193,114
California	1	60,000	8,000	14	..	4,800	40,000
Total in U. S	555	14,052,683	11,602,266	6,519	4,392	2,767,212	21,216,802
Total in 1850	443	5,523,929	5,523,929	3,835	2,950	1,497,792	10,187,177
Increase	112	$6,048,337	$6,048,337	2,684	1,442	$1,269,420	$11,029,625

LEATHER.

Among the earliest, as among the most important, manufactures to be developed in our country was that of Leather. It was most natural that the colonists should take measures to preserve the skins of their slaughtered domestic animals, as well as of the wild game taken so abundantly in the forests, by tanning them. It was both a matter of economy and necessity almost that they should seek to convert them into shoes, harnesses, and other articles of domestic use. Accordingly we find that the manufacture of leather became prominent among the industries of the people of this country at an early date. Committees of Parliament appointed to inquire into the occupations of the colonists, with a view to prevent the development of any art or handicraft which might interfere with the workmen at home, reported early in the eighteenth century that tanning supplied most of the local demand for leather and shoe-making, and was one of the leading occupations of the people. Mr. Hamilton also, in his report of 1791, on Manufactures, speaks of tanneries as numerous and constituting a valuable item of manufacture. Since then the tanners have increased in all parts of the country in proportion to the increase of the population of the country, and the production of leather has so far extended that fifteen years ago our exports of boots and shoes

than a tho
ments in
chinery.
these mac
that while
was repor
productio
000. Wh
implemen
to be in 1
in the ce
At the sa
the Unite
$3,271,57
803,861.
pressive
agricultur

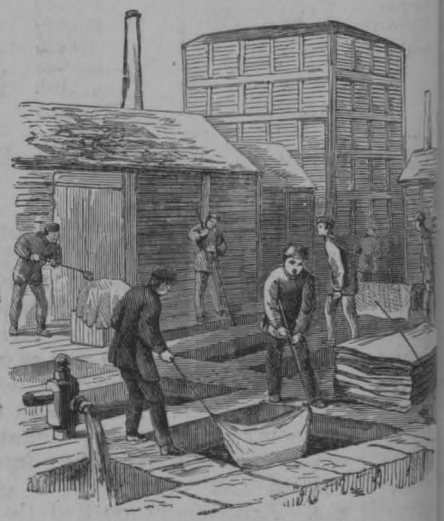
If we t
implement
of the pr
we shall
advance
century ju

When t
this countr
Indians, a
soon becar
ists, and
of the co
from the
to distingu
grains, w
English ca
they nam
grain is e
which it is
ties. It e
from the c
1770 being
of this gra
until the l
that perio
of the We
and the va
with the ra
machinery;
crease in
staple. In
nearly 60
1873 it
The growth
second to t
earliest of
mitted to
to the Wes
late as 181
bushels of

OVER THE BEAM.
Shaving the fleshy matter from the hide.

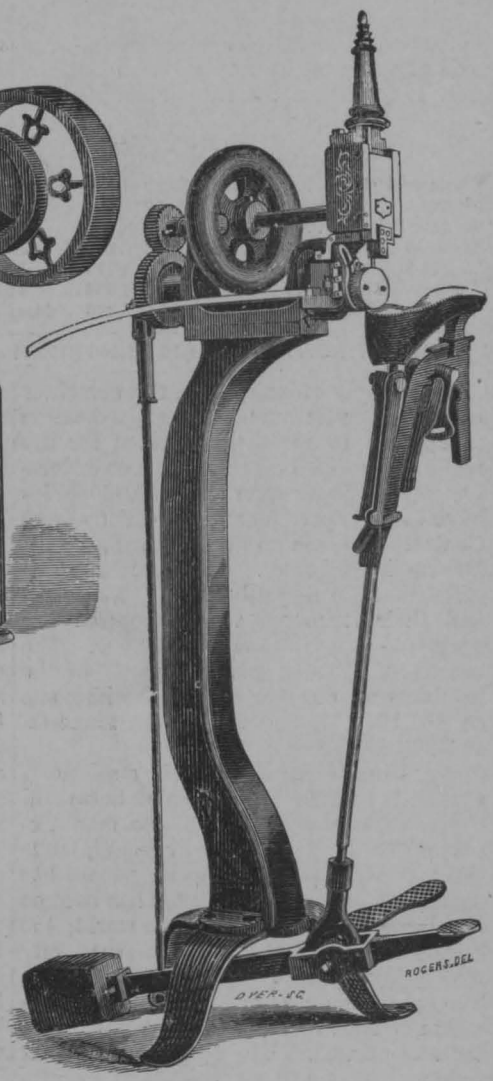
HIDE-SPLITTING MACHINE

UNHAIRING THE HIDE.



TAN-YARD.

WAX-END SEWING MACHINE.



PEGGING MACHINE.

PEGGING BOOTS BY HAND.

From 250 to 500 pairs per day are done by the machines, according to the kind of machine, and whether run by hand or power. Improvement fifteen or twenty to one.

amounted to $663,905 against an importation of the same kind of goods amounting only to $87,101. The leather manufacture of the United States in 1860 was reported as follows:

LEATHER MANUFACTURE OF THE UNITED STATES IN 1860.

	Establishments.	Capital.	Raw material.	Male.	Female.	Labor.	Product.
Boots and shoes.....	12,486	$23,357,627	$42,728,174	94,512	28,514	$30,938,080	$91,889,298
Gloves.....	126	594,825	537,589	453	976	330,419	1,176,795
Leather belting.....	46	588,000	915,271	329	25	134,952	1,481,750
Morocco dressers....	136	2,331,250	3,896,522	2,371	331	924,308	6,291,075
Patent leather	12	1,039,000	1,395,400	865	..	317,460	2,101,250
Saddles and harness..	3,695	6,616,034	6,726,344	12,443	337	4,333,041	14,604,328
Tanners and curriers.	5,040	35,655,370	44,520,737	22,622	57	6,933,740	67,306,452
Total.....	21,541	$70,182,106	$100,720,037	133,595	30,240	$43,912,000	$184,850,948

The supply of hides from the slaughter of our domestic animals long ago became inadequate to meet the demand for the manufacture of leather. For a considerable period, an average of 5,000,000 hides have been imported annually, chiefly from Central and South America and the British East Indies. Our importation of skins in 1869 was valued at $14,204,761, and their value when manufactured was estimated at more than $30,000,000. The census of 1870 gives the value of the products of our curriers' establishments as $54,191,167, and that of our tanneries as $86,169,883.

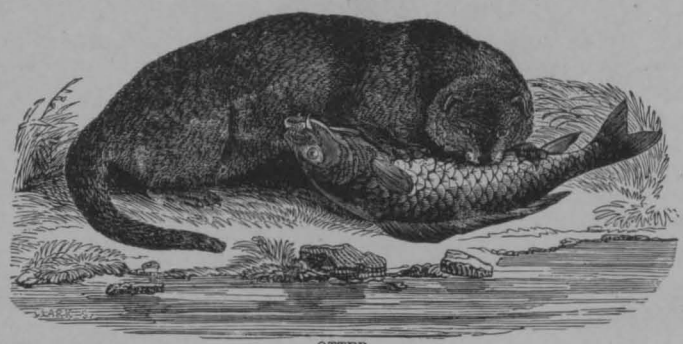
By the introduction of machinery, especially in the manufacture of boots and shoes, that department of the manufacture of leather has rapidly increased, while the cost of those articles to the people has been much cheapened. Boston has become the largest shoe-market of the world; the sales of boots and shoes in that city amounting to $62,000,000 in a single year. The manufacture of leather into harnesses, gloves, belting for machinery, hose for fire-engines, military equipments, trunks and valises, traveling bags, and various other articles, has reached very large proportions. The shoe and leather trade has become one of the most prominent and important branches of business in our country. Probably most people were surprised at the extensive exhibition of the leather business at the recent Exposition at Philadelphia.

FURS AND FUR TRADE.

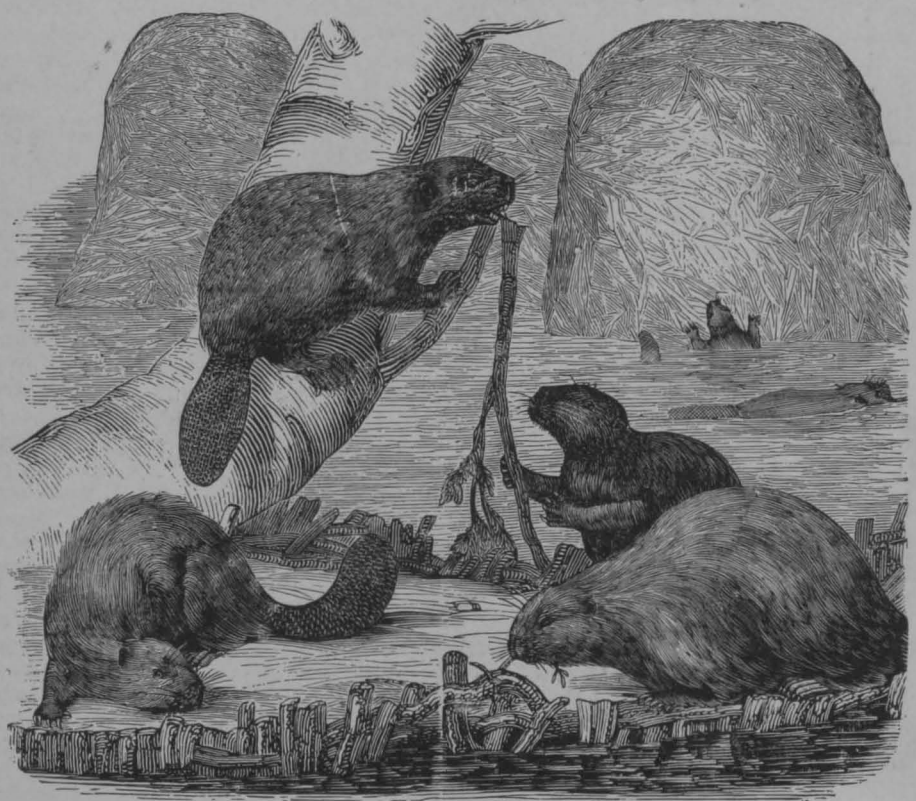
Closely connected with the leather business, if not forming a part of it, is the production and manufacture of Furs. In a new country like ours, and with such a range of temperature as it has, there would naturally be found a great number and variety of the fur-bearing animals. The early settlers soon began to hunt these animals both for the purpose of using their skins for clothing and making them a source of gain by exporting them to foreign countries, where furs were highly prized. They easily procured large quantities of furs from the Indians, in addition to the results of their own trapping and shooting. The French and English nations early entered into competition to secure the control of the fur business in this country, and they established trading-posts, or factories, as they were called, at an early day and through a wide stretch of country. The Hudson's Bay Company was chartered in 1670. The Canadians, stimulated by the great gains of this company in the latter part of the last century, established the Northwest Fur Company, and pushed their factories through the western territories, across the Rocky Mountains and as far as the mouth of the Columbia River. They employed more than two thousand persons, mostly Scotch, in addition to the thousands of Indians who pursued the chase as their tributaries. The two rival companies were united in 1821, and it is only within fifteen years that their license has expired and the vast territory of which they were privileged occupants has been thrown open to all hunters and trappers on equal terms.

St. Louis was founded in 1763, as a trading-post for furs. From this point the peltries collected by Indians and voyageurs from a wide region watered by the Mississippi and the Missouri were sent down to New Orleans or to Mackinaw, then a far more important place than now, and thence to Quebec and London. Seventy years ago the annual value of the furs collected at St. Louis was more than $200,000; two-thirds of which went into

FOX.



OTTER.



BEAVERS.

than a thous
ments in ag
chinery. Th
these machi
that while th
was reported
production h
000. While
implements
to be in 185
in the censu
At the same
the United
$3,271,575,4
803,861. Th
pressive wa
agricultural i

If we turn
implements o
of the produ
we shall see
advance whi
century just

When the
this country,
Indians, a ne
soon became
ists, and co
of the coun
from the In
to distinguish
grains, whe
English call
they named
grain is equ
which it is ac
ties. It earl
from the colo
1770 being 5
of this grain i
until the last
that period,
of the West
and the vari
with the rapi
machinery, h
crease in th
staple. In 1
nearly 600,0
1873 it wa
The growth o
second to tha
earliest of ex
mitted to se
to the West I
late as 1810,
bushels of w

MUSKRAT.

AMERICAN SABLE.

the pockets of the traders as clear profit. The history of the enterprise of Mr. John Jacob Astor, in the beginning of the present century, for the prosecution of the fur trade, reads like a romance. Within the last few years, by the purchase of Alaska, a new opening has been made for the fur trade. Over 120,000 fur seal skins are annually shipped from that territory. The great fur companies have mostly gone out of existence, and the business formerly in their hands is now divided among many dealers, who trade directly with the trappers. Some interesting facts in regard to furs and the fur trade may be found in the following table:

Bear, Northern, according to size and quality		Prime,	From	10 00 to	$18 00
" Southern and Northern yearlings		"	"	3 00 to	10 00
Beaver, Northern, per skin, Parchment		"	"	2 50 to	3 00
" Southern and ordinary, per skin		"	"	1 00 to	2 00
Badger		"	"	0 20 to	0 50
Cat, Wild, Northern and Eastern States, cased		"	"	0 40 to	0 50
" " Southern and Western		"	"	0 20 to	0 30
" House, ordinary, if large		"	"	0 05 to	0 10
" " Black furred		"	"	0 15 to	0 30
Fisher, Northern and Eastern, according to size and color		"	"	5 00 to	10 00
" Pennsylvania, Ohio, and Western	do	"	"	3 00 to	5 00
" Southern	do	"	"	2 00 to	3 00
Fox, Silver	do	"	"	10 00 to	40 00
" Cross, Northern and Eastern	do	"	"	3 00 to	5 00
" Red, Northern and Eastern	do	"	"	1 25 to	1 75
" So. Penn., N. Jersey, and North. Ohio	do	"	"	1 00 to	1 25
" Southern and Western	do	"	"	0 40 to	0 60
" Grey, Northern and Eastern, cased	do	"	"	0 60 to	0 75
" Southern and Western	do	"	"	0 30 to	0 50
" Kitt	do	"	"	0 30 to	0 50
Lynx	do	"	"	1 00 to	2 00
Martins, Stones	do	"	"	0 75 to	1 50
Mink, N. York, N. England, Minn. & California	do	"	"	3 00 to	5 00
" Southern N. York, N. Jersey, Penn., Ohio, Mich., Indiana, Wisconsin, and Iowa	do	"	"	1 50 to	3 00
" Maryland, Virginia, Kentucky, Missouri, and all Southern	do	"	"	0 75 to	1 50
Muskrat, Northern New York and Eastern		Spring,	"	0 25 to	0 27
" Western, including Pennsylvania and Ohio		"	"	0 22 to	0 25
" Northern and Eastern		Winter,	"	0 16 to	0 18
" Western, including Pennsylvania and Ohio		"	"	0 10 to	0 14
" Southern Prime, and Northern Full		Average,	"	0 06 to	0 08
Otter, Northern and Eastern, and North Western, according to size and color		Prime,	"	5 00 to	8 00
" Pennsylvania, New Jersey, Ohio, and Western		do.	"	4 00 to	7 00
" Kentucky, Maryland, Virginia, Kansas, and vicinity		do.	"	3 00 to	6 00
" North and South Carolina, and Georgia		do.	"	2 00 to	5 00
Opossum, Northern		do.	Cased, "	0 05 to	0 06
" Southern and open Northern		do.	"	0 02 to	0 04
Raccoon, Michigan, Northern Indiana, Indian handled, dark, according to size and color		do.	"	0 80 to	1 10
" Northern Ohio, Illinois, Iowa, Wisconsin, and Minnesota		do.	"	0 60 to	0 80
" New York and Eastern States, and Northern Pennsylvania		do.	"	0 40 to	0 60
" New Jersey, Southern Pennsylvania, Indiana, Illinois, Missouri, and Kansas		do.	"	0 30 to	0 40
" Maryland, Virginia, Kentucky, Arkansas, and Tennessee		do.	"	0 20 to	0 30
" North and South Carolina, Georgia, Florida, and Alabama		do.	"	0 10 to	0 20
Rabbits		do.	Cased, "	0 01 to	0 02
Skunks, Prime black, No. 1		do.	"	1 00 to	1 25
" White and black, stranked, No. 2		do.	"	0 50 to	0 60
" Out-seasoned and very white		do.	"	0 10 to	0 15
Wolf Skins, Mountain Skins, large		do.	"	3 00 to	4 00
" " Prairie, average prime skins		do.	"	1 00 to	1 50

With the settling up of our great northwestern region, and the stretching of railroads across the continent, the romance of the hunter's and trapper's life is passing away. So are the wild animals, who have had our vast forests and plains, our great rivers and lakes for their homes, also passing away. More than 100,000 buffalo skins are dressed annually in the United States, and sent into the markets of the world, threatening soon the extinction of that monarch of the plains. With him will pass away the bear, the wolf, the fox, and other smaller animals, or they will be greatly diminished in numbers as the settlement of the country goes on, and the solitude and safety of the forest and the stream are invaded by the advancing millions seeking new homes in the distant and fertile West.

IRON.

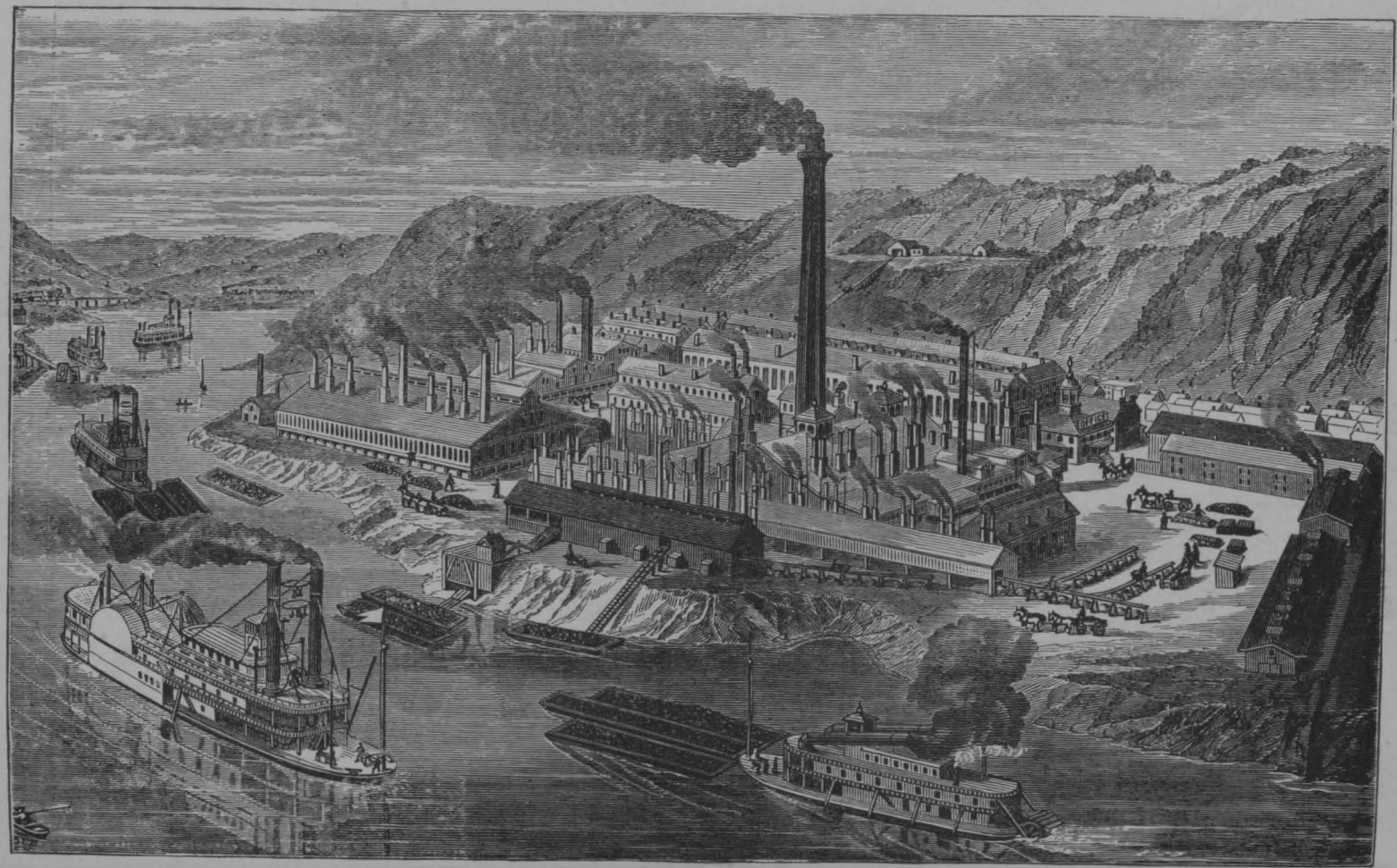
The mining and manufacture of iron were naturally among the earliest employments of the people of this country, inasmuch as this is the most useful and necessary of all the metals. The smelting of iron occupied to some extent the first

settlers of Virginia, and as early as 1645, iron works were established in Massachusetts, at Lynn. In respect to the works at Lynn, Hubbard, the historian, says: "That instead of drawing out bars of iron for the country's use, there was hammered out nothing but contentions and law suits." Pig iron even became an article of export from the colonies as early as 1718; and in the year 1771 the export to Great Britain is reported as being 5,303 tons of pig iron and 2,222 tons of bar iron; but this statement of the export of iron does not give a fair indication of the extent of the iron manufacture in this country at that time, for, owing to the British policy of restricting the manufacture to the coarse and simple forms of pig and bar iron, and forbidding all manufacture of tools and implements which might come in competition with the wares of the British workmen, the colonists were obliged to confine themselves, in the manufacture of iron, to these crude forms and to export it to Great Britain in exchange for the manufactures of iron which they needed. The business of working in iron, owing to the restrictive laws of England, did not flourish in the colonial times as much as some other occupations. Nor indeed, did the manufacture of iron flourish much in this country until some time after the Revolution had set us free from the oppressive legislation of the mother country. The iron business requires a comparatively large capital for its successful management. It requires, also, facilities of transportation, in order to bring together the ores, and fuel and fluxes necessary for their reduction, as well as to carry away the finished products to the widely separated regions where they are to be used. The growth of the iron manufacture in this country has therefore been slower than that of some other forms of industry; but if slow, its growth has been steady, keeping pace with that of the country, while during the last few years it has had a very rapid development.

In spite of the efforts of the English government to keep down the manufacture of iron in the colonies in those forms which would interfere with the British workshops, the necessities as well as the convenience of the people impelled them all the while to the working of a metal which contributed so largely to the comfort of life. In spite, therefore, of the repressive laws of the mother country, and in spite of royal commissions appointed for the purpose of inquiring into the occupations of the people and reporting every development of industry that lessened the dependence of the colonists or came into competition with the workshops at home, the colonists were continually engaged, to a greater or less extent, in the manufacture of iron into various tools and articles of convenience. Almost the earliest if not quite the earliest patent granted in this country, was granted by the General Court of Massachusetts, in 1646, to Joseph Jencks, of Lynn, "for ye making of Engines for mills to goe with water, for ye more speedy dispatch of work than formerly, and mills for ye making of Sithes and other edged tooles." Nail making was pretty extensively engaged in, and axes, scythes, and other implements were freely made. In 1771, the shipment of pig iron from the colonies amounted to 7,525 tons. In 1810, the production of iron, entirely charcoal, was 54,000 tons. Commercial disasters subsequently caused a decline in the production, but the following figures show a steady increase.

In	1828	the	product	was	130,000 tons.
"	1829	"	"	"	142,000 "
"	1830	"	"	"	165,000 "
"	1831	"	"	"	191,000 "
"	1832	"	"	"	200,000 "
"	1840	"	"	"	347,000 "
"	1842	"	"	"	215,000 "
"	1845	"	"	"	486,000 "
"	1846	"	"	"	765,000 "
"	1847	"	"	"	800,000 "
"	1852	"	"	"	564,000 "
"	1854	"	"	"	716,674 "
"	1855	"	"	"	754,178 "
"	1856	"	"	"	874,423 "
"	1857	"	"	"	798,157 "
"	1858	"	"	"	705,094 "
"	1859	"	"	"	840,427 "
"	1860	"	"	"	913,774 "
"	1861	"	"	"	731,564 "
"	1862	"	"	"	787,662 "
"	1863	"	"	"	947,604 "
"	1864	"	"	"	1,135,497 "
"	1865	"	"	"	931,582 "
"	1866	"	"	"	1,350,943 "
"	1867	"	"	"	1,461,626 "
"	1868	"	"	"	1,103,500 "
"	1869	"	"	"	1,916,641 "
"	1870	"	"	"	2,000,000 "

No country in the world, perhaps, is better supplied with iron ores of all varieties than our own. No country is better supplied with fuel with which to reduce them. Our rivers and railways offer every facility of transportation. Our mechanics are as intelligent and skillful as any in the world. No country, therefore, is better fitted than our own for the

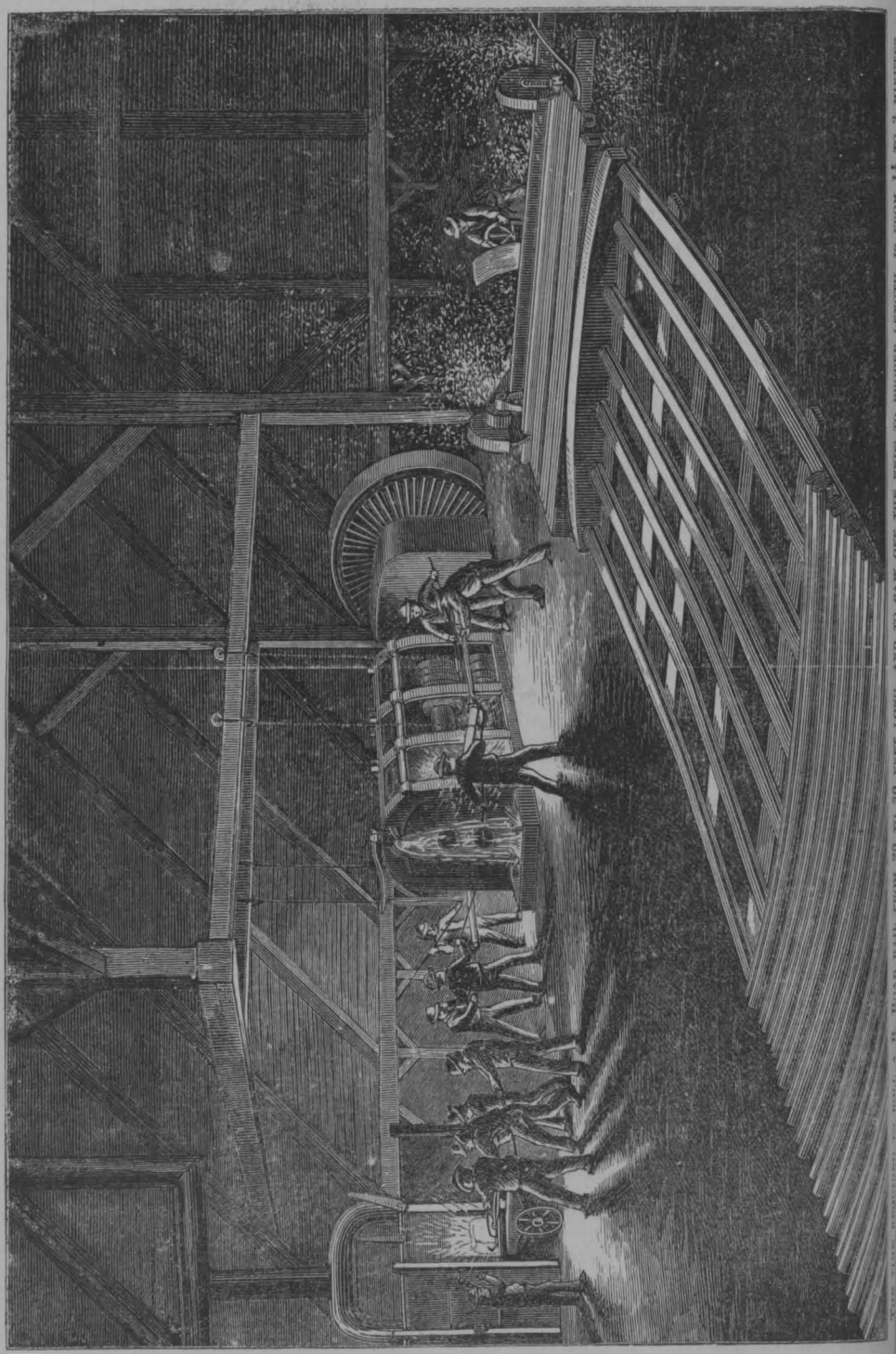


AMERICAN IRON WORKS, PITTSBURG, PA.

than a thousan
ments in agri
chinery. The
these machine
that while the
was reported t
production ha
000. While
implements a
to be in 1850,
in the census
At the same
the United S
$3,271,575,42
803,861. Th
pressive way
agricultural in

If we turn
implements of
of the produ
we shall see
advance whi
century just c

When the
this country, t
Indians, a nev
soon became
ists, and con
of the count
from the Inc
to distinguish
grains, whea
English call
they named
grain is equa
which it is ad
ties. It earl
from the colo
1770 being 5
of this grain i
until the last
that period,
of the West
and the vari
with the rapi
machinery, h
crease in th
staple. In 1
nearly 600,0
1873 it wa
The growth o
second to tha
earliest of ex
mitted to se
to the West
late as 1810,
bushels of w



development of the manufacture of iron to the greatest extent, and we are already competing successfully with the best establishments of England and the continent, in the production of tools, and machines, and various articles of convenience and utility which are composed of iron.

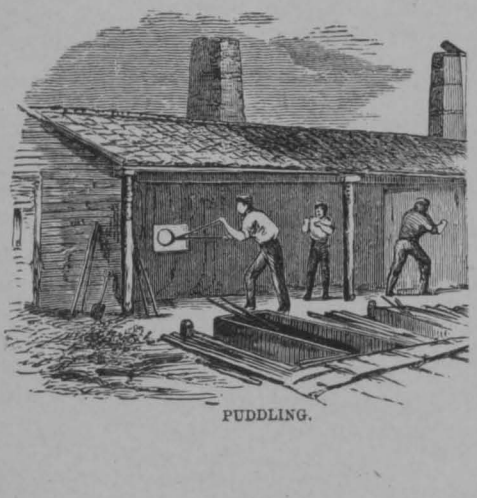
It is only since about the year 1837, that our vast coal beds have been made available for the smelting of iron ore. Previous to that time we had relied upon charcoal for our blast furnaces. But though we seemed to have inexhaustible supplies of wood for fuel, our furnaces were consuming the timber at a fearful rate, and the inquiry was made for a cheaper and more accessible fuel. The experiment with anthracite coal for the smelting of iron ore was entirely successful and the number of furnaces using this material rapidly increased. About the time that anthracite coal began to be used there came a demand for iron for railway purposes. In 1835, as many as 465 miles of road were constructed, and in 1841, not less than 717 miles were built. Ten years later 1961 miles of road were constructed, and in 1856 as many as 3,647 miles of road were added, or an average of ten miles a day throughout the year, while in the year 1871 the addition to the railroads of the country was 7,670 miles These figures only represent one-half of the length of iron rails necessary for the construction of the roads. It will be seen at once what an enormous demand for iron was created by the building of so many miles of road. The supply of this demand was drawn at first and for several years, from Great Britain. Her mines and mills were our reliance, though our mountains and hills were full of the best ores and the best fuel. But gradually new furnaces and rolling mills were erected for the purpose of meeting the demand, and now we have more than three hundred rolling mills, reported, in 1870, as furnishing 531,605 tons of rails, in addition to enormous quantities of iron of different sorts, and amounting in value to $120,311,158. The production of rails for the year 1873 is stated to be 850,000 tons. The rapid increase of railroads in our country, while it led to the erection of new furnaces and mills, and an increased production of iron for railroad purposes, also stimulated the production of iron for a great many other purposes. Rolling mills once established, architects, builders, and engineers are disposed to use iron, rolled into bars and beams, for a great many building purposes. Machine shops and forges, facilitating the manufacture and cheapening the cost of iron in many useful forms, have increased the demand for it in those forms. And so there has been a continually increasing demand for the services of the miner in the ore beds, and for the erection of new blast furnaces and puddling and rolling mills to supply the material for the hundreds and thousands of mills and factories which are working iron into so many useful forms. It is hardly possible to indicate, within the limits at our disposal, the growth of the iron manufacture in our country during the last century, or during the last quarter of a century. It is a history of wonderful interest, as it is a history of great importance to the country. The production and working of iron is now conducted by the aid and under the direction of the most exact science. The iron manufacturer applies to his work the nicest analyses of the chemist, and by a proper selection of different kinds of ores and fluxes, and fuels, and the regulation of the blast, and with a furnace of the right character, he produces with unerring certainty iron of the precise quality needed for a given use. He has an iron of one character for car wheels, and another for cannon, and another for axles, and so on through the round of the diversified industries of life.

Within the last twenty-five or thirty years, several processes have come into practical use for the rapid and cheap conversion of iron as it comes from the furnace into steel. Among these, that known as the Bessemer process seems to be practically the most successful. It is a very beautiful illustration of scientific theories reduced to practical results, and while it has been the means of enriching the inventor has enriched hundreds and thousands besides, by cheapening for them an article which is useful in many forms. Bessemer's invention was made known about twenty-five years ago. How valuable an invention it is considered may be seen from the fact that while the production of steel in our country by this process was only 8,500 tons in 1860, in 1873 it was estimated to be not less than 140,000 tons.

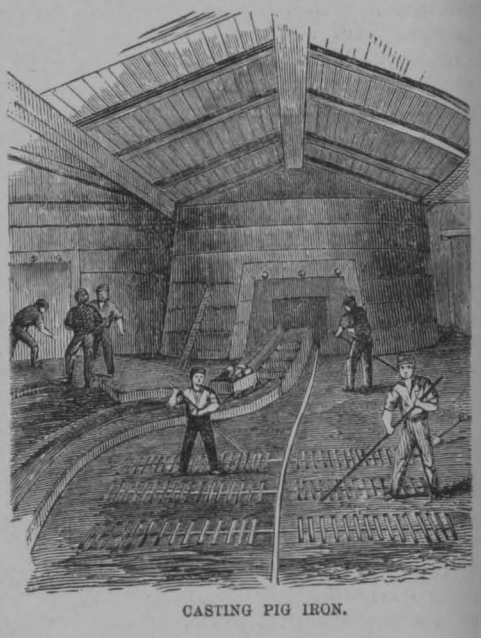
than a thou
ments in a
chinery. T
these mach
that while
was reporte
production
000. Whi
implements
to be in 18
in the cen
At the sa
the Unite
$3,271,575
803,861.
pressive w
agricultura

If we tu
implement
of the pr
we shall s
advance v
century ju

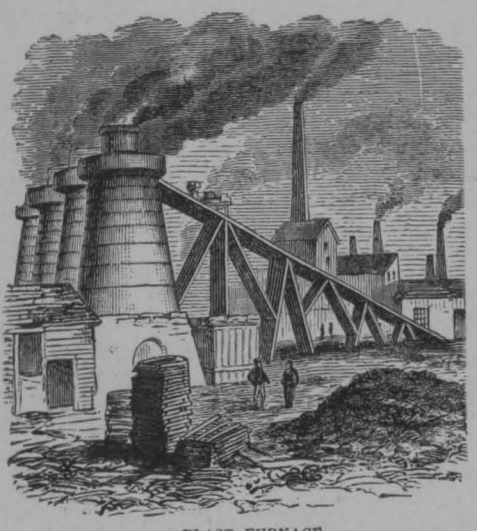
When t
this countr
Indians, a
soon becar
ists, and
of the co
from the
to distingu
grains, w
English ca
they nam
grain is
which it is
ties. It
from the
1770 bein
of this gra
until the
that perio
of the W
and the v
with the r
machinery
crease in
staple. I
nearly 6
1873 it
The grow
second to
earliest o
mitted to
to the W
late as 18
bushels o



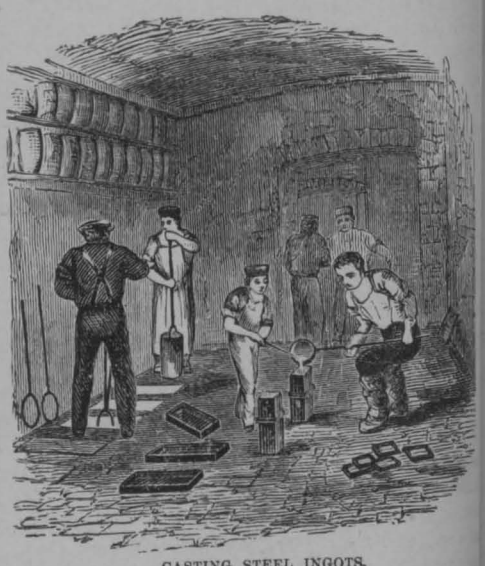
PUDDLING.



CASTING PIG IRON.



BLAST FURNACE.



CASTING STEEL INGOTS.

Another important invention in connection with the manufacture of iron is that by which cast-iron, which is very brittle, is converted into malleable iron. This was the invention of Lucas of Sheffield, and patented by him in 1804. It consists essentially in heating, or roasting the cast-iron articles in a furnace for several days, while enclosed in iron boxes and surrounded with metallic oxides, lime and other absorbents of carbon, and then allowing them to cool slowly in the furnace. This process has greatly increased the use of many small articles of varied and intricate shape, to forge which would be laborious and expensive; but which can be cast in a few moments and at a very small cost.

We have seen, to some extent, the growth of the iron manufacture occasioned by the origin and growth of the railroad system, which is a thing wholly of the present century. But we have seen it only in part. In addition to the manufacture of rails there is a vast amount of iron used in the building of locomotive engines and cars, and in keeping them in repair by the renewal of parts that are broken or worn out. But besides this we should take into consideration a multitude of factories and furnaces which have sprung up along the lines of railway, called into existence in fact by the railway, in most of which there is to be found the steam engine. These engines again, in their construction and repairs, have called for the use of iron in large quantities. And then we have only to turn to our machine shops and founderies, to our cutlery factories and factories of hardware of all sorts, to our scythe and axe factories, our wire works and nail and screw factories, in short, to our factories of every kind almost, to see how extensive is the use of iron and to be surprised to find how much of this has been the growth of the present century. The inventive genius of our people has contrived machines for the working of iron that are unequalled in the world. The machinery by which England makes her celebrated Enfield rifle, was constructed in this country, and other machines have been made here to be taken to Prussia and other continental countries for the manufacture of arms and other articles of iron which require nicety in their construction.

It would not be right to leave the account of the iron manufacture in this country without some allusion at least to the progress which we have made in the manufacture of fire-arms, both large and small. The revolver of Colt is now known the world over. The Spencer rifle is a most formidable weapon. The Gatling gun, with its torrent of balls, is a mowing machine of death to all who come within its range. Other arms, of various pattern and only less celebrated than these, have been invented during the last few years, and are rapidly coming into use. In great guns also, our Parrots and Dahlgrens have given us a most enviable name among all civilized nations, and our Monitors have revolutionized the naval architecture and the naval warfare of the world.

Such are some of the facts and figures which serve to illustrate the growth of the iron manufacture in our country. As we thus look at the subject, we are almost disposed to call this the Iron age, so largely and in such great variety are the products of iron seen to enter into the uses and conveniences of life. We live in iron houses; we do our business in iron ware-houses; we worship in iron churches; we ride in iron cars upon iron rails, drawn with more than the racer's speed by the iron horse; we weave our iron bridges and hang them airily across the streams and chasms in our pathway; we sail in iron ships propelled by huge engines that mock at winds and waves. A thousand tools and conveniences of iron serve us in our business; a thousand articles of use and ornament fill and beautify our homes. We shut up our stocks and bonds and other valuables in iron safes; and finally, when life comes to an end, our bodies are laid in iron caskets for burial.

The consumption of iron in the United States for all purposes was estimated, in 1840, to be forty pounds for each inhabitant; in 1846, at sixty pounds; in 1856, at sixty-four pounds; in 1867, at about one hundred pounds; and in 1872, it had reached by estimate one hundred and fifty pounds. These figures show that the manufacture of iron has been increasing considerably faster than the population of the country. The census of 1870 reports 3,726 establishments engaged in the manufacture of iron, using materials to the value of $193,208,218, and yielding manufactured products to the value of $322,128,-

698. Of rolling mills, three hundred and ten are reported, having a capital of $54.774,615, and producing 488,834 tons of bar iron, 309,995 tons of iron plate, 74,753 tons of sheet iron, 531,605 tons of rails, besides iron in other forms, and amounting in value to $120,311,158. The products of one hundred and four forges are given as amounting to $8,385,669. The amount of pig iron produced in 1870 was 2,052,821 tons, valued at $69,640,498. The value of products of cast iron at the same time was $99,843,218. It may help us to measure the magnitude which the iron manufacture has attained when we note the fact that to obtain the above mentioned products, besides others not named, there were required 2962 steam engines of 178,-761 horse power, in addition to 872 water wheels having an estimated horse power of 26,460.

To such dimensions has the iron manufacture grown in this country during a single century. There was every thing here to encourage this branch of manufacture in colonial times. The ore was abundant, the mountains were covered with forests, and the hills were filled with coal for fuel. The necessities of the colonists impelled them to make the mineral resources of the country tributary to their comfort and wealth. Iron was early known to be so abundant in Pennsylvania, that one foreign traveler expresses the opinion that this colony alone could supply all the world with iron so easily was it procured. But England was determined from the first that the colonists should not be a manufacturing people. Nothing was to be allowed to interfere with her workshops at home. Her own children on this side of the water might not share with their brothers of the same family in making articles which they needed for their comfort. American factories were declared to be "nuisances." The colonists could not legally make a nail or a pin, a shovel or a plow. At best they could only smelt their ores into rough pig iron, and send it in that form to England to be manufactured into nails and various implements and then sold back to them at enormous profit. In spite of these restrictions, the irrepressible spirit of the New Englanders led them occasionally to erect a nail factory, or a shop in which iron in some form was wrought; but in general, it may be said there was no manufacture of iron during the colonial period. Its growth during the first hundred years of our national existence is all the more remarkable when we consider how rigidly it was repressed for a century and a half before, and how in the century just closed it has had to compete with the completely furnished workshops, the abundant capital and the cheap labor of Great Britain. Already we are able to supply our own needs and are exporting to other countries. Free industry is capital in itself. If we still import some iron for its peculiar qualities, or because our mills do not keep pace in some respects with our wants, or the fast developing demands of trade, we are sending back to the Old World, as England formerly sent to us, the finished and unsurpassed products of our workshops. Our cutlery is selling in Birmingham and Sheffield; our mowers and reapers are at work on the broad fields of England and France; our sewing-machines are sounding their pleasant hum in the dwellings of Great Britain and the Continent; our firearms are in all the camps of soldiery from the English Channel to Constantinople; our locomotives are whirling over the railways of Russia, and our telegraphic machines are answering each other's intelligent click all over Europe.

COPPER.

The manufacture of copper in this country is almost entirely the growth of the present century, and chiefly of the latter part of it. Copper abounds in a large portion of the country, and various mines have been worked from time to time, but hardly any of them have paid the expenses of working, except some in Tennesee and Georgia, and those in the region of Lake Superior. The oldest American charter for a mining company of any sort was granted in 1709, for working copper ores at Simsbury, in Connecticut. The ore was shipped to England and reduced there, but the mining does not seem to have been profitable, and about the time of the outbreak of the Revolutionary war the mines were sold to the State and converted into a prison. Here, along with culprits of various sorts, many Tories were confined. After being used for a prison during a period of about sixty years, the State having built a new

prison at Wethersfield, mining operations were resumed at Simsbury, now East Granby, but not with sufficient success to warrant their long continuance, and the mines are now merely an object of resort on account of their picturesque locality and their interesting history.

The Lake Superior mines so far surpass all others in our country in the richness of their yield, that hardly any others are successfully wrought. The copper of this region was brought to notice by the Jesuit missionaries as long ago as 1659. Attention was called to it again by Charlevoix in 1744. Attempts to mine it were made a century ago, but unsuccessfully, so far away were the mines then from civilized inhabitants, and so little developed were the means of transportation to and from that distant region. The first scientific examination of the Lake Superior copper district was made in 1841, by Dr. Houghton, who lost his life while engaged in his explorations. Mining was begun in 1844, and has been prosecuted with success ever since, by various companies. The copper of these mines is of unexampled richness, and they are furnishing us abundantly a metal second only in value to iron. In the form of sheets it is used largely for sheathing the bottoms of ships and for the manufacture of many important utensils. In the shape of wire it forms the conductor of our telegraphic machines, and so becomes the medium of communication between all parts of the world and all the millions of its people. But, perhaps, its principal use is in forming valuable alloys with other metals. In combination with zinc it forms brass and with tin it makes bronze. Combined with zinc, tin, nickel, and other ingredients, in various proportions, it constitutes gun metal, as it is called, for the manufacture of certain kinds of cannon, bell metal for bells, speculum metal for the reflectors of telescopes, and German silver, to be used in that state for spoons, forks, and various articles of table furnishing, or to be coated with silver by the electrotype process. It enters largely also into the composition of the coinage of the country.

The census of 1870 gives the following statistics:

Establishments, - - - -	99
Capital, - - -	$ 5,506,800
Materials, - - -	13,291,289
Products, - - -	15,796,750

LEAD.

Lead is found in many localities in our country, but thus far it may be said it has been found in circumstances which make the mining of it profitable only in the southwestern part of Virginia, and in the states of Iowa, Illinois, and Missouri. The principal supply of this metal from our own soil has been drawn from the last named states. The lead region of our country, as it may be called, is a district lying mainly in the southwestern part of Wisconsin, but embracing also the northwestern portion of Illinois, and a section of Iowa, on the opposite side of the Mississippi River. It is a district measuring about ninety miles in an east and west direction, and in a northern and southern about seventy. Lead of a very pure quality is found in this region. It was first discovered by French explorers, about the year 1700. The mines here began to be worked in 1788, by one Dubuque, from whom the now important city of Dubuque in the heart of the lead region takes its name. The following table gives the production of these mines, or the principal part of it, most of the lead mined in this region seeking its market naturally at St. Louis and New Orleans.

Years.	Pig lead from American mines received at St. Louis and New Orleans. lbs.	Pig, bar, and sheet lead imported. lbs.	Invoice value of yearly importations.	Average rate of duty per 100 lbs.	White and red lead imported lbs.	Invoice value of yearly importations.
1832.....	8,540,000	5,333,588	$124,311	$3.00	557,781	$30,791
1833.....	12,600,000	2,282,068	60,660	3.00	625,069	36,049
1834.....	14,140,000	4,997,293	168,811	2.77	1,024,663	57,572
1835.....	16,000,000	1,006,472	35,663	2.77	832,215	50,225
1836.....	18,000,000	919,087	35,283	2.55	908,105	62,237
1837.....	20,000,000	335,772	13,871	2.57	599,980	47,316
1838.....	20,860,000	165,844	6,573	2.34	522,681	38,683
1839.....	24,000,000	528,922	18,631	2.31	720,408	50,905
1840.....	27,000,000	519,343	18,111	2.08	643,418	41,043
1841.....	30,000,000	62,246	2,605	2.07	532,122	31,617
1842.....	33,110,000	4,689	155	3.00	479,738	28,747
1843.....	39,970,000	290	3	3.00	93,166	5,600
1844.....	44,730,000	..	..	3.00	..	..
1845.....	51,240,000	19,609	458	3.00	231,171	14,744
1846.....	54,950,000	214	6	3.00	215,434	15,685
1847.....	46,130,000	224,905	6,288	0.56	298,387	15,228
1848.....	42,420,000	2,684,700	85,387	0.64	318,781	19,703
1849.....	35,560,000	..	..	..	..	..
1850.....	40,313,910	36,997,751	1,182,597	0.64	853,463	43,756
1851.....	34,934,480	43,470,210	1,517,603	0.70	1,105,852	52,631
1852.....	28,593,180	37,544,588	1,283,331	0.70	842,521	43,365
1853.....	31,497,950	43,174,447	1,618,058	0.70	1,224,068	69,058
1854.....	21,472,990	47,714,140	2,095,039	0.90	1,865,893	102,812
1855.....	21,441,140	56,745,247	2,556,523	0.90	2,319,099	134,855
1856.....	15,347,880	55,294,256	2,528,014	0.91	3,548,409	174,125
1857.....	14,028,140	47,947,698	2,305,768	0.72	1,793,377	113,075
1858.....	21,210,420	41,230,019	1,972,243	0.72	1,785,851	109,426
1859.....	23,442,870	64,000,000	2,617,770	0.72	61,936	3,871
1860.....	22,683,125	45,896,700	1,835,863	0.72	177,744	11,109
1861.....	21,554,743	45,654,100	1,826,164	0.72	200,843	12,553
1862.....	20,370,188	34,611,575	1,384,463	0.73	307,824	19,239
1863.....	22,798,142	39,437,566	2,816,969	1.11	1,004,624	71,766
1864.....	18,141,878	20,897,109	2,247,001	1.32	1,390,052	149,468
1865.....	18,266,313	7,969,080	1,195,362	1.75	1,662,516	249,385
1866.....	23,393,450	40,223,888	2,513,993	2.25	2,035,395	135,693
1867.....	26,301,357	41,065,175	2,737,745	0.95	1,464,972	122,081
1868.....	30,014,759	41,437,520	2,762,520	1.00	1,399,512	116,626
1869.....	33,717,830	56,062,128	3,503,883	0.97	336,732	28,061
1870.....	37,136,742	53,310,464	3,644,404	0.96	367,008	30,584

It will be noticed that while the products of our lead mines have steadily increased, our importations of lead have not diminished. This is to be accounted for not only by the increase of our population and the natural demand growing out of this, but to the rapid development of many of the arts among us in which lead is used. As the basis, in the form of carbonate of lead, of white paint, its use has increased very rapidly. In the form of lead pipe, for the conveyance of water and other fluids, large quantities are used. In the form of sheets it is made the cover for roofs, while it is also used for many other purposes. Large quantities of it are also used in the manufacture of shot and of balls for muskets and rifles. The value of the lead product of the country in 1870, is given by the census as $18,327,196.

GOLD.

Although many of the first settlers of the United States, particularly those who planted themselves in the southern portion, were animated in their immigration to this country by the prospect of finding gold, they did not find it until more than a century from the time of their coming hither. Salmon, in his "Modern History," 1746, alludes to a gold mine in Virginia, which of late "had made much noise," but he does not give its location, and evidently thinks it of little importance. In 1779, we are told in Wheeler's "History of North Carolina," a son of Conrad Reed picked up a piece of gold as large as

GOLD MINING IN CALIFORNIA.

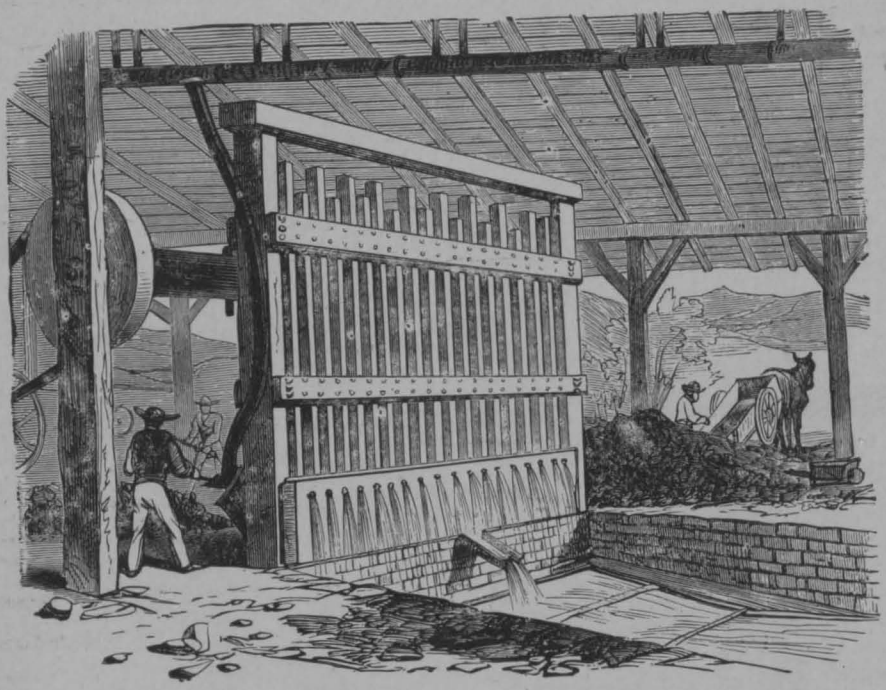
than a thous
ments in ag
chinery. T
these machi
that while t
was reporte
production
000. Whil
implements
to be in 18
in the cens
At the sam
the United
$3,271,575.
803,861. T
pressive wa
agricultural
If we tu
implements
of the proc
we shall se
advance wh
century jus
When th
this country
Indians, a n
soon becam
ists, and c
of the cou
from the I
to distingui
grains, wh
English cal
they name
grain is e
which it is
ties. It ea
from the c
1770 being
of this grai
until the la
that perio
of the We
and the va
with the ra
machinery,
crease in
staple. In
nearly 60
1873 it
The growt
second to
earliest of
mitted to
to the We
late as 18
bushels o

PROSPECTER IN CALIFORNIA GOLD MINES.

CHINESE IN CALIFORNIA GOLD MINES.

LARGE ROCKER USED IN CALIFORNIA WITH QUICKSILVER.

The above cut represents a rocker of unusual dimensions, which has been introduced in some places in California, and is employed particularly for auriferous deposits in which the gold is in too fine particles to be caught in the long tom. It is slightly inclined, and is rocked by one man while the others collect the gravel and throw it upon the perforated iron plate. Across the bottom of the trough are placed "riffle bars," and behind each one of these some mercury. The fine particles of gold coming in contact with this are caught and retained in the form of amalgam. The coarse gravel falls off the lower end of the plate, while the fine mud and sand are washed by the water through the holes in the plate.



STAMPS FOR CRUSHING GOLD ORES.

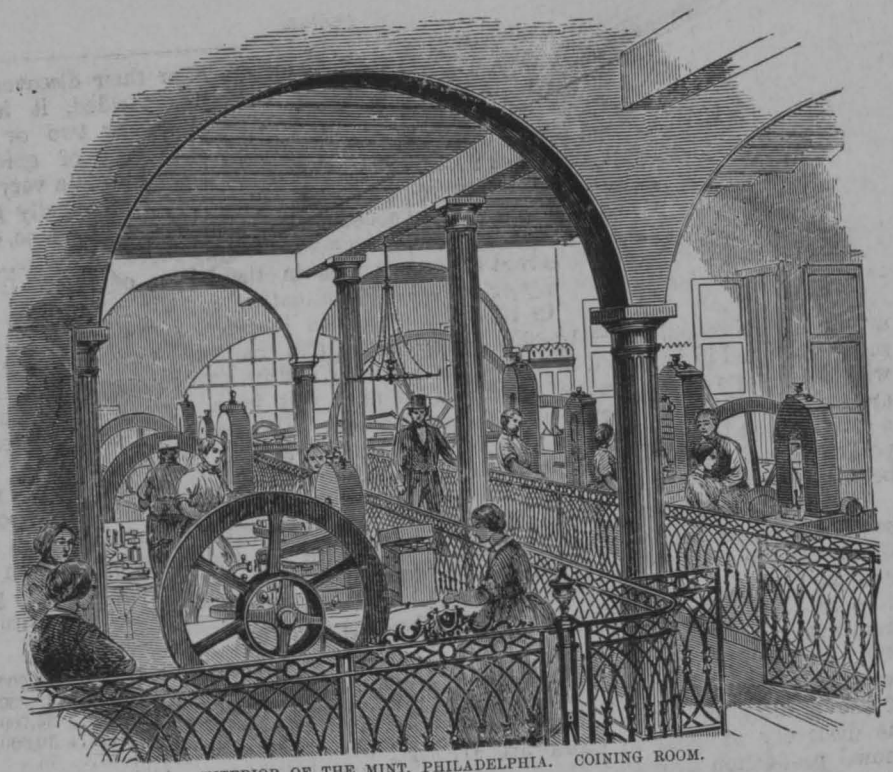
This cut represents a common form of stamps, such as are used for pulverizing auriferous quartz or other ores. They are variously arranged at different mills; sometimes four or five running in one set, and several sets being placed on the same line, but separate from each other. This arrangement is more convenient for stopping a portion at a time as may be required for repairs or for collecting the very coarse gold under the stamps which cannot pass through the grating or the plates, perforated with many holes, that are usually employed in front of the stamps.

a small smoothing iron, from the bed of a brook on his father's farm, but its value not being known, it was kept for several years in the house to hold the door open, and was then sold to a silversmith for $3.50. In 1802, some specimens of gold were found in South Carolina. These were often large and valuable, but the whole amount of American gold received at the mint in Philadelphia before the year 1820, amounted to only $43,689. In 1827, the amount had risen only to $110,000. These seem small and insignificant in comparison with the reports of the mines of California, and it is remarkable that, even at so recent a date as that last mentioned, the rich deposits of gold in our country had hardly begun to appear.

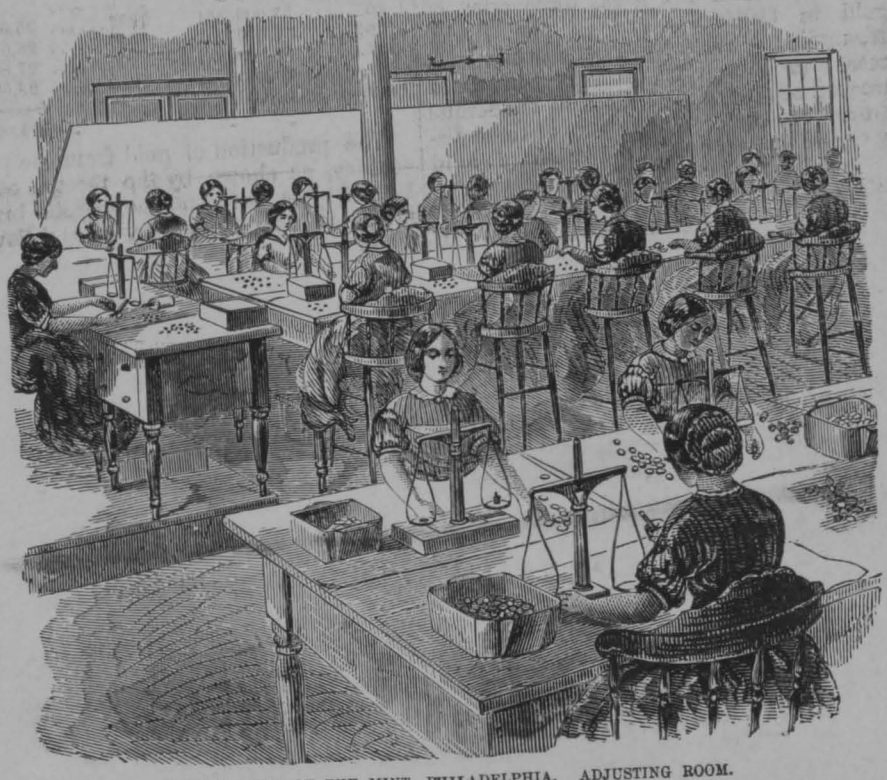
In 1829, Virginia and South Carolina began to be known as gold producing states. In the same year gold was discovered in Georgia, and the deposits there were so rich that the receipts at the mint from this state the next year were $212,000. Gold mining now assumed the importance of one of the regular industries of the country, and from this time until the discovery of gold in California, the annual production averaged about $100,000. But since the great discoveries of gold in California and in the Rocky Mountain region, the southern mines have ceased to be worked, or they have been worked on so small a scale that the results are not reported. At the time of these discoveries, the annual production of gold throughout the world had gradually fallen to about $20,000,000, more than half of which came from the mines of Russia. In 1853, five years after their discovery, the mines of California yielded, it is estimated, $70,000,000. For two or three years after the discovery of gold, the mining of it was carried on in a very rude way, and was confined principally to the collection, in the beds of the streams, of the loose gold brought there by the mountain torrents in their flow of ages. But in 1851, attention was directed to the gold still held in place in the quartz veins or ledges, and companies were formed in this country and in Europe for the purpose of mining this in a regular and scientific manner. The success of these companies has been ample. In 1868, there were four hundred and seventy-two quartz mills in operation, and nearly all were reported as doing a profitable business. The production of the California mines from the commencement of mining to the year 1870, according to the best authorities has been as follows:

1848.....	$10,000,000	1860.....	$45,000,000
1849.....	40,000,000	1861.....	40,000,000
1850.....	50,000,000	1862.....	34,700,000
1851.....	55,000,000	1863.....	30,000,000
1852.....	60,000,000	1864.....	26,600,000
1853.....	65,000,000	1865.....	28,500,000
1854.....	60,000,000	1866.....	26,500,000
1855.....	55,000,000	1867.....	25,000,000
1856.....	55,000,000	1868.....	28,000,000
1857.....	55,000,000	1869.....	27,800,000
1858.....	50,000,000	1870.....	28,500,000
1859.....	50,000,000		
			$945,600,000

The production of gold from the whole country, as shown by the receipts at the Philadelphia mint and the various branch mints is also shown by the following table:



INTERIOR OF THE MINT, PHILADELPHIA. COINING ROOM.



INTERIOR VIEW OF THE MINT, PHILADELPHIA. ADJUSTING ROOM.

1.—MINT OF THE UNITED STATES, PHILADELPHIA.

Period.	Virginia.	North Carolina.	South Carolina.	Georgia.	Tennessee.	Alabama.	New Mexico.	California	Oregon.	Kansas.	Other sources.	Total.
1804 to 1827 .	..	$110,000 00	..	..	..	..	..	..	..	..	..	$110,000 00
1828 to 1837..	$427,000 00	2,519,500 00	$327 500	$1,763,900 00	$12,400	..	..	..	..	..	$13,200	5,063,500 00
1838 to 1847..	518,294 00	1,303,636 00	152,366	566,316 00	16,499	$45.493	..	..	..	..	21,037	2.623,641 00
1848.....	57,886 00	109,034 00	19,228	3,370 00	3,497	3,670	$682	$44,177 00	..	..	..	241,544 00
1849.....	129,382 00	102,688 00	4,309	10,525 00	2,739	2,977	32,889	5,481,439 00	..	..	144	5,767,092 00
1850.....	65,991 00	43,734 00	759	5,114 00	307	1,178	5,392	31,667,505 00	..	..	326	31,790,306 00
1851.....	69,052 00	49,440 00	12,338	2,490 00	126	817	890	46,939,367 00	..	..	..	47,074,520 00
1852.....	83,626 00	65,248 00	4,505	3,420 00	..	254	814	49,663,623 00	..	..	..	49,821,490 00
1853.....	52,200 00	45,690 00	3,522	1,912 00	..	..	3,632	52,732,227 00	13,535	..	5,213	52,857,931 00
1854.....	23,347 00	9,062 00	1,220	7,561 00	..	245	738	35,671,185 00	..	..	..	35,713,358 00
1855.....	28,895 50	22,626 00	1,200	1,733 50	..	310	900	2,634,297 63	..	..	1,535	2,691,497 63
1856.....	21,607 00	12,910 00	5,980	4,910 00	..	..	2,460	1,440,134 58	40,750	..	..	1,528,751 58
1857.....	2,505 00	6,805 00	2,565	3,542 00	..	..	.	565,566 41	..	..	..	580,983 41
1858.....	18,377 00	15,175 00	300	18,365 00	..	..	..	1,372,506 07	3,600	..	..	1,428,323 07
1859.....	15,720 00	9,305 00	4,675	20,190 00	240	..	275	959,191 79	2,960	$145	..	1,012,701 79
Total.....	$1,513,882 50	4,424,853 00	540,467	2,413,348 50	35,808	54,944	48,672	229,171,219 48	60,845	145	41,455	238,305,639 48

2.—BRANCH MINT, SAN FRANCISCO.

Period.	California.	Period.	California.	Period.	California.
1854.....	$10,842,281 23	1856.....	29,209,218 24	1858.....	19,104,369 99
1855.....	20,860,437 20	1857.....	12,526,826 93	1859.....	14,098,564 14
				Total.....	$106,641,697 73

3.—BRANCH MINT, NEW ORLEANS.

Period.	North Carolina.	South Carolina.	Georgia.	Tennessee.	Alabama.	California.	Other sources.	Total.
1838 to 1847.....	$741	$14,306	$37,364	$1,772 00	$61,903	..	$3,613	$119,699 00
1848.....	..	1,488	2,317	947 00	6,717	$1,124 00	..	12,593 00
1849.....	..	423	..	..	4,062	669,921 00	2,733	677,189 00
1850.....	..	..	..	..	3,560	4,575,576 00	894	4,580,030 00
1851.....	..	..	..	..	1,040	8,764,682 00	..	8,770,772 00
1852.....	..	..	..	..	..	3,777,784 00	..	3,777,784 00
1853.....	.	.	..	..	..	2,006,673 00	..	2,006,673 00
1854.....	..	.	.	.	..	981,511 00	..	981,511 00
1855.....	..	..	..	..	..	411,517 24	..	411,517 24
1856.....	..	..	..	..	..	283,344 91	..	283,344 91
1857.....	..	..	..	..	..	129,328 39	..	129,328 39
1858.....	..	..	1,560	164 12	..	448,439 84	..	450,163 96
1859.....	..	..	..	..	..	93,272 41	..	93,272 41
Total.....	$741	16,217	41,241	2,883 12	77,282	22,148,173 79	7,290	22,293,827 91

4. BRANCH MINT, CHARLOTTE, NORTH CAROLINA.

Period.	N. Carolina.	S. Carolina.	California.	Total.
1838 to 1847....	$1,529,777 00	$143,941 00	..	$1,673,718 00
1848.....	359,075 00	11,710 00	..	370,785 00
1849.....	378,223 00	12,509 00	..	390,732 00
1850..... ..	307,289 00	13,000 00	..	320,289 00
1851.....	275,742 00	25,478 00	$15,111 00	316,061 00
1852.....	337,604 00	64,934 00	28,362 00	430,900 00
1853.....	227,847 00	61,845 00	15,465 00	305,157 00
Total.....				

Period.	N. Carolina.	S. Carolina.	California.	Total.
1854.....	$188,277 00	$19,006 00	$6,328 00	$213,606 00
1855.....	196,894 03	14,277 17	5,817 66	216,988 86
1856.....	157,355 18	..	16,237 35	173,592 53
1857.....	170,560 33	5,807 16	..	176,067 49
1858.....	75,376 47	..	..	75,376 47
1859.....	182,489 61	22,762 71	..	205,252 32
	$4,386,239 62	$394,965 04	$87,321 01	$4,868,525 67

5. BRANCH MINT, DAHLONEGA, GEORGIA.

Period.	N. Carolina.	S. Carolina.	Georgia.	Tennessee.	Alabama.	California.	Kansas.	Other sources.	Total.
1838 to 1847..	$64,351 00	$95,427 00	$2,978,353 00	$32,175 00	$47,711 00	..	..	..	$3,218,017 00
1848.....	5,434 00	8,151 00	251,376 00	2,717 00	4,075 00	..	..	..	271,753 00
1849.....	4,882 00	7,323 00	225,824 00	2,441 00	3,661 00	..	..	..	244,131 00
1850...	4,500 00	5,700 00	204,473 00	1,200 00	1,800 00	$30,0 5 00	..	$951 00	379,309 00
1851.....	1,971 00	3,236 00	154,723 00	2,251 00	2,105 00	214,072 00	..	..	476,789 00
1852.....	443 00	57,543 00	93,122 00	750 00	..	324,931 00	..	..	452,290 00
1853.....	2,085 00	33,950 00	56,984 00	149 00	..	359,122 00	..	..	280,225 00
1854.....	5,818 00	15,988 00	47,027 00	223 00	..	211,109 00	..	..	116,652 07
1855.....	3,145 82	9,113 27	56,686 36	..	277 92	47,428 70	..	..	101,405 26
1856.....	..	25,7?3 75	44,107 99	106 42	..	31,467 10	..	..	39,679 54
1857.....	..	8,083 89	25,097 63	..	..	6,498 42	..	..	95,614 58
1858.....	..	32,322 28	57,891 45	107 33	..	5,293 52	..	..	65,072 24
1859.....	2,656 83	3,810 35	57,023 12	..	..	699 19	$82 70	..	
Total..... ...	$95,286 70	$307,171 54	$4,252,688 55	$42,119 75	$59,629 92	$1,230,705 53	$82 70	$9?1 00	$5,988,635 69

6. ASSAY OFFICE, NEW YORK.

Period.	Virginia.	N. Carolina.	S. Carolina.	Georgia.	Alabama.	California.	Kansas.	Oregon.	Other sources.	Total.
1854.....	$167 00	$3,916 00	$395 00	$1,242 00	..	$9,221 457 00	..	..	..	$9,227,177 00
1855.....	2,370 00	3,750 00	7,620 00	18,100 00	$350 00	25,025,896 11	..	..	$1,600 00	25,054,686 11
1856.....	6,928 00	805 07	4,052 29	41,101 28	233 62	16,259,008 90	..	..	..	16,582,129 16
1857.....	1,531 00	1,689 00	2,663 00	10,451 00	1,545 00	9,899,957 00	..	..	..	9,917,886 00
1858.....	501 00	7,007 00	6,354 00	12,951 ?0	2,181 00	19,660,551 46	..	$5,581 00	27,523 00	19,722,639 46
1859...	436 00	20,122 00	700 00	14,756 00	593 00	11,694,872 25	$3,944 00	2,866 00	405 00	11,788,694 25
Total.....	$11,933 00	$37,289 07	$21,784 29	$93,601 28	$4,902 62	$92,031,722 72	$3,944 00	$8,447 00	$29,528 00	$92,243,151 98

7. SUMMARY EXHIBIT OF THE ENTIRE DEPOSITS OF DOMESTIC GOLD AT THE UNITED STATES MINT AND BRANCTES, TO JUNE 30, 1859.

Mints.	Virginia.	N. Carolina.	S. Carolina.	Georgia.	Tennessee.	Alabama.	New Mexico.	California.	Kansas.	Oregon.	Other sources.	Total.
Philadelphia....	$1,513,582 50	$4,424,853 00	$540,467 00	$2,413,348 50	$35,808 00	$54,944 00	$48,672 00	$229,171,219 48	$145 00	$60,845 00	$41,455 00	$238,305,639 48
San Francisco...	..	..	..	..	..	..	..	106,641,697 73	..	..	..	106,640,697 73
New Orleans....	..	741 00	16 217 00	41,241 00	2,883 12	77,282 00	..	22,148,173 79	..	..	7,290 00	22,293,827 91
Charlotte..... ..	..	4,386,239 62	394,965 04	..	..	..	..	87,321 01	..	..	..	4,868,525 67
Dahlonega	..	95,286 70	307,171 54	4,252,688 55	42,119 75	59,629 92	..	1,230,705 53	$82 70	..	951 00	5,988,635 69
Assay Office ...	11,933 00	37,289 07	21,784 29	93,601 28	..	4,902 62	..	92,031,722 72	3,944 00	8,447 00	29,528 00	92,243,151 98
Total...	$1,525,515 50	$8,944,409 39	$1,280,604 87	$6,800,879 33	$80,810 87	$196,758 54	$48,672 00	$451,310,840 26	$4,171 70	$69,292 00	$79,224 00	$470,340,478 46

[illegible] by the [illegible]

[illegible] tters of [illegible] se who [illegible] portion, [illegible] to this [illegible] gold, [illegible] a cen- [illegible] hither. [illegible] 1746, [illegible] which [illegible] but he [illegible] vidently [illegible] 1779, [illegible] tory of [illegible] Reed [illegible] arge as

[illegible] 61 [illegible] 26 [illegible] 61 [illegible] 3 [illegible] 58 [illegible] 15 [illegible] 5 [illegible] 4 [illegible] 426 [illegible] 5 [illegible] 5 [illegible] 5 [illegible] 42 [illegible] 68 [illegible] 55 [illegible] 131 [illegible] 156 [illegible] 703 [illegible] 298 [illegible] 5 [illegible] 0 [illegible] 7 [illegible] 7 [illegible] 143 [illegible] 05 [illegible] 83 [illegible] 16 [illegible] 37 [illegible] 225 [illegible] 572 [illegible] 049 [illegible] 791 [illegible] voice of [illegible] y im- [illegible] tions.

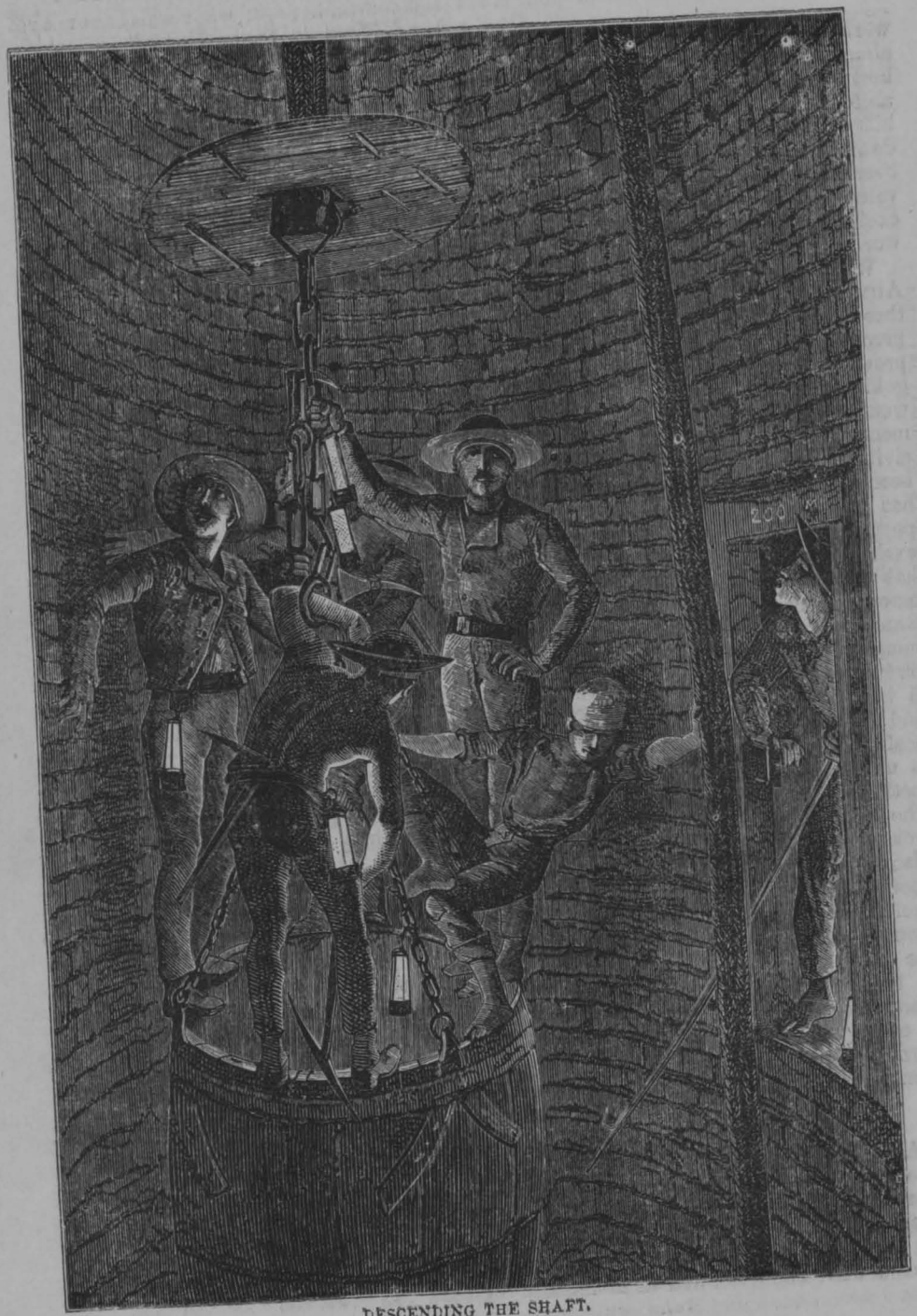
The most important use of gold is for money, or a medium of exchange for the world's business. From the earliest ages almost, gold has been recognized as the best thing for this purpose. Its great and uniform value, its beauty, its indestructibility, while yet easily molded into any desirable form, give it the preference over all other substances as a measure of value and the common medium of the exchange of all the products of the world.

When the California mines and those of Australia, opened about the same time, threw upon the world an amount of the precious metal exceeding many-fold the previous production, it was feared that gold would be cheapened, and that there would be a great disturbance and unsettlement of the business of this and of all civilized countries. But such has not been the result. The abundance of gold has led to its increased use for many purposes besides that of a medium of exchange. Its manufacture into jewelry has become very noticeable. A large amount is consumed in making watches, watch-chains, and various articles of ornament. A great deal goes into the form of plate and is employed for decorative use. A large quantity is beaten into gold leaf, and in this form is employed for many useful as well as ornamental purposes. It is used largely by the dentists in filling teeth, and as the basis of artificial teeth. The book-binders use it liberally in their work. The manufacturers of earthen and glass ware employ it extensively to give beauty and luster to their products. In short, gold has become one of the commonest things we have, and so much of the increased production of it is absorbed in the ways now indicated and in the many more not mentioned, that its value in serving as a medium of exchange has hardly been affected. It remains as the money standard of the world.

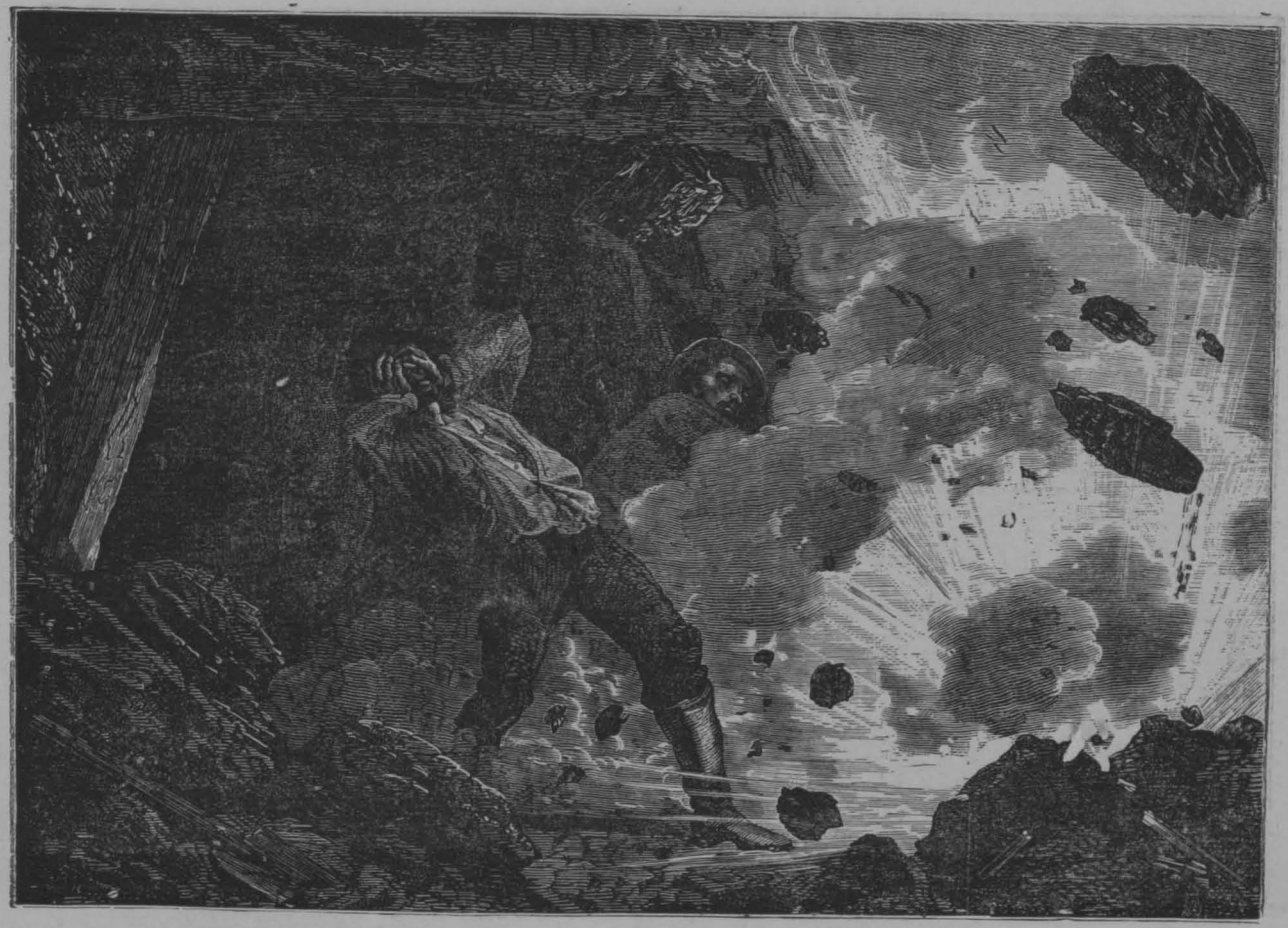
COAL.

As with gold, so with coal, it is remarkable that while our country was, so to speak, full of them, they were both only recently discovered. It is a singular fact that while the presence of iron in Pennsylvania was recognized, and its abundance so well ascertained that Kalm could think that all the world might be supplied from this source, he says: "but coals have not yet been found in Pennsylvania." The bituminous coal of the James river was discovered and used at an earlier period than the anthracite coal of Pennsylvania. The first recorded use of anthracite was by some blacksmiths in 1770, and in 1775 a boat-load of it was sent from Wilkesbarre to the government armory at Carlisle. From this time it continued to be used somewhat by smiths, distillers, etc., but owing to the difficulty of igniting it, and ignorance of the proper method of burning it, it did not get into use for domestic purposes until as late as 1808. In 1812, Col. Shoemaker, of Pottsville, took nine wagon loads of coal to Philadelphia, and sold two of them, at the cost of transportation, to the proprietors of a wire factory at Schuylkill Falls who were desirous to secure the new fuel. They spent half a day in the attempt to burn it, without success. At noon they shut the furnace doors and went to their dinner in disgust with "stone coal;" but on their return were surprised to find the doors of the furnace ready to melt with the intense heat of the red-hot stone. That may be considered as the beginning of the use of anthracite for manufacturing purposes. Those to whom Col. Shoemaker sold the seven remaining loads of coal, did not succeed in making it burn, and they obtained a writ from the city authorities for his arrest as an impostor and swindler, who had sold them rocks for coal.

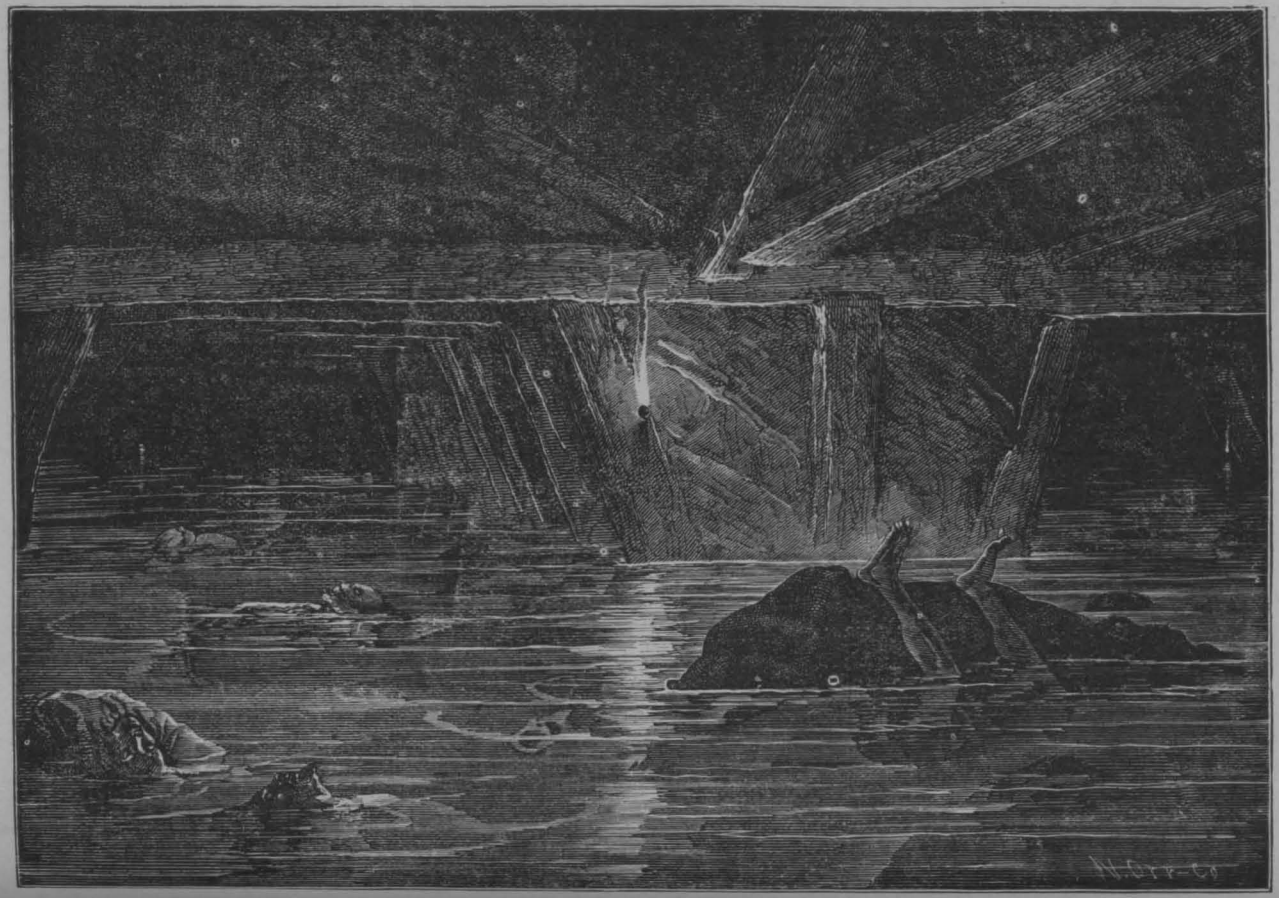
In the first volume of the "Memoirs of the Historical Society of Pennsylvania," T. C. James, M. D., gives a "brief account of the discovery of anthracite coal on the Lehigh." The discovery was made in 1791 by a hunter, who, returning from the chase weary and unsuccessful, struck his foot against what seemed a shining black stone. Curiosity led him to carry it home. He showed it to a friend. It was taken to Philadelphia. The mountain, since famous as Mauch Chunk, was explored and there was revealed the most remarkable coal deposit of the world. It lay as the cap of the mountain, in the open air, covered only by a comparatively thin soil and the trees which had gained a foot-hold upon it. It was only necessary to remove these and there lay in open sight a mountain of coal. In 1793, the "Lehigh Coal Mine Company" was formed for the purpose of mining the coal, but owing to the want



DESCENDING THE SHAFT.



FIRE-DAMP EXPLOSIONS, RARE IN ANTHRACITE, BUT FREQUENT IN BITUMINOUS MINES.



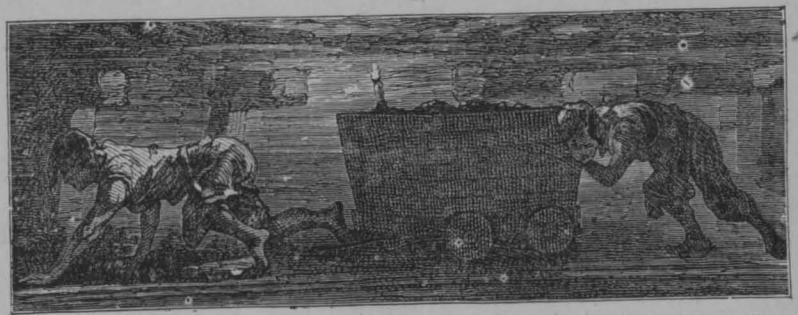
INUNDATION TROUBLESOME, ESPECIALLY IN ENGLISH MINES.

BREAKING OF PROPS AND CAVING IN.

INUNDATION TROUBLESOME, ESPECIALLY IN ENGLISH MINES.

UNDERMINING COAL.—See page 141.

BREAKING OFF AND LOADING COAL.



DRAWING OUT COAL WHERE THERE IS NOT SUFFICIENT DEPTH OF VEIN TO ADMIT MULE TEAMS.

of facilities for transportation, it was twenty years before any of the coal was taken to market, and the regular trade in coal, which is now so immense, tasking so many railways and canals, and employing so much capital, did not commence until 1820, when the receipts in Philadelphia amounted to 365 tons. From this famous mine on the Lehigh river, all anthracite coal came to be known as "Lehigh" coal, and this continued to be its designation until within a few years.

It is difficult to credit the story of the progress of coal mining and the coal traffic in our country. Already fifty railroads and canals have been constructed with special reference to its transportation, at a cost of $260,000,000, and the production of coal in the United States in 1872, was 33,000,000 tons. The Pennsylvania mines alone, from a production of 365 tons in 1820, have yielded in 1870, 15,274,079 tons, and the total yield from these mines from 1820 to the present time, amounts to 219,981,040 tons. But Pennsylvania constitutes only a small portion of the coal region of our country. The supply of coal in the United States is derived from a number of coal fields found in the true coal measures, geologically speaking, a series of strata amounting sometimes to 2,000 and even 3,000 feet in thickness. The principal one of these fields is that known as the Appalachian, which commences in the northeastern portion of Pennsylvania, and extends over nearly all of the States west of the Alleghany Ridge, taking in also the eastern portion of Ohio and portions of Maryland, Virginia, Kentucky, and Tennessee, as well as parts of Georgia and Alabama. Its total area is estimated at 70,000 square miles. The second great coal field includes the larger part of Illinois and the western portion of Indiana and Kentucky. It has an area of about 50,000 miles. The coal of this field is wholly bituminous, and abounds also in oil. The third coal field, less frequently thought of, and less known than the first, is altogether the largest of the three. It is known now as the Rocky Mountain Coal Field, and is, in fact, the largest in the world. It has an area of 1,250,000 square miles, of which nearly one-half is within the limits of the United States. It covers the northern part of Texas, and large portions of the Indian Territory, Arkansas, New Mexico, Colorado, Kansas, Nebraska, Iowa, Wyoming, Dakota, Montana, as well as the Pacific States, and reaches into British North America. The coal is semi-bituminous, and of good quality, though that on the Pacific coast is largely lignite rather than fully developed coal. There are other and smaller coal fields in our country, but they are of little importance in comparison with those which have been mentioned. The strata of rocks which constitute the coal formation amount in aggregate thickness to several thousand feet, rarely however exceeding 3000 feet in this country. The coal occurs in veins varying both in thickness and in number. These veins are separated from each other by intervening strata of sandstone, shales, and limestone. As these intervening strata vary in thickness and sometimes run into each other and sometimes disappear in certain localities, so the veins of coal are nearer to each other in some sections of the general coal region than in others, and sometimes two coal seams come together and form one of unusual thickness. So again, large coal beds or seams may be split by hardly perceptible seams of slate or shale, which will gradually increase and become thick strata, separating what was one coal bed into two or more.

200

110 Gray and buff micaceous slaty sandstone.

5 Dark calcareous slate.
5 Limestone.

56 Blue, buff, and olive shales.

18 Dark gray massive sandstone.

44 Sandstones and shales.

Limestone, thin.

69 Variegated shales and sandstone.

Coal O. 10

0.4 Limestone.
3 Limestone.
15 Shale & sandstone.
2 Limestone.

18 Dark gray shale.
1 Coal.
12 Shale & limestone.
15 to 25 Thin bedded
3 Limestone. [sandstn.

42 Blue shale and sandstone.

0.10 Coal.
Blue and buff shale.
13 Flaggy sandstones.

15 Yellow shale.
14 Slaty sandstone.
17 to 20 Buff shales.
11 to 14 Gray micaceous sandstone.

50 Buff shales.
3.6 Limestone.
20 Buff shales.
0.9 Coal.
20 Sandstone.
4 Shale.
1 Coal.

56 Shales, sandstones & limestones.

2 Coal.
4 Blue friable shale.

35 Gray or brown sandstone.

6 Waynesburg coal.
5 Soft shale.

35 Gray sandstone.

8 Limestone.
10 Shale.

20 Flaggy sandstone.

10 Shale.
18 Limestone.
5 Black slate.
18 Slaty sandstone.
8 Black calcareous slate.
16 Limestone.
20 Shale.

25 Gray slaty sandstone.

35 Brown shale.

14 Pittsburg coal.

60 Shales, calcareous and arenaceous.

3 Limestone.

50 to 70 Calcareous and shaly beds, slaty sandatone, &c.

Green and olive shale.

150 to 200 Greenish slate & sandstone.

30 Green, purple, and brown shale.
1 to 5 Limestone.
40 to 80 Sandstone & green shale.

70 to 130 Slates, shales, and sandstones.

3.6 Up'r Freeport coal.
4 to 7 Limestone.

30 to 40 Slate and slaty sandstone.

3 Lower Freeport coal often cannel.

50 to 60 Massive sandstone.

75 Slate, shale, or sandstone.

3 to 4 Kittanning coal

30 Slate, shale, o sandstone.
0.4 to 6 Iron ore.
15 Ferriferous limestone.
30 Slate and shale.

3 to 4 Clarion coal.

25 Slate and shale.

1 to 2 Brookville coal.

5 to 15 Shale.

50 to 60 Massive sandstone.

2 to 25 Brown & black shale.

Mercer or Tionesta coal. 1 to 4
Coal 1.3 15 Shale and sandstone.
Coal 1 15 Shale and sandstone.
Coal 1.8 15 Shale and sandstone.
15 Shale and sandstone.

100 Sandstone and conglomerate.

20 Slaty sandstone.
1 to 4 Sharon coal.
25 Dark shale.
15 Shale.
15 Brown shale.
Sandstone.

The accompanying illustration will show the relative position in general of the rocks and coal in the bituminous coal measures of western Pennsylvania.

East of the Alleghanies, in the region of the anthracite coal, the strata instead of being level or nearly so as in the great bituminous basins, are tilted up at various angles with the horizon. There is the same succession of coal and shales and sandstone and other rocks, but the strata of coal and rock have been crowded together and the coal has been lifted up by the older rocks beneath it, which have finally thrust themselves up above the coal.

We have spoken as yet only in a general way of the extent of the coal fields of our country. We have said that the three largest of our coal fields extend over a considerable portion of the country, from the Alleghanies to the Rocky Mountains, and the Pacific Ocean. But the question arises, are all these coal areas available for practical working? And the further question arises, what is the depth of the veins, and therefore the quantity of coal in them? Out of the whole number of coal beds, some must be put out of the account because too thin to be worked, or to be worked with advantage. Others lie too deep probably to allow of their profitable working.

The most careful estimates of the matter which have been made, are those of Prof. H. D. Rodgers, and of Mr. Bannan, in the Coal Statistical Register for 1871. From these we get the following results:

EXTENT OF COAL-FIELDS IN THE SEVERAL STATES POSSESSING THE COAL FORMATION.

	Sq. Miles.
Massachusetts and Rhode Island	100
Pennsylvania	12,656
Ohio	7,100
Maryland	550
Virginia	15,900
Kentucky	13,700
Tennessee	3,700
Alabama	6,130
Georgia	170
Indiana	6,700
Illinois	40,000
Michigan	13,350
Iowa	24,000
Missouri	21,329
Nebraska	84,000
Kansas	80,000
Arkansas	12,597
Indian Territory	40,000
Texas	30,000
New Mexico	20,000
Wyoming	20,000
Colorado	20,000
Montana	74,000
Dakota	100,000
Total	650,862

In the anthracite basins of Pennsylvania the number of workable beds varies from 2 or 3 to 25, according to the depth of the basin; the average number is supposed to be 10 or 12. The maximum thickness of coal is in the Pottsville basin, and amounts to 207 feet. Rejecting the thin seams, the average thickness in the south anthracite field is reckoned at 100 feet; in the middle or north field at about 60 feet; and the general average of the whole, 70 feet.

The maximum thickness of the 15 or 16 coal-beds of the central part of the Appalachian coal-field is about 40 feet; but the average of the whole basin is considered to be 25 feet.

The basin extending over Illinois and into Indiana and Kentucky, contains in the last-named state 16 or 17 workable beds, with a maximum thickness of about 50 feet. The average over the whole area is supposed to be 20 or 25 feet.

The following estimates of the British coal-fields are introduced for comparison. Extending these computations to Belgium and France also, the result of calculations of available coal supply, in 1870, is as follows:

RELATIVE AMOUNT OF COAL IN THE SEVERAL GREAT COAL-FIELDS OF EUROPE AND AMERICA.

	Tons.	Ratio.
Belgium (assuming an average thickness of about 60 feet of coal) contains about	36,000,000,000	1
France (with same thickness) contains about	59,000,000,000	1.64
The British Islands (averaging 35 feet thickness) contain nearly	190,000,000,000	5.28
The great Appalachian coal-field (including Pennsylvania, averaging 25 ft)	1,387,500,000,000	35.5
Coal-field of Indiana, Illinois, and western Kentucky (average thickness 25 ft)	1,277,500,000,000	35.5
The Rocky Mountain basin (averaging 30 feet)	3,739,000,000,000	10.29
All the productive coal-fields of North America (with an assumed thickness of 20 feet of coal, and a productive area 200,000 sq. miles)	6,689,000,000,000	185. 8
Great Britain, France, and Belgium,		8.75

The following table contains the yearly returns of the coal product of the United States, from the commencement of the trade in 1820:

HARD ANTHRACITES.

YEARS.	SCHUYLKILL.			Sold on Line of Schuylkill Canal.	LEHIGH.				WYOMING REGION.							Shamokin via N. Central R. R. Div.	Northum'd County Coal Trade	Aggregate.	Annual Increase.
	Canal.	R. Road.	Total.		Canal.	L. Valley Railroad.	Lehigh & Susq. R. R.	Total.	By Lehigh Railroad.	Del & Hud Coal Co.	Penn. Coal Co.	By Canals.	G. West'rn Railroad.	L. & B. Railroad.	Total.				
1820	.....	.....	.....	.....	365	.....	.....	365	.....	.....	.....	.....	.....	.....	.....	.....	.....	365	.....
1821	.....	.....	.....	.....	1,073	.....	.....	1,073	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,073	708
1822	1,480	.....	1,480	.....	2,240	.....	.....	2,240	.....	.....	.....	.....	.....	.....	.....	.....	.....	3,720	2,647
1823	1,128	.....	1,128	.....	5,823	.....	.....	5,823	.....	.....	.....	.....	.....	.....	.....	.....	.....	6,951	3,231
1824	1,567	.....	1,567	.....	9,541	.....	.....	9,541	.....	.....	.....	.....	.....	.....	.....	.....	.....	11,108	4,157
1825	6,500	.....	6,500	.....	28,393	.....	.....	28,393	.....	.....	.....	.....	.....	.....	.....	.....	.....	34,893	23,785
1826	16,767	.....	16,767	.....	31,280	.....	.....	31,280	.....	.....	.....	.....	.....	.....	.....	.....	.....	48,047	13,154
1827	31,360	.....	31,360	.....	32,074	.....	.....	32,074	.....	.....	.....	.....	.....	.....	.....	.....	.....	63,434	15,387
1828	47,284	.....	47,284	3,154	30,232	.....	.....	30,232	.....	.....	.....	.....	.....	.....	.....	.....	.....	77,516	14,062
1829	79,973	.....	79,973	3,332	25,110	.....	.....	25,110	.....	7,000	.....	.....	.....	.....	7,000	.....	.....	112,083	34,567
	186,059		186,059	7,486	166,131			166,131		7,000					7,000			359,190	
1830	89,984	.....	89,984	5,321	41,750	.....	.....	41,750	.....	43,000	.....	.....	.....	.....	43,000	.....	.....	174,734	62,651
1831	81,854	.....	81,854	6,150	40,966	.....	.....	40,966	.....	54,000	.....	.....	.....	.....	54,000	.....	.....	176,820	2,086
1832	203,271	.....	203,271	10,018	70,000	.....	.....	70,000	.....	84,600	.....	.....	.....	.....	84,600	.....	.....	363,871	187,051
1833	252,971	.....	252,971	13,429	123,000	.....	.....	123,000	.....	111,777	.....	.....	.....	.....	111,777	.....	.....	487,748	123,877
1834	226,692	.....	226,692	19,429	106,244	.....	.....	106,244	.....	43,700	.....	.....	.....	.....	43,700	.....	.....	376,636	*d* 111,112
1835	339,508	.....	339,508	18,571	131,250	.....	.....	131,250	.....	90,000	.....	.....	.....	.....	90,000	.....	.....	560,758	184,122
1836	432,045	.....	432,045	17,863	148,211	.....	.....	148,211	.....	103,861	.....	.....	.....	.....	103,861	.....	.....	684,117	123,359
1837	523,152	.....	523,152	21,749	223,902	.....	.....	223,902	.....	115,387	.....	.....	.....	.....	115,387	.....	.....	879,444	195,327
1838	433,875	.....	433,875	28,775	213,615	.....	.....	213,615	.....	78,207	.....	.....	.....	.....	78,207	.....	.....	738,697	140,747
1839	442,608	.....	442,608	30,390	221,025	.....	.....	221,025	.....	122,300	.....	.....	.....	.....	122,300	11,930	11,930	818,402	79,805
	3,031,960		3,031,960	171,725	1,319,963			1,319,963		846,832					846,832	11,930	11,930	5,261,197	
1840	452,291	.....	452,291	28,924	225,318	.....	.....	225,318	.....	148,470	.....	.....	.....	.....	148,470	15,505	15,505	864,384	45,982
1841	581,692	850	585,542	41,223	143,037	.....	.....	143,037	.....	192,270	.....	.....	.....	.....	192,270	21,463	21,463	959,973	95,589
1842	491,602	49,902	541,504	40,584	272,546	.....	.....	272,546	.....	205,253	.....	47,346	.....	.....	252,599	10,000	10,000	1,108,418	148,445
1843	447,058	230,254	677,312	34,619	267,793	.....	.....	267,793	.....	227,605	.....	58,000	.....	.....	285,605	10,000	10,000	1,265,598	157,180
1844	398,887	441,491	840,378	60,000	377,002	.....	.....	377,002	.....	251,905	.....	114,906	.....	.....	365,911	13,087	13,087	1,630,850	367,252
1845	263,587	820,237	1,083,796	90,000	429,453	.....	.....	429,453	.....	273,435	.....	178,401	.....	.....	451,836	10,000	10,000	2,013,013	382,163
1846	3,440	1,233,142	1,236,582	155,460	517,116	.....	.....	517,116	5,886	320,000	.....	192,503	.....	.....	518,389	12,572	12,572	2,344,005	330,992
1847	222,693	1,360,681	1,583,374	226,610	633,507	.....	.....	633,507	10,466	388,203	.....	284,398	.....	.....	583,067	14,904	14,904	2,882,309	538,304
1848	436,602	1,216,233	1,652,835	252,837	670,321	.....	.....	670,321	10,425	437,500	.....	237,271	.....	.....	685,196	19,356	19,356	3,089,238	206,929
1849	489,208	1,115,318	1,605,126	239,290	781,656	.....	.....	781,656	19,590	454,240	.....	259,080	.....	.....	732,910	19,650	19,650	3,217,641	128,403
	3,790,3 .0	6,468,708	10,358,740	1,169,547	4,317,749			4,317,749	46,367	2,897,981		1,371,905			4,216,253	146,537	146,937	19,373,429	
1850	288,030	1,423,977	1,712,007	297,863	690,456	.....	.....	690,456	32,156	441,403	111,014	243,250	.....	.....	827,823	19,921	19,921	3,321,136	103,495
1851	579,156	1,450,270	2,229,426	312,367	964,224	.....	.....	964,224	25,072	479,078	316,017	336,000	.....	.....	1,156,167	24,899	24,899	4,329,530	1,008,394
1852	800,038	1,650,912	2,450,950	322,211	1,072,136	.....	.....	1,072,136	41,890	497,105	426,164	319,341	.....	.....	1,284,500	25,846	25,846	4,899,975	570,445
1853	888,695	1,582,248	2,470,943	394,078	1,054,309	.....	.....	1,054,309	26,235	494,327	512,659	442,511	.....	.....	1,475,732	15,500	15,500	5,097,144	197,169
1854	907,354	1,987,854	2,895,208	444,160	1,207,186	.....	.....	1,207,186	39,232	440,944	496,648	492,689	133,965	.....	1,603,478	63,500	63,500	5,831,834	734,690
1855	1,105,263	2,213,292	3,318,555	471,861	1,275,050	9,063	.....	1,284,113	50,209	565,460	504,803	464,039	187,000	.....	1,771,511	116,117	116,117	6,486,097	654,263
1856	1,169,453	2,088,903	3,258,356	520,499	1,186,230	165,740	.....	1,351,970	44,270	499,650	612,500	510,631	305,530	.....	1,972,581	137,406	137,406	6,751,542	265,445
1857	1,169,453	2,038,903	3,208,356	520,499	1,186,230	165,740	.....	1,351,970	44,270	499,650	612,500	510,631	305,530	.....	1,972,581	137,406	137,406	6,751,542	*d* 320,164
1858	1,275,989	1,709,552	2,985,541	511,977	900,314	418,235	.....	1,318,541	37,959	480,699	536,008	407,914	490,023	.....	1,952,603	155,806	155,806	6,524,838	93,460
1859	1,323,804	1,542,645	2,866,449	441,166	909,000	471,030	.....	1,380,030	69,644	348,789	630,056	346,430	683,411	210,042	2,186,094	135,893	135,893	6,431,378	1,092,678
	1,372,021	1,632,932	3,004,953	554,774	1,050,659	577,652	.....	1,628,311	71,399	591,000	688,854	453,548	829,435	223,806	2,731,236	180,753	180,753	7,517,516	
	9,709,803	17,482,585	27,192,390	4,181,156	10,309,564	1,641,720		11,951,286	438,066	4,838,455	4,834,723	4,016,353	2,629,364	433,848	12,961,725	875,641	875,641	56,954,864	
1860	1,356,688	1,878,157	3,270,516	608,877	1,091,032	730,642	.....	1,821,674	100,277	499,568	701,523	435,306	1,080,227	519,777	2,941,817	210,108	210,108	8,244,115	726,599
1861	1,183,570	1,460,832	2,697,489	435,320	994,705	743,672	.....	1,738,377	111,073	726,644	629,657	316,765	1,104,319	767,661	3,055,140	241,451	241,451	7,732,457	*d* 511,658
1862	981,729	2,305,606	2,890,598	545,916	396,227	882,573	.....	1,351,054	26,723	637,066	601,091	559,246	1,094,315	767,661	3,145,770	241,642	241,642	7,629,061	*d* 103,395
1863	885,842	3,065,216	3,433,265	671,589	699,558	1,195,155	.....	1,894,713	.....	828,150	662,904	662,721	1,223,165	964,753	3,759,610	274,936	274,936	9,362,885	1,733,824
1864	1,000.500	3,065,577	3,642,218	748,448	758,087	1,295,419	.....	2,054,669	9,314	852,136	759,544	630,142	1,302,457	929,374	3,960,836	333,478	333,478	9,991,201	628,316
1865	1,022,740	3,090,814	3,735,802	746,629	888,784	1,402,277	.....	1,822,535	250,694	1,302,894	535,385	569,401	1,519,538	1,050,313	4,736,616	557,161	557,161	12,055,797	*d* 719,044
1866	1,297,047	3,714,644	4,633,487	1,010,905	1,066,303	1,730,475	.....	2,128,867	344,218	1,422,229	861,730	451,475	1,719,321	1,184,110	5,328,322	485,697	485,697	12,216,215	2,783,540
1867	1,030,235	3,446,826	4,334,820	1,107,826	1,906,604	1,948,385	.....	2,067,446	452,935	1,422,229	861,730	451,475	1,719,321	1,184,110	5,328,322	492,265	873,057	13,405,016	160,418
1868	987,628	3,574,874	4,414,356	1,037,053	989,947	2,603,103	1,058,054	2,507,582	811,316	1,611,113	953,855	429,642	1,728,785	1,291,839	5,990,813	474,525	928,404	13,221,386	1,288,801
1869	698,879	4,239,457	4,748,960	730,913	605,144	2,310,170	1,297,825	1,929,523	1,296,268	1,369,319	966,637	425,014	1,563,928	447,143	6,068,369				*d* 183,630
	10,444,858	29,842,002	37,801,521	7,643,473	8,496,303	14,841,871	2,355,879	19,311,440	3,402,818	10,038,694	7,249,820	4,838,175	13,343,129	8,030,270	42,243,951	3,768,425	4,603,096	103,100,290	
1870	526,804	3,750,990	3,720,403	1,189,164	789,112	3,608,587	1,354,052	3,040,303	2,017,755	2,226,948	1,096,008	395,660	2,348,097	295,720	7,559,902	486,174	1,121,384	14,846,782	1,625,386
	27,673,744	57,494,939	61,954,454	14,340,557	25,490,037	20,062,166	3,709,931	49,126,984	5,914 036	20,625,975	13,164,550	10,624,243	18,320,590	8,773,233	71,735,192	5,587,707	6,758,588	199,925,744	

1869	10,444,858 526,994	29,842,002 3,750,990	37,801,521 3,730,403	7,643,475 1,189,164	8,496,393 789,112	14,841,871 3,608,587	2,355,879 1,354,052	19,311,440 3,040,303	3,402,818 2,017,755	10,038,694 2,226,948	7,249,820 1,086,008	4,838,175 395,660	2,348,097	295,720	7,559,902	486,174	1,121,384	14,846,782	1,625,388			
	27,373,744	57,494,328	81,254,454	14,340,557	25,490,037	30,062,168	3,709,931	40,126,984	5,914 036	20,825,975	13,164,550	10,624,243	18,320,590	8,773,233	71,735,192	5,587,707	6,758,588	199,925,744				

SEMI-ANTHRACITE AND BITUMINOUS.

YEARS.	Lykens Valley and Short Mt.	Big Lick.	Summit Coal Co.	Trevorton.	Penn. Central, and Phila. and Erie. East.	Broad Top.	CUMBERLAND COAL TRADE. Balt. and Ohio R. R.	CUMBERLAND COAL TRADE. Chesap. and Ohio Canal.	CUMBERLAND COAL TRADE. Total.	Import of Foreign Coal.	Aggregate.	Increase and Decrease.	Aggregate of all kinds.	Total Increase and Decrease.	Exportation Domestic Coal.	Bituminous in other portions of United States.	Total Consumption.
1820	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	365				
1821	.....	.....	.....	.....	.....	.....	.....	.....	.....	22,122	22,122	22,122	23,195	22,830			
1822	.....	.....	.....	.....	.....	.....	.....	.....	.....	34,525	34,525	12,401	38,243	315,052			
1823	.....	.....	.....	.....	.....	.....	.....	.....	.....	30,435	30,435	*d* 4,090	37,384	*d* 869			
1824	.....	.....	.....	.....	.....	.....	.....	.....	.....	7,725	7,725	*d*30,156	18,336	*d*25,999			
1825	.....	.....	.....	.....	.....	.....	.....	.....	.....	25,645	25,645	18,417	60,538	42,205			
1826	.....	.....	.....	.....	.....	.....	.....	.....	.....	35,665	35,665	10,020	83,712	23,174			
1827	.....	.....	.....	.....	.....	.....	.....	.....	.....	40,257	40,257	4,502	103,691	19,979			
1828	.....	.....	.....	.....	.....	.....	.....	.....	.....	32,302	32,302	*d*7,955	109,818	6,127			
1829	.....	.....	.....	.....	.....	.....	.....	.....	.....	45,393	45,393	13,091	157,476	47,658			
										273,568	273,568		636,903				
1830	.....	.....	.....	.....	.....	.....	.....	.....	.....	58,136	58,136	12,743	232,870	75,394			
1831	.....	.....	.....	.....	.....	.....	.....	.....	.....	36,509	36,509	*d*21,627	213,329	*d* 19,541			
1832	.....	.....	.....	.....	.....	.....	.....	.....	.....	72,978	72,978	36,496	436,849	223,520			
1833	.....	.....	.....	.....	.....	.....	.....	.....	.....	92,432	92,432	19,454	580,180	143,331			
1834	.....	.....	.....	.....	.....	.....	.....	.....	.....	71,626	71,626	*d*20,806	448,262	*d*131,918			
1835	.....	.....	.....	.....	.....	.....	.....	.....	.....	49,969	49,969	*d*21,657	610,727	162,465			
1836	.....	.....	.....	.....	.....	.....	.....	.....	.....	108,432	108,432	58,463	792,549	181,822			
1837	.....	.....	.....	.....	.....	.....	.....	.....	.....	153,450	153,450	45,028	1,032,894	240,345			
1838	.....	.....	.....	.....	.....	.....	.....	.....	.....	129,083	129,083	*d*24,367	867,780	*d*165,114			
1839	.....	.....	.....	.....	.....	.....	.....	.....	.....	181,551	181,551	52,468	999,953	132,173			
										954,166	954,166		6,015,443				
1840	.....	.....	.....	.....	.....	.....	.....	.....	.....	162,867	162,867	*d*18,684	1,027,251	27,298			
1841	.....	.....	.....	.....	.....	.....	.....	.....	.....	155,394	155,394	*d*7,473	1,115,367	88,116			
1842	.....	.....	.....	.....	.....	.....	1,708	.....	1,708	141,521	143,227	*d*12,167	1,251,645	136,278			
1843	.....	.....	.....	.....	.....	.....	10,082	.....	10,082	41,163	51,245	*d*91,982	1,314,843	63,198			
1844	.....	.....	.....	.....	.....	.....	14,890	.....	14,890	87,073	101,963	50,718	1,732,813	417,970			
1845	.....	.....	.....	.....	.....	.....	24,653	.....	24,653	85,776	110,429	8,466	2,123,443	390,630			
1846	.....	.....	.....	.....	.....	.....	29,795	.....	29,795	156,853	176,648	66,219	2,520,653	397,210			
1847	.....	.....	.....	.....	.....	.....	52,940	.....	52,940	148,021	200,961	24,313	3,088,170	567,517			
1848	.....	.....	.....	.....	.....	.....	79,571	.....	79,571	196,168	275,739	74,778	3,364,977	276,807	9,309		
1849	25,325	.....	.....	.....	.....	.....	142,449	.....	142,449	198,213	366,237	90,498	3,583,628	218,801	9,661		
	25,325						356,008		356,008	1,373,049	1,746,710		24,109,575		85,189		
1850	37,763	.....	.....	.....	.....	.....	192,806	4,042	196,848	140,439	415,050	49,813	3,736,186	153,308	38,741		
1851	54,200	.....	.....	.....	.....	.....	174,701	82,978	257,679	214,774	526,653	111,603	4,856,183	1,119,997	37,727		
1852	59,857	.....	.....	.....	.....	.....	268,459	65,719	334,178	183,015	577,050	50,397	5,477,025	620,842	45,336		
1853	69,007	.....	.....	.....	.....	.....	376,219	157,760	533,979	231,508	834,494	257,444	5,931,638	454,613	79,510		
1854	107,500	.....	.....	.....	.....	.....	503,836	155,845	659,681	252,865	1,020,046	185,552	6,851,880	920,242	93,884		
1855	117,221	.....	.....	.....	.....	.....	478,486	183,786	662,272	287,408	1,066,901	46,855	7,552,998	701,118	110,586		
1856	102,926	.....	.....	173,112	.....	42,000	502,330	204,120	706,450	293,507	1,097,543	30,642	7,849,085	296,087	136,594		
1857	121,739	.....	.....	140,711	247,491	78,813	465,912	116,574	582,486	360,712	1,379,432	281,889	7,810,810	*d* 38,275	130,335		
1858	127,845	.....	.....	106,686	291,795	105,478	395,405	254,251	649,656	396,628	1,451,345	71,913	7,976,183	165,373	118,304		
1859	138,712	.....	.....	124,290	209,997	130,595	426,512	297,842	724,354	403,928	1,509,166	57,821	9,026,682	1,150,499	151,492		
	936,770			414,799	659,193	356,886				5,309,584	2,302,349	9,878,680	67,248,670		942,529		
1860	178,860	.....	.....	90,148	497,549	186,903	493,031	295,878	788,909	389,986	1,992,061	483,895	10,236,170	1,210,494	187,059		
1861	172,380	.....	.....	49,477	346,289	272,625	172,075	97,599	269,674	465,434	1,643,560	*d*348,501	9,376,015	*d* 860,159	153,174		
1862	177,121	.....	.....	63,223	640,684	333,606	218,950	98,684	317,634	541,099	2,077,703	434,143	9,706,170	330,748	216,453		
1863	141,282	.....	.....	62,200	602,829	305,678	531,553	216,792	748,345	624,348	2,520,420	443,717	11,883,36	2,176,541	173,021		
1864	129,973	.....	.....	56,301	667,157	386,645	399,354	258,642	657,996	597,738	2,408,780	*d*111,640	12,599,981	516,676	175,039	8,500,000	22,000,000
1865	136,900	.....	.....	27,095	769,756	315,996	560,293	343,202	903,495	696,193	2,838,796	430,016	12,110,92	1,149,060	132,438	8,000,000	21,800,000
1866	149,901	.....	70,112	53,648	1,137,881	265,720	736,153	343,178	1,079,331	643,294	3,399,787	560,991	15,455,584	3,334,531	149,273	8,500,000	25,500,000
1867	165,334	.....	127,642	48,118	1,349,869	244,412	735,669	458,153	1,193,822	521,305	3,650,562	250,775	15,866,77	411,193	286,758	9,000,000	26,800,000
1868	212,086	.....	178,302	38,728	1,531,304	280,936	1,014,090	482,325	1,496,415	402,399	4,140,070	490,508	17,545,08	1,779,309	277,063	9,500,000	29,200,000
1869	183,731	.....	201,018	45,612	1,721,375	359,551	1,499,676	652,151	2,151,827	423,810	5,086,930	946,860	18,308,31	763,230	583,737	10,000,000	31,800,000
	1,647,528		577,074	1,017,196	9,264,493	2,952,072	6,360,844	3,246,604	9,607,448	5,305,506	29,758,669		133,086,99				
1870	67,775	80,619	296,424	67,847	1,889,089	313,422	1,361,817	604,137	1,965,954	420,683	5,110,823	*d* 67,421	19,957,58	1,649,269	227,918	10,800,000	3 ,000,000
	2,677,398	80,619	873,498	873,618	11,812,975	3,640,480	11,863,412	5,373,658	17 237,070	10,437, 92	47,720,616		248,257,171				

Aggregate of Bituminous mined in other portions of the United States, not included in this table.

Total consumption of Anthracite and Bituminous Coal in the United States.

These figures are simply astonishing. They indicate mines of wealth for our country better than all the mines of gold and silver. They show us an unfailing supply of a material necessary for the prosecution of the industries of a great nation for ages to come. As yet we have drawn upon this great treasure-house of fuel, of power under our feet, only to the smallest extent. Great as the amount of coal produced since 1820 seems in one view to be, yet in comparison with the great storehouse from which it has been drawn, it is hardly noticeable. From the acres of the Summit quarry, where the anthracite was first discovered, 850,000 tons have been taken, and the whole region around is estimated to contain 65,000 tons of coal for every acre of surface. There are no signs of exhaustion even where the mining has been prosecuted longest and most successfully. But what has the coal already mined done for the industry and enterprise of the country! How many mills and factories has it brought into existence, by offering at a cheap rate a material which would generate the steam requisite to propel the needed machinery! How many spindles and looms has it set in motion! How many furnaces and foundries has it lighted up with the glow of molten metals being fashioned into thousands of instruments for the use and comfort of man! What ships has it driven across the oceans on errands of commerce! What palaces of elegance has it sped up and down our rivers, and what trains has it whirled along our railways on missions of business and pleasure! It is the Black Giant of our industry, and if it has done so much in fifty years to develop the resources of the country, what may we not confidently expect it will do for us or enable us to do in the future? What visions does it give us of the possible greatness of our nation?

But our coal-fields are not to be estimated merely as supplies of fuel or sources of power. They are also sources of light; and in this respect have distinguished the century just closed, for the illumination of our buildings and streets by gas dates from a period within the memory of many now living. The first gas light company was chartered in 1810.

While the anthracite coals, being mostly carbon, are only fitted to produce heat by combustion, the bituminous coals, having a large proportion of volatile matters, are not only useful as generators of heat but are capable of yielding large amounts of illuminating gases and oils. Within the last twenty years the use of gas has increased very rapidly. In 1860, the number of companies engaged in the manufacture of gas was 433, employing a capital of nearly $60,000,000. In 1870, the number of companies had increased to more than 800, and the capital employed to more than $112,000,000.

In the production of illuminating gas from the bituminous coal, a liquid substance is produced which has received the name of coal tar. It was formerly considered as a waste substance only, but within the last few years it has been used for various purposes. Chemical treatment has revealed in this coal tar a dozen or more oily hydrocarbons, such as benzole, tuluole, etc. It has also obtained from this substance some of the most valuable dyes used in the arts, the so-called aniline dyes, some of them worth their weight in gold.

Within the last twenty or twenty-five years a new and extensive use of coal has sprung up for the manufacture of oil. The first factory for making coal oil in the United States, was established near New York in 1854, and was designed to work the Boghead cannel coal of England, or the cannel coal of New Brunswick, by a process patented in Great Britain a few years before; but it was found that the bituminous coals in the West corresponded in character to the English cannel coals, and factories sprang up rapidly both in the West and in the East. So extensive was the demand for the coal oil, that in 1860 there were nearly 80 manufactories in the United States, employing over $3,000,000 capital and producing oil and its associated products to the amount of five millions of dollars annually. The manufacture of coal oil took a leading place among the productions of the country. Ten million gallons of illuminating oil, and five million gallons of lubricating oil and paraffine were produced in a single year.

As long ago as 1694 the possibility of getting oil from bituminous materials was known, if not at a much earlier date, and in 1694, a patent was granted in England for "a way to extract and make great quantities of pitch, tarr, and oyle out of a sort of stone, of which there is a sufficient

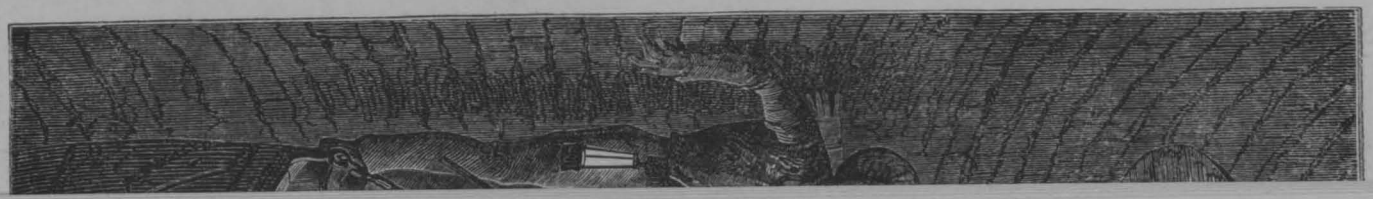
found within our dominions of England and Wales." During the last century this product was used considerably for medicinal purposes, under the name of "British Oil." About the year 1830 more careful and systematic examinations and experiments led to the discovery of new and important compounds resulting from the slow distillation of bituminous substances, and the manufacture of them was entered upon, particularly in France. The first patent granted in this country was in 1852, when kerosene oil works were established at Newtown Creek. Other patents were soon granted for various processes connected with the manufacture. In 1859 alone, twenty-two patents were granted.

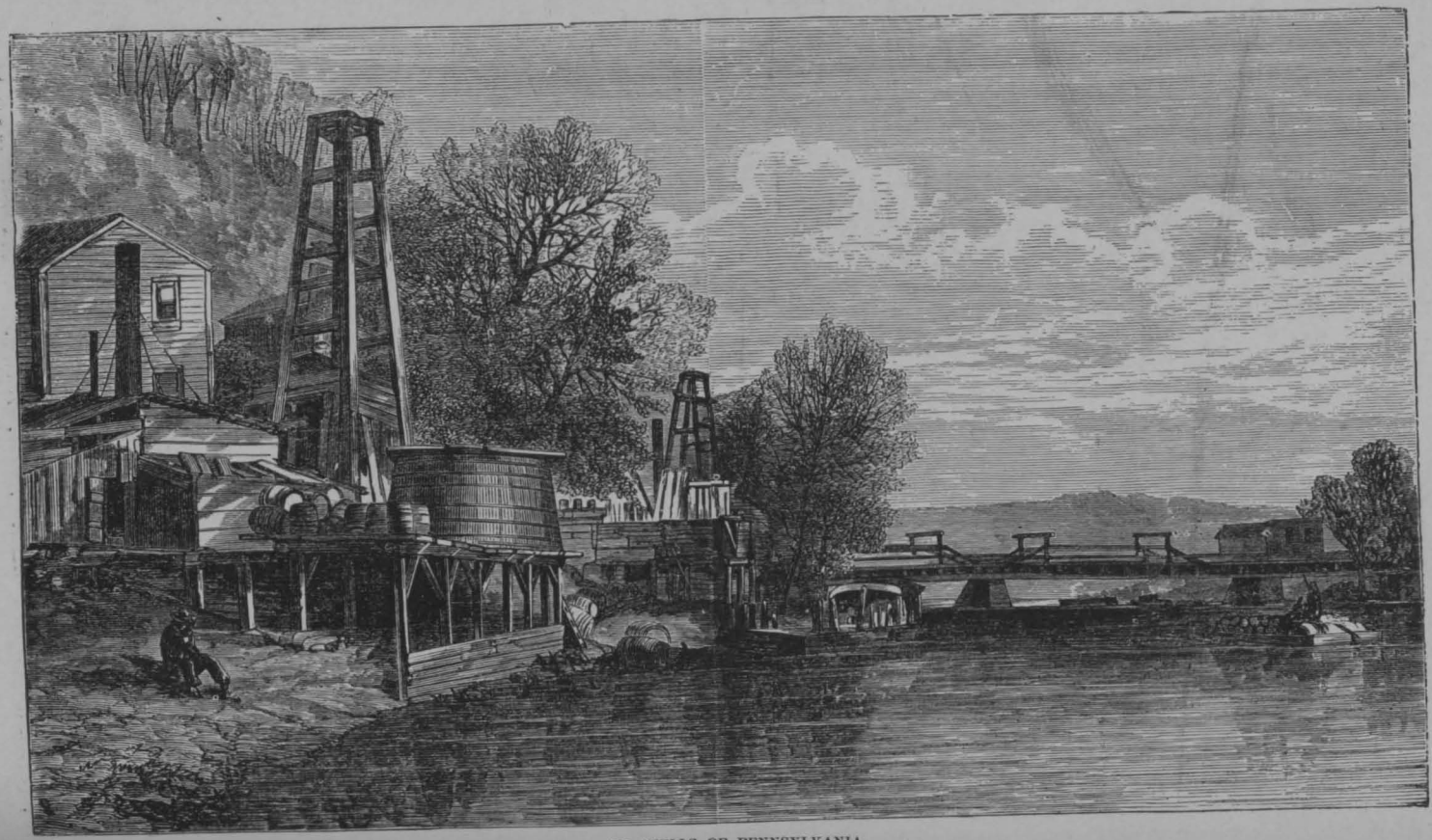
The products of bituminous substances depend upon the method of treatment. If they are thrown into red-hot retorts, for instance, they are converted principally into gas, with a comparatively small quantity of oily compounds remaining, which go by the name of coal tar. They consist of a variety of hydrocarbons, such as naphtha, naphthaline, benzole, carbolic acid, and a great number of other curious compounds of hydrogen and carbon. When the bituminous substances are heated more slowly the production of gas is small, the carbon and hydrogen coming off not in vapor but as a greenish oily fluid, which really contains several distinct compounds which may be separated by repeated distillations conducted with different degrees of heat. Ordinarily these compounds are separated into three classes only, the light oils for burning purposes, the heavy oils for lubricating machinery, and paraffine.

The amount of oil obtained from a ton of coal is variable. The Breckenridge coal of Kentucky yields from 90 to 100 gallons of crude oil, and this 50 to 60 of refined oil. The Cannelton coal of Virginia yields about the same. The Ohio coal gives from 55 to 87 gallons of crude oil to the ton, and some of the Pennsylvania coal from 45 to 55 gallons.

But practicable as was the production of oil from coal by various processes of distillation, and valuable as was the oil for many purposes, so that the demand for it carried the production of it rapidly to an extent which made it one of the most prominent industries of the time, the whole business declined more rapidly than it had arisen. This was occasioned by the discovery of Petroleum, or rock oil, as the name signifies, in a free state, needing no expense of heating or distillation for its production, but flowing like water from the earth itself. The flow of oily substances in connection with springs of water has been noticed, in various parts of the world from very early times, and the oil has not unfrequently been collected. A town in Asiatic Georgia, on the west side of the Caspian Sea, has long been noted for its springs of naphtha or petroleum, of which the annual product has been stated to be 3,000,000 francs in value. These springs extend over a distance of twenty-five miles. The ground is saturated with the oil, like a sponge, and when wells are sunk to the depth of fifteen or twenty feet the oil gradually flows into them and is then collected. Another well-known locality of oil springs is in Burmah, India. Fifty years ago, more than five hundred wells were reported in this region, and the annual product of oil has been reported as more than 400,000 hogsheads. There are many other localities in which oil springs are found in greater or less abundance.

The existence in the United States of petroleum, though not under that name, has been known for a long time. It has been used chiefly for medicinal purposes. It was formerly gathered by the Seneca Indians in western New York and Pennsylvania, and hence went by the name of Seneca or Genesee oil. It was found then in the very region from which our great supplies are now drawn in such abundance as to form one of the great articles of commerce and export. It was found in a region stretching from western New York through the northwestern portion of Pennsylvania into Ohio. As long ago as 1819 it was found in such quantity in Ohio, in connection with salt wells, that we wonder now that the discovery was not then made both of its value and its unlimited extent. The following account of the boring of salt wells in Ohio, taken from Silliman's Journal of Science for 1826, is very interesting in this view. "They have sunk two wells which are now more than 400 feet in depth; one of them affords a very strong and pure water, but not in great quantity. The other discharges such vast quantities of petroleum, or as it is vulgarly called 'Seneka oil,' and besides



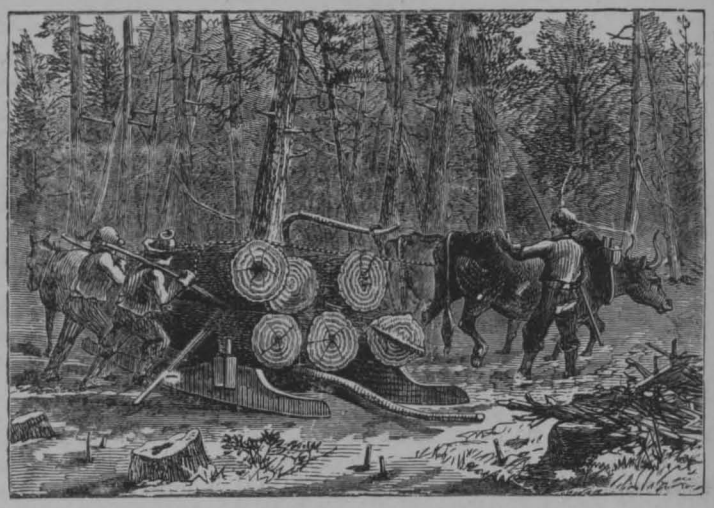


OIL WELLS OF PENNSYLVANIA.

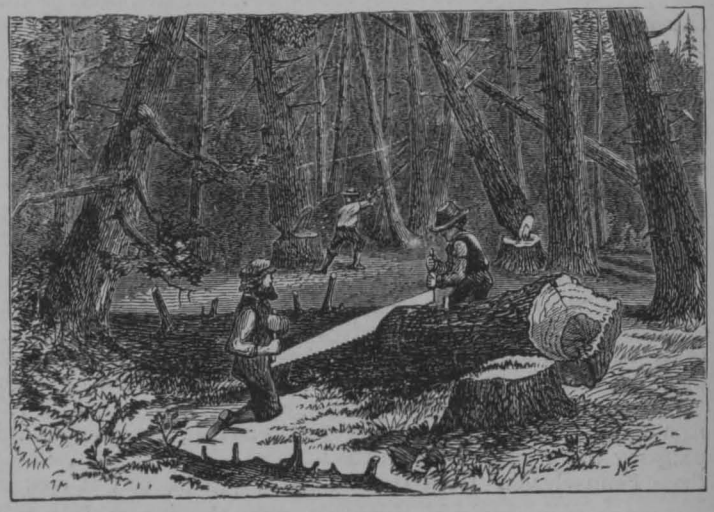
is subject to such tremendous explosions of gas, as to force out all the water and afford nothing but gas for several days, that they make but little or no salt. Nevertheless, the petroleum affords considerable profit, and is beginning to be in demand for lamps in workshops and manufactories. It affords a clear bright light, when burnt in this way, and will be a valuable article for lighting the street lamps in the future cities of Ohio." Strange that with such indications, we should have had to wait nearly forty years longer for the supply of an article so abundant. In northwestern Pennsylvania the existence of oil was known to the early settlers, and it was so abundant along the banks of one stream that it was called Oil Creek. All along the valley of this creek are the evidences that the oil has been collected in the Asiatic method, that is, by digging shallow wells, and allowing the oil to flow into them, and it has been supposed that this was done by the French, who occupied that region more than a century ago. Others suppose that it was done by the Indians, as we know that the Seneca Indians used the oil as an unguent and in their religious worship. Two localities on Oil Creek were specially noted for their production of oil, one near Titusville, the other 14 miles further down the stream, near the Alleghany river. In 1854, the upper spring was purchased by a couple of men from New York, and in 1855, a company was organized under the name of the "Pennsylvania Rock Oil Company." The next year another company was formed at New Haven, where an analysis of the oil had been made, and the first company was absorbed in this. In 1857, a systematic search for oil was undertaken by Messrs. Bowditch and Drake of New Haven. After a well ten feet square and sixteen feet deep had been sunk near the spring, boring was commenced. This was in the Spring of 1859, and in August, when a depth of seventy-one feet had been reached, the drill suddenly sank and when removed was followed by oil nearly to the surface. A small pump raised 400 gallons of oil daily, and with a larger one the flow was increased to 1000. Pumping by steam power for months did not exhaust the supply nor even lessen the flow. This success produced great excitement, and the lands along the Creek were soon leased to parties who were eager to share in this new mining enterprise. It was the old story of California over again. Speculators and prospectors rushed to this region from all parts of the country. The quiet farming valley almost unknown, suddenly became famous and was converted into a place of the utmost stir and activity. Villages and towns sprang up almost in a night. Lands acquired fabulous prices. Speculation in them and in the wells which were rapidly sunk ran high. Fortunes were made and lost in a day. Full 2000 wells, it is said, were sunk in the year 1860, the year following the successful experiment of Bowditch and Drake. Seventy-four of these, according to the Venango *Spectator*, were producing daily in November of that year, 1165 barrels of oil. Between the years 1861 and 1865, eleven hundred oil companies were formed, with a nominal capital of $600,000,000, and a paid capital of perhaps $100,000,000. The oil speculation ran high; all classes of people in all parts of the country participated in it; the most extravagant expectations were indulged, and many staked their all upon the prospect of riches flowing in upon them without any exertion on their part. The bubble, like all other speculative bubbles, finally burst, and it is estimated that the losses by the various petroleum companies amounted to not less than $125,000,000. There was something real, however, in this case for speculation to be based upon. There was oil in the earth, and it continued to flow after the speculation had reached its climax. In fact, the oil was obtained after the speculation subsided, in larger quantities than before. There was also a constant demand for the new product not only in our own country but from abroad. The production and export of oil from 1862 to 1869, are shown by the following table:

Year.	Gallons of petroleum exported.	Value of export.	Estimated gallons produced.	Estimated value of product.
1862	10,387,701	$1,530,027	21,387,033	$3,270,432
1863	28,250,721	5,227,839	60,026,532	11,109,155
1864	31,872,972	10,782,689	67,730,065	22,913,214
1865	29,072,018	16,563,413	61,778,638	35,197,252
1866	.....	24,830,887	.....	52,765,635
1867	.....	24,407,642	.....	51,866,239
1868	99,844,316	21,810,676	212,169,171	46,347,686
1869	97,924,545	30,625,446	208,089,653	65,079,073
1870	108,325,819	32,101,485	230,192,365	68,215,655
Seven months, June, 1870, to Jan., 1871.	96,942,343	23,811,812	206,002,478	50,600,100

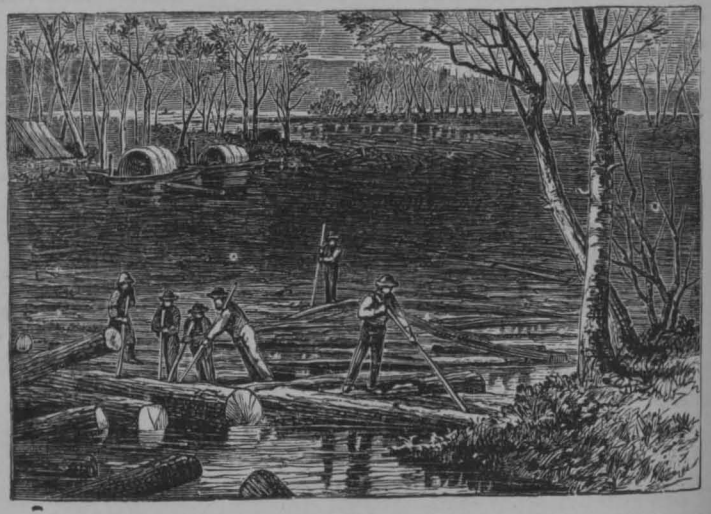
HAULING LOGS.



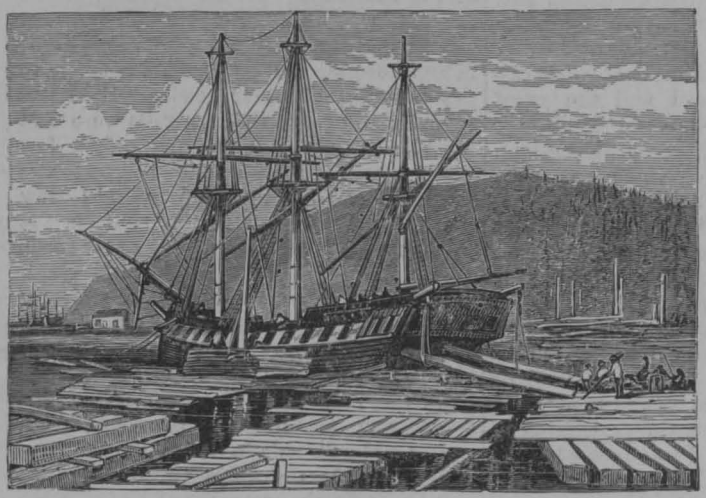
SAWING OFF LOGS.



FLOATING LOGS.



THE JAM.



LOADING THE SHIP.

LUMBERMAN'S CABIN.

LAND SETTLEMENT—INTERNAL TRADE.

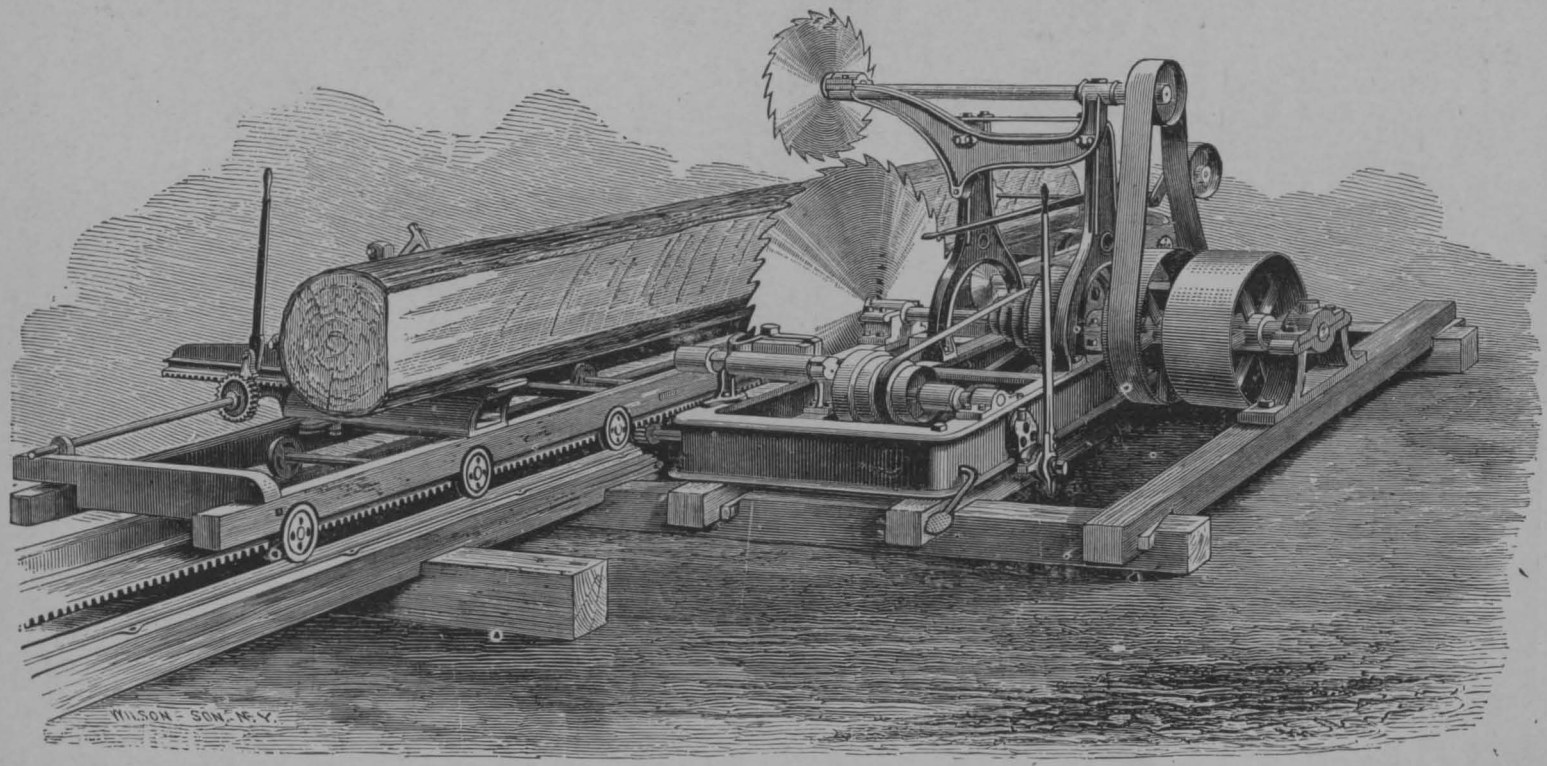
The colonies were settled under various grants, and in the ignorance of the extent and character of the country which prevailed in the colonial period there was occasion for many disputes as to boundaries. When the colonies declared their independence and formed a confederacy, their conflicting claims to land were settled by making over all their lands to the government in trust for the common benefit. From the first, the government has sought to encourage the purchase and settlement of the public lands by offering them for sale at a very low price. It has also made large grants of lands for military purposes, to schools and universities, to states for internal improvement, for the benefit of the Indians, and finally in aid of canals and railroads, on the ground that these, by affording facilities for transportation and travel, promote the settlement of lands distant from the sea-board and the great marts of trade. The public lands lay mainly in the great basin of the Mississippi. It was a seven week's journey from New England to the Ohio. Nevertheless the fertile soil of the West was attractive and trade with the Indians profitable, and the hardy pioneers were early on their way to the new regions beyond the Alleghanies. In 1790, the population west of the mountains was found by the first census taken in our country to be 108,868, or about 3 per cent. of the whole population of the Union. In 1800, the population of the West had increased to about 400,000. The only outlet for the produce of the West, was through the French territory of Louisiana. To remedy this evil Louisiana was purchased from Napoleon in 1803. When New Orleans became one of our cities it gave new attractiveness and value to the lands of the West, and in 1810 the population of that region had risen to 878,315. From 1810 to 1820 the population increased still more rapidly, more than doubling itself. The figures show an increase of 1,201,248, making a total population in the Mississippi valley of 2,079,563. The sales of land up to 1820 amounted to 13,044,877 acres.

In 1819, Florida was ceded to the United States by Spain.

To facilitate trade with the rapidly growing West, the Erie canal was commenced in 1817 and completed in 1825, at a cost of more than $7,000,000. Its influence upon the settlement and trade of our great interior region has been almost incalculable. Subsequently two other canals, one through Pennsylvania, from Philadelphia to Pittsburg, and another, the Chesapeake and Ohio, were constructed. Three outlets were thus provided for the transportation of the products of the West to the markets of the East and of Europe, and for the return of the goods and wares needed in the West. Hardly were these canals completed however, and thought to be quite sufficient for their purpose, when they found a new power ready to compete with them for the carrying trade between the East and the West. It was the day of steam. Three years after the completion of the Erie canal, the first railroad in this country was put in operation between Boston and the granite quarries at Quincy, Massachusetts. Its success led speedily to the building of other roads, and in less than twenty years the iron rails were laid from Albany to Buffalo, and only a few years afterwards the Erie railroad was built along the southern portion of New York from Dunkirk to the Hudson. It was but a few years later that other roads were built from Philadelphia and Baltimore to Pittsburg and Wheeling. Nearly 4000 miles of railroad were thus built to facilitate traffic and travel between the older and the newer regions of our country. And the rapidly increasing demands of trade and travel soon employed both canals and railroads to their full capacity.

To promote the settlement of the West and to ensure the purchase of its lands, the federal government, in 1850, granted 2,500,000 acres of the public lands to the State of Illinois to aid in the construction of a railroad from the junction of the Ohio and Mississippi rivers at Cairo, to Chicago and Galena on the north. The road was commenced in 1852, and finished in 1857, at a cost of $35,000,000.

The tract of land given to Illinois was as large as the State of Connecticut; but it was part of a tract of 11,000,000 acres belonging to the government and which had been fifteen years in the market without finding purchasers; so far was Illinois then from being populated and so unattractive were a large portion of her lands for want of facilities for getting their produce to market. The building of the Illinois



BELTED MILL, WITH TOP SAW. BUCKEYE ENGINE COMPANY, SALEM, OHIO.

SUB-TROPICAL TREES OF THE UNITED STATES.

Central road opened a highway through the length of the State, and added immensely to the value of a large portion of the lands in the State.

The grant of land by the government to aid in building this road was followed by other grants for similar purposes, the crowning one of which was that to the Union and Central Pacific railroads, spanning the continent from the Mississippi to the Bay of San Francisco. 25,403,993 acres of land, most of it fertile and valuable, have thus been granted, and while the government has aided in the construction of the great trunk lines of railway, other roads, perhaps to an equal extent, have been built by private enterprise and capital. The progress of railroad building in different sections of the country, in periods of ten years, has been as follows:

	East'rn.	Middle.	South'n.	West'rn.	Total Miles.	Cost.
1828 ...	3				3	$221,101
1830....	3	38	6	6	43	3,501,100
1840....	444	1,436	461	28	2,369	98,170,001
1850 ..	2,396	2,925	1,415	1,041	7,777	291,482,101
1860....3,824		8,176	5,552	10,718	28,270	1,009,172,000
1870....4,274		10,791	11,132	22,664	48,861	2,212,412,719

In the last ten years, $1,203,240,719 have been expended in the construction of 20,591 miles of road. In the twenty years preceding 1870, the quantity of iron imported for the purpose of railroad building was 3,519,896 tons, at a cost of $281,591,680.

The building of these railroads has stimulated the settlement of our western country to a remarkable degree. Indeed we may say it never would have been settled, but for the railroads. Without some such means of communication with the markets of the world, the lands of the interior, a thousand miles or more from the seaboard, could have but little value and little attractiveness to the settler. Before the establishment of railroads in the West, the farmer two hundred miles from market could hardly draw his load of wheat or pork with any certainty of reimbursement. It was wise therefore on the part of the government to grant its aid in building the great leading lines of railway. By giving away a portion of the public lands it has been enabled to sell a much larger portion which otherwise would have been unsalable, while it has increased the population and wealth of the country by so doing. The annual sales of land by the government have been as follows:

ANNUAL SALES OF LAND BY THE FEDERAL GOVERNMENT.

	Acres.		Acres.		Acres.
1821,	822,185	1831,	2,804,745	1841,	1,164,796
1822,	763,811	1832,	2,411,952	1842,	1,129,217
1823,	638,749	1833,	3,856,227	1843,	1,605,264
1824,	723,038	1834,	4,658,218	1844,	1,754,763
1825,	871,619	1835,	12,564,478	1845,	1,843,527
1826,	839,263	1836,	20,074,870	1846,	2,263,730
1827,	905,937	1837,	5,601,103	1847,	2,521,305
1828,	946,650	1838,	3,414,907	1848,	1,887,553
1829,	1,236,445	1839,	4,976,382	1849,	1,329,902
1830,	1,880,019	1840,	2,236,889	1850,	769,364
Total,	9,627,716		62,599,771		16,269,421
Pop.,	2,233,880		3,707,299		10,454,245

1851,	1,846,847	1861,	
1852,	1,553,071	1862,	
1853,	1,083,495	1863,	6,109,075
1854,	7,035,735	1864,	
1855,	15,729,524	1865,	
1856,	9,227,878	1866,	4,629,313
1857,	4,142,744	1867,	7,041,114
1858,	3,804,908	1868,	6,655,743
1859,	3,961,580	1869,	7,666,152
1860,	4,000,000	1870,	8,095,413
Total.....	52,385,782		43,196,810
Pop'n.....	15,080,894		17,217,610

The population of the states which have grown upon the public lands increased from 2,233,880 in 1830, to 17,217,610 in 1870, during which time the government disposed of 174,451,784 acres of its wide domain. These acres, covered with an enterprising and industrious population, are the basis of the national trade. Every newly opened farm becomes a source of contribution to the great aggregate of the traffic of the country, by sending its surplus products to the general market, and bringing back thence the sugar, tea, coffee, leather, clothing, lumber, and whatever else may be for the need or comfort of its managers. A single illustration of the extent of the trade which has grown up as the result of the land settlement of the west is found in the history of one of its principal cities, Chicago. This place, known only as a military post until 1823, had in 1832, only fifty inhabitants; now there are 15 great railroads centering there, with an aggregate mileage of over 9,000 miles, and costing $450,000,000. These railroads have brought the surplus grain of the adjacent region in such quantities to Chicago as to make it the largest grain port of the world. About 60,000,000 bushels of grain are shipped annually from this city, and its imports and exports amount to $250,000,000. In 1870, the number of vessels arriving at this inland port was 12,739. Some other items of the trade centering in Chicago, may be seen in the following table of shipments of pork, provisions, etc., for ten years.

Year.	Pork. Barrels.	Provisions and Cut Meats. Pounds.	Lard. Pounds.	Beef. Barrels.	Wool. Pounds.	Lumber. Feet.
1861,	65,196	59,748,383	16,400,822	50,154	1,360,617	189,379,445
1862,	193,920	71,944,010	54,505,123	151,631	2,101,521	189,277,079
1863,	449,152	95,300,815	58,030,728	137,302	3,435,956	221,709,330
1864,	298,250	50,055,322	42,342,970	140,627	7,554,379	269,496,579
1865,	284,734	55,026,609	28,487,407	103,604	9,923,069	385,353,678
1866,	257,470	73,011,584	26,758,368	67,762	12,391,933	422,313,266
1867,	176,851	82,325,522	27,211,225	84,622	11,293,717	518,973,354
1868,	141,321	95,106,101	23,527,821	75,424	13,101,162	551,989,806
1869,	121,635	86,707,466	17,278,520	48,624	8,273,924	581,533,480
1870,	165,885	112,433,168	43,292,249	65,369	15,926,536	583,490,634

The general trade of the country may be seen, also, from the following table showing in part the imports of certain goods into some leading ports and also into the whole country in 1870.

IMPORTS OF CERTAIN GOODS INTO THE LEADING ATLANTIC PORTS, AND ALSO THE TOTAL IMPORTS INTO THE UNION IN 1870.

	Boston.	Philadelphia.	Baltimore.	New Orleans.	New York.	Tot'l into Union.
Gold Bullion	$13,026	.....	.....	.....	92,159	680,760
" coin	20,876	17,586	.....	84,446	9,514,749	11,376,190
Silver bullion	1,302	.....	.....	500	40,636	162,432
" coin	5,581	.....	.....	531,337	3,293,649	14,199,797
Coffee	1,210,044	193,761	6,409,818	2,283,647	12,578,223	24,234,879
Tea	848,369	106	882	6,168	12,206,109	13,863,273
Linseed	1,140,091	.....	.....	.....	2,886,860	4,141,304
Guano	.....	85,342	618,422	5,003	734,726	1,415,519
Wool, raw and fleece	2,303,687	33,669	25,763	.....	3,497,254	6,743,350
Wool, shoddy	.....	.....	.....	.....	53,412	55,609
Watches	117,651	.....	12,311	13,156	2,830,692	3,021,875
Coal, bituminous	222,848	332	.....	1,164	276,230	1,110 316
Woolens	4,113,117	40,839	271,123	290,846	28,569,889	34,435,059
Cotton hose	31,547	.....	100,411	61,690	4,388,551	4,734,475
" goods	775,651	21,648	73,297	1,354,439	15,849,392	18,645,578
Steel, bar and ingot	572,338	232,241	41,967	15 233	1,322,492	2,342,408
Silks	882,661	330	108,045	129,306	22,168,766	23,904,048
Linen	1,704,048	8,413	61,868	340,097	14,316,599	16,859,124
Gloves	229,580	.....	19,938	22,881	3,059,987	3,405,966
Window glass	832,938	15,434	14,038	34,002	1,575,949	2,322,504
Gunny bags and cloth	133,288	.....	2,064	2,538	133,961	291,218
Iron, bar	1,555,501	214,439	7,155	73,777	855,099	3,156,236
" pig	326,835	221,709	74,083	214,868	874,267	2,509,280
" railroad	316,742	113,788	292,623	2,099,567	4,858 971	9,669,571
Cutlery and files	114,208	15,671	26,169	144,579	1,824,016	2,248,819
Jute	157,635	273	.....	4,078	1,537,422	1,799,928
Leather	19,173	.....	17,083	132,251	5,458,624	5,728,028
Hides	3,131,711	8,534	306,877	1,721	9,999,971	14,402,339
Molasses	1,912,447	2,981,538	782,566	263,090	4,635,966	12,888,250
Sugar	7,731,049	5,556,549	7,795,164	1,787,030	30,301,742	56,939,034
Other articles	1,867,308	523,154	301,221	499,929	9,041,854	15,583,831
Total	$31,731,152	$10,235,356	$17,195,890	$10,367,943	$208,778,188	$311,871,006

BANKS.

Closely connected with all the productive industries of the country, its agriculture, its manufactures, its mines, and its trade, are its Banks. These exist for the purpose of facilitating the transactions of business. They furnish a medium of exchange for people engaged in the various productive employments. They offer an instrument for the employment of surplus capital profitably, and for the safe keeping of funds for the use of which persons have no immediate demand. They are a great convenience to individuals, and so to the general public. In proportion also to their convenience and their power to facilitate the exchanges of business, when improperly managed they become instruments of great harm to the people. If they lend their aid to speculation, instead of confining it to the legitimate business of the country, they become promoters of unbounded extravagance, recklessness, and finally of ruin.

There were no banks during the colonial period. Some of the colonies issued what were called bills of credit at different times. These served very imperfectly however, the office of a circulating medium. They became very much depreciated. In the time of the Revolution, the congress of the confederation issued $3,000,000 of "continental money," and made it legal tender. The amount of this money was increased from time to time. By 1780, the amount had reached $200,000,000, when its value fell so fast that the bills soon ceased to circulate. It was the old story of paper money not based upon any foundation of real value, that is of the

attempt to make money of what is not and can not be money.

At the formation of the new government, which superseded that of the confederation, the bills of the continental money were bought up at one cent on the dollar. The state bills of credit were also bought up on about the same terms. On the adoption of the Federal Constitution, the endeavor was made to prevent the recurrence of the evils of bills of credit, and the Constitution prohibited the states from issuing bills of credit, or making "any thing but gold and silver a tender for the payment of debts." The need of the office of banks, when the bills of credit and the continental bills were out of circulation, led to the charter of a bank in each of the cities, Philadelphia, New York and Boston. This was in 1781. These banks were well managed and successful. Their success led to the establishment of many other banks, especially in New England, and finally also to the charter of a National Bank. Washington signed the bill for its charter, it had a capital of $10,000,000, and was owned in part by the government and in part by individuals. Its charter was to continue till 1811; by that time rival interests had arisen, and though the bank had been well managed, its recharter was defeated. The bank was closed, and paid its stockholders $108½ for each share of $100. State banks filled the place of the national bank for a time; but the financial condition became such, that in 1816 a new national bank was chartered, with a capital of $35,000,000. This bank was of great service to the government and the country; but opposition to it was developed after a time, and in 1833 the President removed the government deposits from it and placed them in the state banks. Rivalry was excited between the national bank and the state institutions. A great expansion of the currency ensued, and a wild fever of speculation which resulted in the wide spread bankruptcy of 1837. The national bank failed to secure a recharter from the government, but obtained one from Pennsylvania, and continued the banking business, but under such restrictions in its charter, that it soon after failed and it was found that it had lost its entire capital of $35,000,000. This loss fell heavily on very many of its stockholders. The relation of the banks of the country to its population and business, at different dates from the charter of the first bank down to the inauguration of the present system of national banks, is shown by the following table:

BANKS OF ALL THE UNITED STATES—TOTAL OF IMPORTS AND EXPORTS—POPULATION.

	No.	Capital.	Loans.	Circulation.	Specie.	Deposits.	Imports & Exports.	Population.
1791,	3	$2,000,000	.....	.....	.....	.....	$43,212,041	3,929,827
1800,	32	23,550,000	.....	.....	.....	.....	162,224,543	5,305,925
1811,	89	52,601,601	.....	$28,100,000	$15,400,000	.....	144,716,833	7,449,960
1815,	208	82,259,590	.....	45,500,000	17,000,000	.....	165,599,027	8,353,338
1816,	246	89,822,422	.....	68,000,000	19,000,000	.....	229,024,452	8,595,806
1820,	308	137,110,611	.....	44,863,344	19,820,240	$35,950,470	144,141,669	9,638,131
1830,	330	145,192,268	200,451,214	61,323,898	22,114,917	55,559,928	144,726,428	12,866,020
1837,	634	290,772,091	525,115,702	149,185,890	37,915,340	127,397,185	253,408,593	15,681,467
1840,	901	358,442,692	462,896,523	106,968,572	33,105,155	75,686,857	2 9,227,465	17,069,453
1843,	691	228,861,948	254,544,937	58,563,608	33,515,806	56,168,628	149,100,279	18,713,479
1846,	707	196,894,309	312,114,404	105,552,427	42,012,095	96,913,070	235,180,313	20,515,871
1854,	1,208	301,376,071	557,397,779	204,689,207	59,410,353	188,188,744	532,803,445	26,051,890
1857,	1,416	370,834,686	684,456,889	214,778,822	58,349,838	230,351,352	723,850,823	28,406,974
1860,	1,562	421,880,095	691,945,580	207,102,477	83,594,537	253,802,129	854,500,000	31,443,321
1863,	1,466	405,045,829	648,601,863	238,677,208	101,227,367	393,686,126	594,097,046	34,478,633

At the breaking out of the Civil War of 1861, the existing condition of the banks and of the currency was not such as to meet the wants of the country. The government was obliged to issue demand notes, and to issue also bonds and treasury notes, and make loans. This was followed by the issue of legal tender notes, receivable for all dues to the United States, except customs, which were payable in gold. $450,000,000 of these legal tender notes, or "*greenbacks*," as they were called, because printed with green color on the back, were issued; but this was looked upon as a necessity of the war, and not as a desirable or permanent thing. A banking system was needed that should be better than the then existing state system, and a currency that should have a uniform and national character. The present national banking system was therefore devised and set in operation. It is based

upon the bonds and notes of the government, bank notes being issued to the banks to the amount of 90 per cent. of the par value of the bonds which they may purchase and deposit in the United States' Treasury. This secured at once the sale of the government bonds, to a certain amount, and furnished absolute assurance to all holders of the bills of the banks, that they would not depreciate in value, nor be lost in case of the failure of the banks. The circulation of the national banks was limited to $350,000,000. At first, the new system was opposed by the existing state banks, but after a time most of these were organized as national banks. The progress of the system may be seen from the following table.

Year.	No. of Banks.	Capital.	Circulation.
Oct., 1863,	66	$7,188,393	
" 1864,	507	86,782,802	$45,260,50
" 1865,	1,513	393,157,206	171,321,90
" 1866,	1,643	415,278,969	280,129,59
" 1867,	1,643	420,073,415	293,887,94
" 1868,	1,645	420,634,511	295,769,49
" 1869,	1,617	426,399,151	293,593,64
" 1870,	1,615	430,399,301	291,798,64
" 1871,	1,784	462,518,602	322,952,03

Statement showing the number of Banks, amount of capital, amount of bonds deposited, and circulation, in each State and Territory, on the 30th day of September, 1871.

States and Territories.	In operation.	Capital paid in.	Bonds on deposit.	Circulation issued.	In actual circulation
Maine,	61	$9,125,000 00	$8,399,250	$8,414,346	$7,538 600.00
New Hampshire,	42	4,889,000.00	4,919,000	4,835,845	4,341,695.00
Vermont	41	7,910,012 50	7,271,400	7,191,350	6,468,720.00
Massachusetts,	207	88,072,000.00	65,616,750	68,233,960	57,480,866.00
Rhode Island,	62	20,364,800.00	14,851,400	15,081,565	13,236,805.00
Connecticut,	81	25,056,820.00	20,078,400	20,443,410	17,800,455.00
New York,	291	113,140,741.00	73,545,900	83,960,388	64,018,348.00
New Jersey,	57	12,580,350.00	11,371,850	11,422,575	10,032,520.00
Pennsylvania,	198	51,780,240 00	45,731,750	46,537,610	40,357,046.00
Maryland,	32	13,590,202.50	10,296,750	10,789,210	9,181,306.00
Delaware,	11	1,528,185.00	1,453,200	1,477,875	1,303,475.00
District of Columbia,	3	1,350,000 00	1,234,000	1,471,800	1,081,570.00
Virginia,	23	3,870,000.00	3,711,500	3,481,880	3,312,400.00
West Virginia,	17	2,621,000.00	2,504,750	2,452,540	2,175,540.00
Ohio,	130	24,349,700.00	21,401,400	22,357,655	19,338,976.00
Indiana,	75	15,032,000.00	14,333,300	14,095,465	12,524,942.00
Illinois,	115	17,128,000.00	15,527,200	15,245,550	13,722,825.00
Michigan,	61	7,263,800.00	5,896,300	5,909,210	5,310,360.00
Wisconsin,	41	3,400,000 00	3,314,550	3,359,650	3,083,257.00
Iowa,	60	4,997,750.00	4,764,000	5,146,875	4,452,999.00
Minnesota,	23	2,432,025.00	2,413,000	2,325,500	2,104,600.00
Kansas,	12	850,000.00	785,000	741,800	649,600.00
Missouri,	30	8,895,300.00	6,191,750	6,401,670	5,679,718.00
Kentucky,	29	6,168,240.60	5,625,150	5,350,510	5,071,780.00
Tennessee,	19	2,817,300.00	2,706,150	2,656,170	2,443,171.00
Louisiana,	6	3,500,000.00	2,858,000	2,813,020	2,555,489.00
Mississippi,	1	100,000.00	80,000	66,000	33,776.00
Nebraska,	5	650,000.00	640,000	581,100	561,500.00
Colorado,	4	400,000.00	404,000	383,490	358,990.00
Georgia,	10	2,384,400.00	2,156,400	2,041,300	1,942,743.00
North Carolina,	9	1,560,000.00	1,515,100	1,385,300	1,362,300.00
South Carolina,	7	1,895,460 00	1,380,000	1,245,340	1,240,150.00
Alabama,	8	916,275 00	842,150	884,100	766,783.00
Nevada,	1	250 000.00	100,000	146,200	72,486.00
Oregon,	1	250,000 00	250,000	136,000	135,000.00
Texas,	5	625,000.00	625,000	648,300	557,500.00
Arkansas,	2	200,000.00	200,000	192,500	180,000.00
Utah,	1	250,000.00	150,000	176,520	132,281.00
Montana,	1	100,000.00	100,000	90,000	90,000.00
Idaho,	1	100,000.00	100,000	94,300	89,500.00
Wyoming,	1	75,000.00	30,000	27,000	27,000.00
New Mexico,	1	150,000.00	150,000	135,000	135,000.00
Fractional redemption,					8
Total,	1,784	462,518,601.60	365,444,350	380,609,879	322,952,030.00

There are two National Gold Banks in existence, as follows:

Gold Banks.		Capital.	Gold on Deposit.	Gold Notes Issued.	Circulation.
Massachusetts,	1	300,000.00	150,000	120,000	120,000.00
California,	1	1,000,000.00	500,000	375,000	375,000.00
Total,	2	1,300,000.00	650,000	495,000	495,000.00

INSURANCE---FIRE AND MARINE.

THE history of Fire Insurance dates back only to the year following the Great Fire in London in 1666, if indeed it can be said to have had any clearly defined existence before the year 1696, when the first organized association was formed, based upon the simple principle of contribution in the shape of annual premiums proportionate to the amount of property insured, to a common fund, out of which the losses of its various members were to be made good. This association was very appropriately styled the "Hand in Hand, or Amicable Contribution Society," and was strictly mutual in character. A number of attempts had been made for some system of Fire Insurance as early as 1669, all of which proved abortive, as did the attempt of the City of London in 1681 to settle lands and ground rents to the value of £100,000, together with the sums to be received for premiums, as a fund for the insurance of houses. About the year 1670 a company was established in Edinburgh for friendly insurance against fire, consisting of a number of private contributors, who agreed to insure each other. This insurance, however, was not personal, like modern fire insurance, but the interest, and stock, and benefit were inseparably annexed to the houses insured as long as the contribution was continued. Little progress was made under any of these forms before the commencement of the eighteenth century, when the Sun Fire Office in London was established in 1710, from which time Fire Insurance may be said to date its progress under the form of both mutual and stock companies. The limited experience obtained up to that time, had given some general notions as to hazards of different classes of property, and by enabling a proper rate to be fixed proportionate to the hazard, had so far reduced the rates charged as to render insurance easily obtainable and popular. From this time companies multiplied in England, and previous to the war of our revolution had numerous agencies in the then Colonies. In other countries of Europe the practice of insuring against fire was not introduced until a much later period, about 1754, when the marine companies in Paris obtained permission from the government to make insurances against fire. For a long time the practice was by no means general. Owing to the solid structure of their buildings and the extraordinary caution on the part of the people for the prevention of fires, few sought protection by means of insurance. It has been confidently asserted by persons well acquainted with both the cities of London and Amsterdam, that after making all fair allowances there is upon an average more property destroyed by fire in the former in one year than in the latter in twenty. Fire Insurance has, however, now become very general, and some of the continental companies are the largest and strongest in the world.

The first Fire Insurance Company organized in the United States was the "Philadelphia Contributionship for insuring houses from loss by fire," in 1752. This was purely a mutual company, requiring a deposit from the insured, the interest of which would meet the losses of each year and yield something over for a dividend at the termination of the risk, which was for seven years. The plan was borrowed from the first English company of similar name, and the company numbered among its directors Dr. Franklin and other men eminent in colonial and revolutionary times. For many years after the peace of 1783, an insurance company, on the principle of the ancient London "Hand in Hand," existed in New York, and continued to do a moderate business until incorporated companies with capital stock became common and superceded the mutual plan, which was found to be too slow and cumbrous for the growing business of that city. The first stock company formed in the United States was the Insurance Company of North America in Philadelphia in 1794. Others followed in Providence, Boston, and New York from that time until a few years after the beginning of the present century, when Fire Insurance in this country may be said to have been established on essentially the same general principles as at present conducted. The first quarter of this cen-

tury witnessed a moderate growth; the second quarter made some progress, notwithstanding the two great fires, and ended with a moderate increase in capital and business. The extensive and enormous development of fire insurance in this country has been the work of the last twenty-five years, during which time a radical change has been wrought in the mode of doing the business by stock companies instead of mutual, and by the present wide spread and almost universal system of agencies.

In 1833, previous to which we have no reliable statistical information, there were in the City of New York some eighteen Fire Insurance Companies, with an aggregate capital of a little over $6,000,000, one of which had a capital of $1,000,000, and three others had $500,000 each, while the remaining capitals ranged from $200,000 to $350,000. It would be interesting to know the exact amount of premiums annually received by these companies at that date, but having no reliable statistics to refer to, an approximate estimate can only be formed, based upon the recollection of parties who were then connected with certain of those institutions. From the last data of this kind now available it is ascertained quite satisfactorily that the whole amount of premiums received by all the companies in that and the two following years respectively, was something less than $1,000,000. At that time there were no agencies of companies of other states, or foreign companies, in the State of New York, the English companies having been excluded by a law passed March, 1814. From 1833 to December, 1835, seven new companies were organized, with an aggregate capital of about $1,700,000, making the entire fire insurance capital at the time of the great fire in December of the latter year a little less than $8,000,000. The great fire of 1835, which destroyed about six hundred buildings, mostly stores and warehouses, and property to the value of between $15,000,000 and $20,000,000, caused the insolvency of all but seven of the companies then in existence in that city, thus reducing the actual capital for fire insurance to about $1,000,000. The insolvent companies paid variously from 40 to 90 per cent. on the claims for losses under their policies. During the next ten years many of the companies were revived under favorable legislation and new companies organized, so that the fire insurance capital of New York and Brooklyn amounted to about $6,000,000; to which should be added a considerable number of mutual companies and agencies of Hartford and Boston companies, which were then established for the first time to any considerable extent in that city. The great fire of July, 1845, swept most of these mutuals and again several of the stock companies into insolvency, and left a large number with capitals seriously impaired. Of the companies rendered insolvent by this last calamity, none ever revived. From this time there was little increase in companies or capital until the passage of the general insurance law by the State of New York in 1849, under which and the law of 1853, which took its place, a very large number of the companies were organized in the City of New York, thus bringing the aggregate fire insurance capital of the state at the end of 1870 up to over twenty-nine millions of dollars, again, however, reduced at the end of 1871 to a trifle over twenty-two millions by the great fire at Chicago. The progress of fire insurance in the City of New York may be taken as a fair criterion by which to judge of its progress in other prominent cities of our country. Philadelphia and Boston have not experienced such sudden fluctuations in capital as New York, having escaped fires of magnitude like those of 1835 and 1845. The older companies in both cities have been noted for solidity and conservatism. To Hartford belongs the credit of originating and giving vitality to the agency system in fire insurance. For a time, indeed, that city had almost a monopoly of the agency fire business, and is now second to none in the country in the character, position, and financial strength of its companies. The business has proved a source of wealth to the city, and it now has more insurance capital in proportion to its size than any other city in the country. Within the past fifteen years a great number of companies have been started in the prominent cities of the west, with more or less success. Such as have been organized with actual capital and prudently managed have generally succeeded, with the exception of the Chicago companies which were engulfed in the terrible disaster of October, 1871. The past thirty years have witnessed the rise and extinction of hundreds of mutual and stock companies of purely speculative character, which never

deserved public confidence, and soon met the fate which always attends corporations organized with fraudulent purpose or managed by incompetent men. To one of these causes may be attributed the failure of nearly all the companies which have gone down during that time, except such as have been overwhelmed in one or the other of the three great fires already referred to. Many strong and well managed companies have been swept away before the great cyclones of fire which have more than once marked the history of the past forty years, and in yielding to inevitable and unavoidable calamity have secured the commendation rather than censure of the public; while such corporations, whether mutual or stock, as have been conceived in fraud and designed to prey upon the credulity or ignorance of the assured deserve only contempt and the severest punishment of the managers through whom such vast injury has been done to the insuring public.

Of this class of companies, those of a mutual character have been most noticeable for the injury which has been inflicted on the insured and the disrepute into which the business of fire insurance was brought in the ten years following 1850. Under the general insurance law of 1849 a large number of mutual companies were organized in the State of New York, and in 1853 numbered 62, with nominal assets in excess of eleven and a half millions of dollars. In 1860 the number had fallen to 27, with assets less than four and a quarter millions, and in 1870 only eight companies were in existence, with assets of about two and a quarter millions. In the State of New York the system of mutual insurance has proved a signal failure. In Massachusetts, at the close of 1849, sixty mutual companies were in existence, and at the close of 1868 the number had been reduced to 54, with gross assets of $3,990,367.66, and outstanding risks to the amount of $307,063,988.05. Most of these are located in the interior of the state, and are so small as to make the policies of comparatively little value, since, to pay losses, assessments are required, and these, if of any considerable magnitude, are fatal to the standing of the companies. The mutual system in Massachusetts is adapted only to the immediate locality of the companies, and seems to be gradually following the fate of the system in New York, as will be noticed in the fact that the entire premium receipts of all the mutual fire insurance companies in that state do not exceed one-third of those of the Ætna of Hartford, or one-half those of the Home of New York, while the premiums of nearly a dozen stock companies separately equal the entire aggregate. In Vermont the system has been tried for more than forty years by the Vermont Mutual with better results, owing to the excellent management of the company, and the fact that its business has ever been confined exclusively to risks in that state. In other states of the Union mutual companies have shared the same fate as those of New York, and it would seem that the system, as such, is totally inadequate to the growing demands of trade and the increasing value of property to be insured.

It is a noticeable fact that in 1837 there were 48 joint stock companies in Massachusetts, with a combined capital of $9,415,000, while in 1868 there were only 29 companies, with a capital stock of $6,934,800. Comparing, however, the *business* of the companies, it will be found that the 48 companies in 1837 were insuring fire and marine risks to the amount of only $140,000,000, while the 29 companies in 1868 had $330,000,000 at risk. The increase of risks assumed in that state by companies from other states for the 16 years previous to 1869, was even more marked than that of the state companies, having risen from $6,373,000 in 1852 to $250,000,000 in 1868. The development of the joint stock plan of fire insurance in the State of New York has been equally remarkable. In 1844 there were 20 companies, having an aggregate capital of $5,710,000, with amount insured $119,571,000, while in 1870 the number had increased to 105, with an aggregate capital of 29,761,232, and amount insured $2,813,983,769. The number of companies in the state at the end of 1871 was reduced by the great fire at Chicago to 84, with capital of $22,307,010, and amount of risks covered $2,397,339.63. It may be proper to note in this connection the increase of capital in companies from other states doing business in the State of New York from $12,351,315 with $567,887,673 at risk in 1859, to $22,971,101 for capital in 1870, with risks $1,695,633,560.

The following table, compiled from official reports of companies doing business in

the State of New York from 1859 to 1871 inclusive, shows the increase of capital invested in the business of fire insurance during that time, and the amount of dividends declared from year to year, with the yearly percentage and the average percentage for the whole period.

YEAR.	CAPITAL.	DIVIDENDS.	PERCENTAGE.
1859	$32,358,315	$4,595,350 74	14.19
1860	29,998,760	3,836,141.97	12.78
1861	29,384,260	3,250,749.76	10.06
1862	29,884,260	3,324,566.01	11.11
1863	33,246,760	3,567,331.51	10.72
1864	41,629,945	4,141,374.42	9.94
1865	44,282 750	4,616,807.11	10.42
1866	44,410,350	3,369,250 70	7.81
1867	45,611,232	3,774,3.6.96	8.27
1868	49,331,194	5,051,796.38	10.24
1869	51,118,602	6,252,779.39	12.23
1870	52,732,333	6,509,998.68	12.34
1871	43,857,010	4,834,880.00	11.02
Aggregate,	$527,795,771	$57,125,153.63	10.82

This table embraces a very large proportion of all the American companies, as nearly all fire companies seek to do business in the State of New York, and in order to do so have to make annual reports, which form the basis of this table. As near as can be ascertained the entire fire insurance capital of the country at the close of 1870 amounted to $65,000,000. It will be noticed that the average dividends on this enormous amount of capital has been less than 11 per cent. during the past thirteen years. If the loss of capital itself during that time be taken into account, it is doubtful if the average dividends would amount to nine per cent., a figure by no means unreasonable for income on capital subjected to such fearful hazards as those of fire insurance. It is fair to assume that the capital of all the companies not reporting to the New York Department has yielded about the same average dividends, and as the capital would of itself earn at least seven per cent., there remains only about two per cent. for the profits of the business, as such, a figure quite insignificant in view of the nature of the business and the risk assumed.

It may be interesting to note the increase in the amount of premiums received, and the fluctuations in the amount of losses, with the various yearly percentage of losses to premiums, as will appear by the following table, showing the same for the past thirteen years, compiled from official sources and embracing the same companies as the foregoing table.

YEAR.	FIRE PREM. REC'D.	FIRE LOSSES PAID.	PER CENT.
1859	$14,413.458.56	$8,031.247.41	55.72
1860	11,866.548.45	6,993,630.90	58.93
1861	10,527,327.76	6,249,689.79	59.36
1862	11,308.418.99	7,056.731.57	62.40
1863	14,019,658.13	5,656,975.64	40.35
1864	20,141,152.68	11.356,624.97	56.38
1865	25.419,589.55	17,264.618.33	67.91
1866	32,281,404.76	23.913.745.87	74.07
1867	36,102.138.45	20,818,269.87	57.56
1868	37,395,740.25	19,283.979.11	51.56
1869	39,353,578.57	20,054,341.80	50.95
1870	37.237.621.73	21,869,440.75	58.72
1871	36,984,570.00	31,504.180.00	85.18
Aggregate,	$327,111,207.88	$200,053,476.01	61.15

Thus it will be seen that the leading American fire companies lost over 61 per cent. of their premium receipts from 1859 to 1871 inclusive.

It is proper to remark that the New York Report for 1867, embracing the New York Companies doing Fire, Inland, and Marine business from 1848 to 1866 inclusive, gives over 63 per cent. of losses to premiums for *that period;* while the strictly mutual state companies from 1853 to 1867 inclusive suffered a loss of over 61 per cent. The fire companies in Massachusetts from 1858 to 1866 inclusive paid for losses 67 per cent., and companies from other states, doing fire business in that state, over 59 per cent. for the same period, or an aggregate loss on both classes of companies of over 60 per cent. The great fire at Chicago increased the general average of the last thirteen years at least one per cent. above the normal average. It will therefore be safe to assume 60 per cent. as the average for the last thirty or forty years of fire losses in this country to premium receipts.

The expenses of management form an important item in the history of fire insurance, and have not only exercised a great influence on the profitableness of the business but also on the character of the business done. The increase of the commission to brokers and agents in 1865 from ten to fifteen per cent., no doubt had a bad influence on the general conduct of the business, aside from the increased losses on risks influenced by the increased commission.

The following table shows the cash premiums received and expenses paid, with average percentage for time named:

YEAR.	NET CASH PREM'S RECEIVED, INCLUDING INLAND.	EXPEND'S, LESS DIVD'S, LOSSES, AND AMOUNT PAID IN INTEREST ON SCRIP AND REDEMPTION.	PER CENT.
1859	$14,535,112.94	$4,004,557.39	27.55
1860	13,750,762.49	3,741,323.86	27.20
1861	12,400,645.09	3,484,593.73	28.10
1862	13,404,597.62	3,569,905.98	26.63
1863	16,414,223.94	4,500,850.50	27.42
1864	23,843,521.89	6,861,790.25	28.77
1865	29,519,092.28	9,403,134.28	31.85
1866	38,867,492.27	11,791,369.66	30.33
1867	42,235,059.38	13,124,292.14	31.07
1868	43,023,947 81	13,874,810.99	32.24
1869	45,024,145.51	14,924,366.16	33.14
1870	42,593,085.68	15,128,290.66	35.51
1871	40,818,312 00	10,879,392.00	26.65
Aggregate,	$376,430,998.90	$115,288,677.60	30.62

From this table it appears that the average expenses of American Companies is not less than 30 per cent. of the premiums received. This figure, however, includes taxes on capital, which in most of the states are paid by the companies. The expenses of companies in England average about 31 per cent.; those of France about the same, while those of Germany average about thirty per cent. If, therefore, we assume thirty per cent., in round numbers, as the average expense of conducting the business, we shall not be far from the absolute figure. Combining the ratio of losses with that of expenses, we find a margin of only one-tenth of the premium received for *profit, loss of capital, sweeping conflagrations, and epidemic periods.* How far this can be trifled with by ignorance or credulity the public mind must judge for itself. To the intelligent and prudent property-holder these figures are full of meaning and admonition.

Thus far attention has been directed to the profits of underwriting and only inferentially to the adjustment of rates to hazards. The comparison of losses and expenses with premiums will go far towards enabling the practical underwriter to form a correct judgment, in view of past rates and experience, on individual risks; but to the political economist it is of first importance to know the absolute relation between losses and amount of property insured, the actual amount of risks assumed to each dollar of loss, and the average rate of premium on risks written, as affording some safe criterion of judgment as to the aspect of the business as a whole. With this view the following table has been prepared, embracing twelve years, from 1860 to 1871 inclusive:

YEAR.	FIRE RISKS WRITTEN.	FIRE PREMIUMS RECEIVED.	FIRE LOSSES PAID.	Percentage of Fire Losses to Prem's.	Percentage of Fire Losses to Fire Risks written.	Am't of Fire Risks writ'n to $100 Loss.	Average Rate of Prem's on Fire Risks.
1860	$1,617,439,267	$11,866,548.45	$6,993,630.90	58.93	.4323	231.27	.7336
1861	1,530,019,235	10,527,327.76	6,249,689 79	59.36	.4084	244.81	.6880
1862	1,729,988,571	11,308,418.99	7.056,731.57	62.40	.4079	245.15	.6536
1863	2,150,200,798	14,019,658.13	5.656,975.64	40.35	.2630	380.09	.6520
1864	3,166,532,904	20,141,152.68	11,356,624.97	56.38	.3586	278.82	.6360
1865	3,428,105,224	25,419,589.55	17,264.618.33	67.91	.5036	198.56	.7415
1866	3,930,048,321	32,281,404.76	23,913,745.87	74.07	.6084	164.34	.8213
1867	3,812,294 907	36,162,138.45	20,818,269.87	57.56	.5460	183.12	.9485
1868	4,169,495,474	37,395,740.25	19,283,979.11	51.56	.4625	216.21	.8968
1869	4,454,808,663	39,353,578.57	20,054,341.80	50.95	.4501	222.13	.8833
1870	4,509,617,329	37,237,621.73	21,869,440.75	58.72	.4849	206.20	.8257
1871	4 204,798,338	36,984,570.00	31,504,180.00	85.18	.7492	133.46	.8795
Aggregate,	$38,703,349,031	$312,697,749.32	$192,022,228.60	61.40	.4961	201.55	.8079

During these eventful twelve years the amount insured has more than doubled, having reached in 1870 more than four thousand five hundred millions of dollars. The gross premiums have more than tripled, having risen from less than twelve millions in 1860 to nearly thirty-seven millions in 1871. The losses also increased from less than seven millions in 1860 to more than twenty-one millions in 1870, and more than thirty-one millions in 1871, including losses paid at Chicago. The most alarming feature is, however, found in the enormous increase of the percentage of losses to amount insured from .4323 to .4849 in 1870, or .7492 in 1871, including the Chicago fire, or a general average for the twelve years of .4961. This fact is full of meaning, and shows that the losses by fire have more than doubled in that time, a fact well calculated to call attention to the causes which have produced, in so short a time, so fearful an increase in

the destruction of property in this country by fire. When it is considered that every loss of property by fire, whether insured or not, is a loss to the common wealth of the country, the import of these figures will be more fully appreciated. So great, indeed, has become the destruction of property by fire, that it has been doubted even by wise and intelligent persons whether, in a general or national point of view, the benefits resulting from insurance are not more than counterbalanced by the mischief it occasions. The objections in that point of view which have been urged are, carelessness and inattention which security by insurance naturally creates, and the temptation to arson engendered by it. But though it must be admitted that this species of insurance has been oftentimes the cause of fires, the benefits really outweigh the mischiefs ascribed to it, and it would at this day be difficult to conceive how the vast movements of trade and manufacture could be carried on without the protection of fire insurance. The immense accumulations of merchandise demand it, and notwithstanding the serious objections stated, it is essential to credit and the great industrial interests of the country. The general practice marks the civilization of the age in which we live, and has now become indispensible to the interests of trade and progress.

With all the development made in this important branch of political economy there yet remains much to be done before the business of fire insurance will be reduced to anything like the exactness its importance demands. Many reforms must be introduced, systematic statistics on fire insurance must be obtained and classified so as to afford a scientific basis on which the business should be conducted. The evils of over insurance, so productive of incendiarism; loose underwriting; hasty adjustment and payment of losses, as an encouragement to criminal carelessness or positive fraud, with numerous irregularities that have insidiously crept in upon the business, must be corrected before it can claim the high rank to which it is entitled.

There is a great law of average governing the business, certain and universal as the law of gravitation, though it is as yet imperfectly understood. Its principles are even now sufficiently well known to afford a safe guide for the practical administration of the business, and with a wise caution on the part of the public there is little danger that a business like that of fire insurance, commanding as it does its full share of skill, talent, integrity, and honor, will be wantonly thrown into the hands of men or corporations devoid of all these qualities. It is a matter of public concern that these great interests, so intimately interwoven with all the industrial pursuits of the country, should be so conducted as to lessen one of the burdens that now presses so heavily upon them. Such should be the aim of those to whom these interests are entrusted, to the end that undoubted indemnity may be secured to the insured and profit to the capital invested.

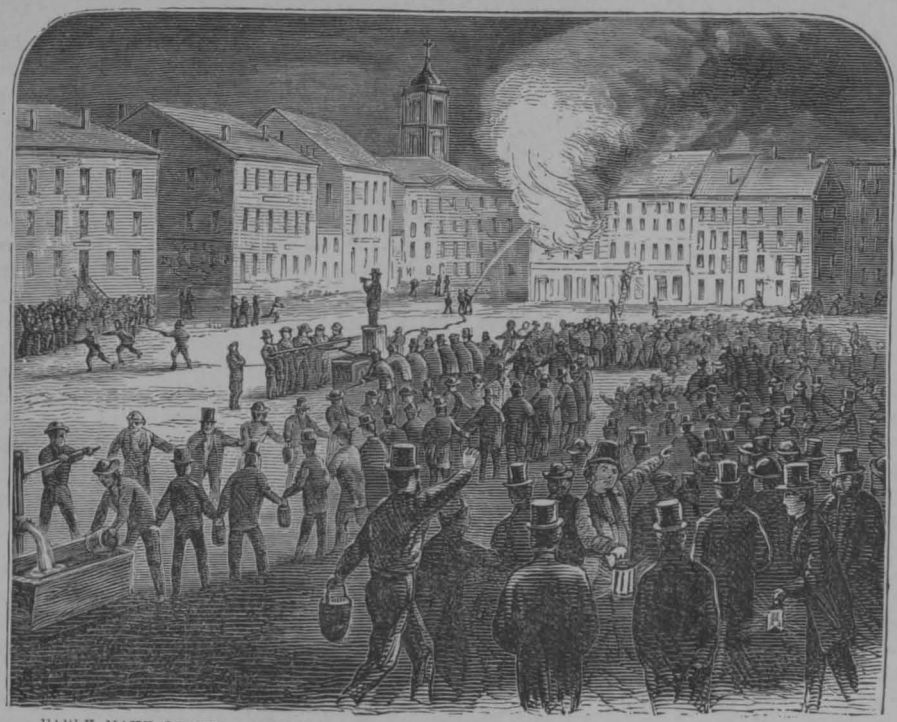
MARINE Insurance is of a much older date than fire, and is supposed to have existed under the early Roman Emperors.

The Lombards from Italy introduced marine underwriting into England about the end of the 14th century. The first organized Company in New York was the New York Insurance Company in 1796, with a capital of $500,000. The business has increased under Stock and Mutual Companies until the total assets in 1860 were $21,867,198, and in 1871 $25,874,146. Total losses for same time were $138,658,961.

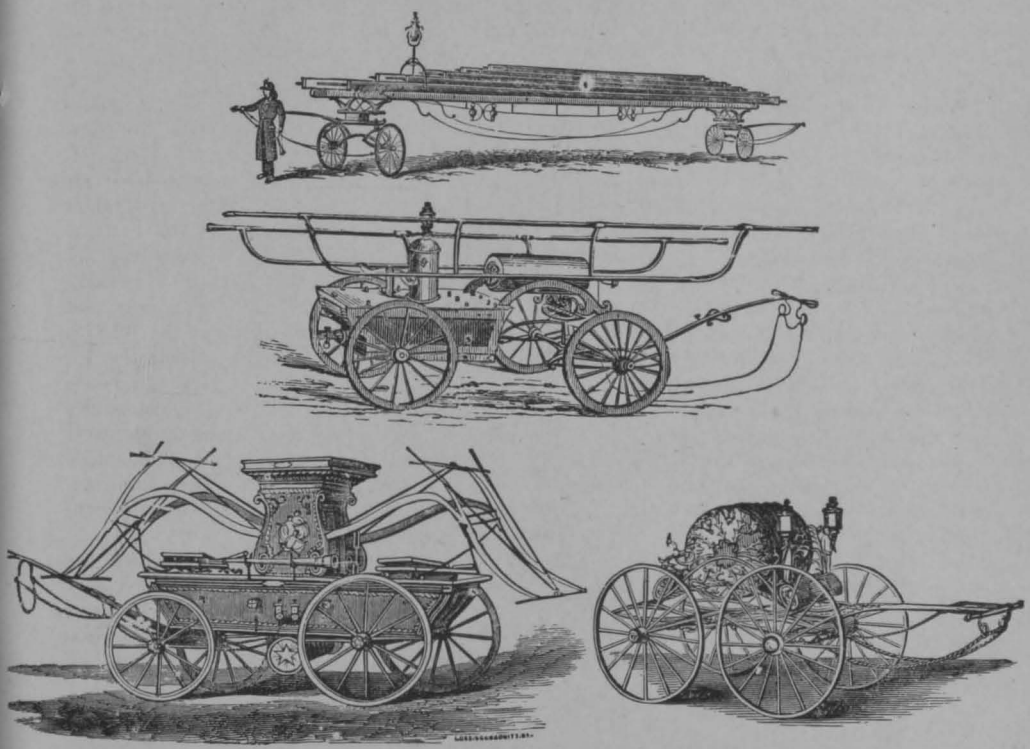
The "United States Lloyds," of New York, is composed of 100 individual underwriters, who have each paid into the common fund or capital $1,000, and each of whom is personally liable for at least an hundredth part of each and every risk taken by the attorneys of the association.

The Fire and Marine Companies of Massachusetts in 1868 insured $104,654,966 — received $2,458,256 premiums, and sustained losses to the amount of $1 709,872. Many of the fire companies assume also Inland risks on our Western rivers and lakes, and there are a large number of companies scattered along the great rivers of the west devoted exclusively to this class of business. It is, however, impossible to obtain information sufficiently accurate to warrant any general classification.

The business of marine insurance has made rapid progress within the last fifty years under the mutual plan, which seems to be the only system adapted to its successful prosecution in this country.



EARLY MAKE OF FIRE ENGINE WITHOUT SUCTION, WATER BEING SUPPLIED WITH BUCKETS.



HOOK AND LADDER HOSE CARRAIGE, AND MODERN HAND FIRE ENGINE, WITH SUCTION AND FORCE PUMPS.

Year.	Por Barre
1861,	65,1
1862,	193,9
1863,	449,1
1864,	298,5
1865,	284,7
1866,	257,4
1867,	176,4
1868,	141,7
1869,	121,4
1870,	165,4

IMPOR

Gold B
" "
Silver
" "
Coffee.
Tea ..
Linsee
Guano
Wool,
Wool,
Watch
Coal,
Woole
Cottor
"
Steel,
Silks .
Linen
Glove
Wind
Gunn
Iron,
"
"
Cutle
Jute.
Leath
Hides
Mola
Suga
Othe

Cl
tive
ture,
trad
purp
busi
excl
proc
inst
capi
of f
no
con
gen
con
the
mai
gre
the

AMOSKEAG FIRE-ENGINE.

LIFE INSURANCE.

LIFE INSURANCE treats human life as productive capital, as having absolute and definite money value, and offers indemnity against its loss. Every person engaged in a productive industry, or whose income depends in any degree upon his labor, skill, or care, is worth in money to those dependent upon him what he earns, and is to earn for them during the period he may expect to live according to the average duration of life among men of his age. If he die prematurely, his dependents lose just so much capital or money as would be earned by him had he lived his full limit. Life insurance brings together the men so situated, and upon their contributing to a common fund, according to their several chances of dying, according to the law of mortality, undertakes to replace to the surviving dependents the capital lost by the death of him who produced it for them.

As regards the individual, nothing is so uncertain as the time of his death; as regards the multitude, nothing is so uncertain as what individuals will die first, or within a given time; but, on the other hand, nothing is so certain as that the individual must die at some time: and that among the multitude, the individuals will die at a certain rate until all are gone. To ascertain the rate of death or mortality, is therefore the consideration of first importance to a Life Insurance Company. This can be done only by a long and careful observation of a number of lives sufficiently large to give a uniform operation of the law of average in each year. Many tables of mortality, more or less imperfect, according to the circumstances of their construction, have been prepared and used. Those in use in modern offices are principally four, the Carlisle, the Actuaries, Farr's Table No. 3, and the American Experience. Any of these seem, by the experience of American companies at least, to place the rate of mortality so high as to make them safe guides for offices which accept only sound lives, as is generally the case. Experience proves the rate to be an increasing one; that is, the proportion of the dying to the living, increases with each year of age; in consequence of which the contribution each person insured would be called upon to make in payment of policies of decedents would considerably increase from year to year. For example, suppose 10,000 persons mutually insuring each other for $10,000 each, at the age of 30; the first year each survivor would have to contribute $84.71 to pay the losses occurring during that year. In the tenth year he would have to pay $102.03; in the twentieth year, $152.64; in the thirtieth year, $207.96, nearly a thousand dollars in the forty-fifth year, over two thousand in the fifty-fifth year, and so on. It was found necessary to devise means whereby a company could provide the increasing sums necessary to pay its increasing losses, and at the same time demand from its members no increase of their annual contribution or premium. This could only be done by charging a premium in excess of the losses for the first years of the contract, and reserving the excess to meet the future rapid losses. This accounts for the large accumulation of assets by the life offices, as compared with the fire. To take the example just given: Suppose the company assumes that it can earn four per cent. compound interest, on any investments for the next seventy years, and charges each of the ten thousand members $169.72 each, for life: it will receive for the first year $1,697,200, pay out $840,000 for losses, and have in reserve, from the premiums and interest, $930,700 invested in some sort of proper assets; the second

year it will receive in premiums $1,682,942, and pay for losses $850,000, and have in reserve, from premiums, interest, and former reserve, $1,875,512: the fifth year it will receive in premiums $1,639,156, pay for losses $880,000, and have in reserve, from premiums, interest, and former reserves, $4,793,169; the tenth year it will receive in premiums $1,562,782, pay for losses $930,000, and have in reserve, from premiums, interest, and former reserves, $9,936,629 the twentieth year it will receive in premiums $1,388,479, pay for losses $1,230,000, and have in reserve $20,721,981: in the thirtieth year it will receive in premiums $1,101,143, pay for losses, $1,890,000, and have in reserve $27,423,219: the highest reserve will be in the thirty-third year, when the premium receipts will be $996,596, losses $2,140,000, and the reserve $27,913,843: in the fortieth year the premium receipts will be $705,017, the losses, $2,650,000, and the reserve, $24,690,628; the reserve is now being constantly drawn upon to pay losses which have really exceeded the premium receipts since the twenty-third year; the fiftieth year the premium receipts will be $261,538, losses $2,300,000, and reserve, $10,428,688: the sixtieth year the premium receipts will be $25,797, losses $630,000, reserve $1,310,591: in the sixty seventh year the premium receipts will be only $339, losses $20,000, reserve $18,484, and only two persons left alive, who will die within the next three years, and the $18,484 reserve, with the additional premiums to be paid by them, and the four per cent. interest will provide the $10,000 to be paid at the death of each, and leave not a cent in the hands of the company. Every dollar of the vast accumulation it once held was reserved against a day of certain need, and went in its appointed time to its appointed owner, according to the law of mortality.

The constant additions of new lives, procured by the companies, prevents any such extinction of assets as is above shown, by replacing the reserves withdrawn by old members, with those derived from the new. There is always in progress, the practical substitution of a new company for an old one.

No enterprise has had more rapid growth in this country within the last ten years, than Life Insurance. On the first of January, 1871, there were 113 companies incorporated by the several States; these had in force 834,498 policies, insuring the immense sum of $2,263,438,213. The necessary reserve to provide for the ultimate payment of this sum was, at that date, about $250,000,000, and they held assets amounting to $300,616,056. Over 620,000 of these policies were issued by only 24 companies, who also held over $232,000,000 of the entire amount of assets held by all the companies. The following table shows the distribution of this business by States:

State.	No. of Co's.	No. of Policies.	Amount insured.	Amount of Assets.	Average amount of Assets to each Co.
Maine,	1	15,872	$36,008,360	$5,295,783	
Vermont,	2	3,494	6,500,326	1,075,111	$537,555 50
Massachusetts,	6	52,137	135,189,840	17,724,629	2,954,104.66
Rhode Island,	1	2,743	6,359,718	817,897	
Connecticut,	9	177,676	447,207,886	65,373,407	7,263,600.00
New York,	41	377,744	1,048,889,779	133,546,120	3,257,222.43
New Jersey,	4	45,339	148,798,850	23 343,275	5,835,818 75
Pennsylvania,	6	*23,778	64,493,461	16,519,647	2,753,274 50
Maryland,	2	1,425	4,296,772	623,232	311,666.00
Delaware,	1	1,052	1,841,907	187,9-3	
Virginia,	1	8,715	28,178,654	1,906,068	
South Carolina,	1	330	1,099,040	47,875	
Georgia,	1	1,592	5,675,425	562,607	
Alabama,	1	790	1,808,500	231,235	
Louisiana,	1	408	2,070,500	264,242	
Tennessee,	1	3,467	33,361.709	2.045,169	1,022,580.00
Kentucky,	2	2 530	9,548,243	1,059.142	529,561 00
Missouri,	8	33,256	131,388,883	10,671,534	1,333,941.75
Ohio,	4	11,807	22,135.199	1,375,952	343,988 00
Illinois,	6	9,545	13,938,708	2,364,404	390,734.00
Indiana,	1	1,011	2,433.314	177,311	
Michigan,	1	1,674	3,021,065	219 842	
Iowa,	1	452	796,622	166,687	
Minnesota,	1	326	703,700	137,490	
California,	2	2,568	8,357,745	1,361,683	

The following table shows the comparative magnitude of the business of Life Insurance in the United States as compared wi h Great Britain, the English Colonies, and Germany:

	Number of Companies.	Number of policies.	Amount insured.	Assets.
United States,	113	834,498	$2,263,4 8,213	$300,616,056
Great Britain,	85	1,225,308	1,437,969,895	459,330,3 0
English Colonies,	4	12,741	23,050,270	6,079,815
			Thalers	Thalers.
Germany,	33	424,922	401,0 2,407	61,446,040

The largest foreign company is the Gotha of Germany, which had in force January 1st, 1871, 36,392 policies, with assets amounting to 19,439,728 thalers. The Mutual Life of New York, the Connecticut Mutual, and the Ætna of Hartford, the Mutual Benefit of New Jersey, and the New York Life, each had a larger number of policies in force at that time, and possessed a larger amount of assets, some of them several fold.

COMMERCE.

During the opening years of the first century of our existence, while the Revolutionary War was waging, the United States had little commerce; but with the return of peace in 1783, and our assured independence, the commerce of the country revived. There are no official reports until after 1790, when the first census was taken. The returns of the English custom-house show however the trade between the two countries for the early period as follows.

	Exports to Great Britain.	Imports from Great Britain.
1784,	£743,345	£3,670,467
1785,	893,594	2,308,023
1786,	843,119	1,603,465
1787,	893,637	2,009,111
1788,	1,023,789	1,886,142
1789,	1,050,198	2,525,298
1790,	1,191,071	3,431,778

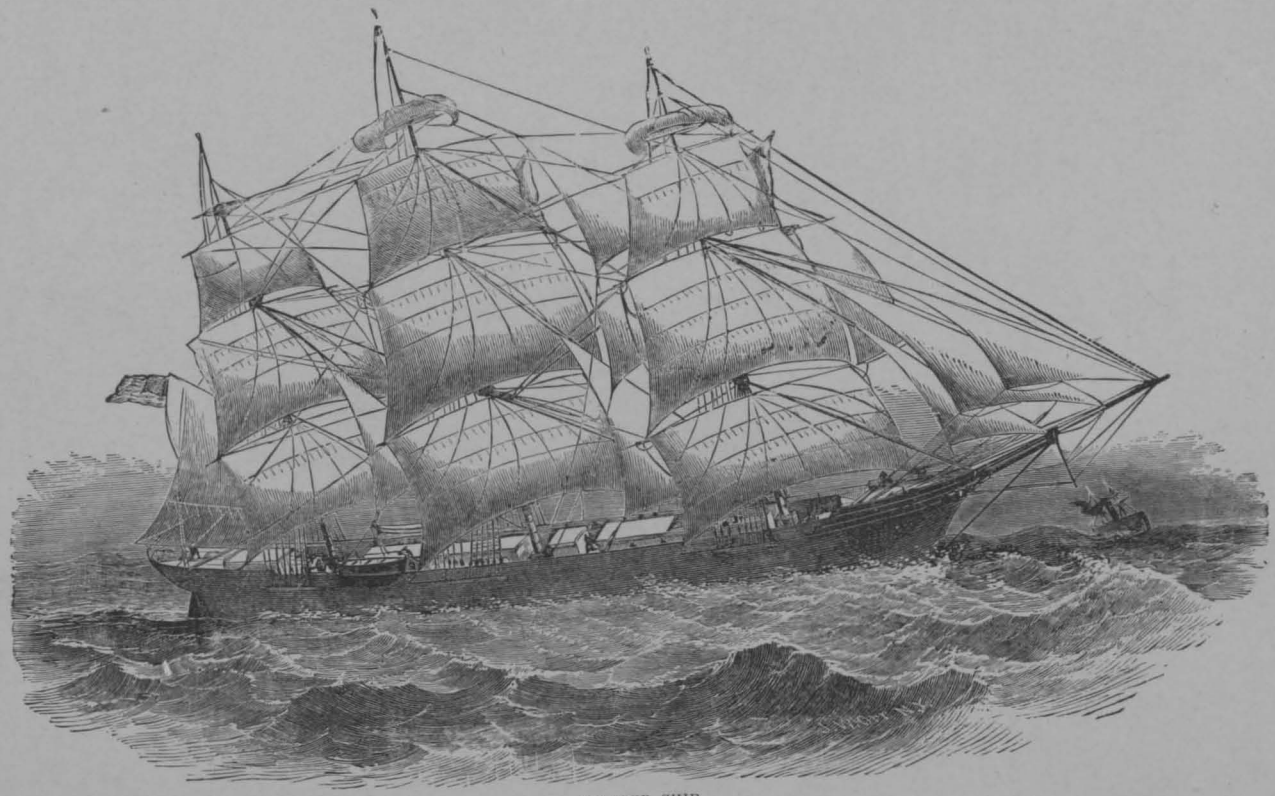
A great impulse was given to American commerce in 1787, by the decree of the French government which placed Americans on the same footing commercially as Frenchmen, and admitted American produce free of duty. With this encouragement, there were exported from the United States in 1788, 246,480 tierces of rice, 140,959 barrels of flour, 3,664,176 bushels of wheat, 558,891 bushels of rye, 520,262 bushels of barley. These were large exports for a country in the condition ours was in at that time. A new war, not many years later, between England and France, gave a great impulse to American commerce, by placing the carrying trade of the two countries mainly in our hands. Our shipping was found in all waters; our vessels found their way even to China and opened a trade there which has been maintained and increased in volume ever since.

The progress of trade from 1790 to 1808, was as follows:

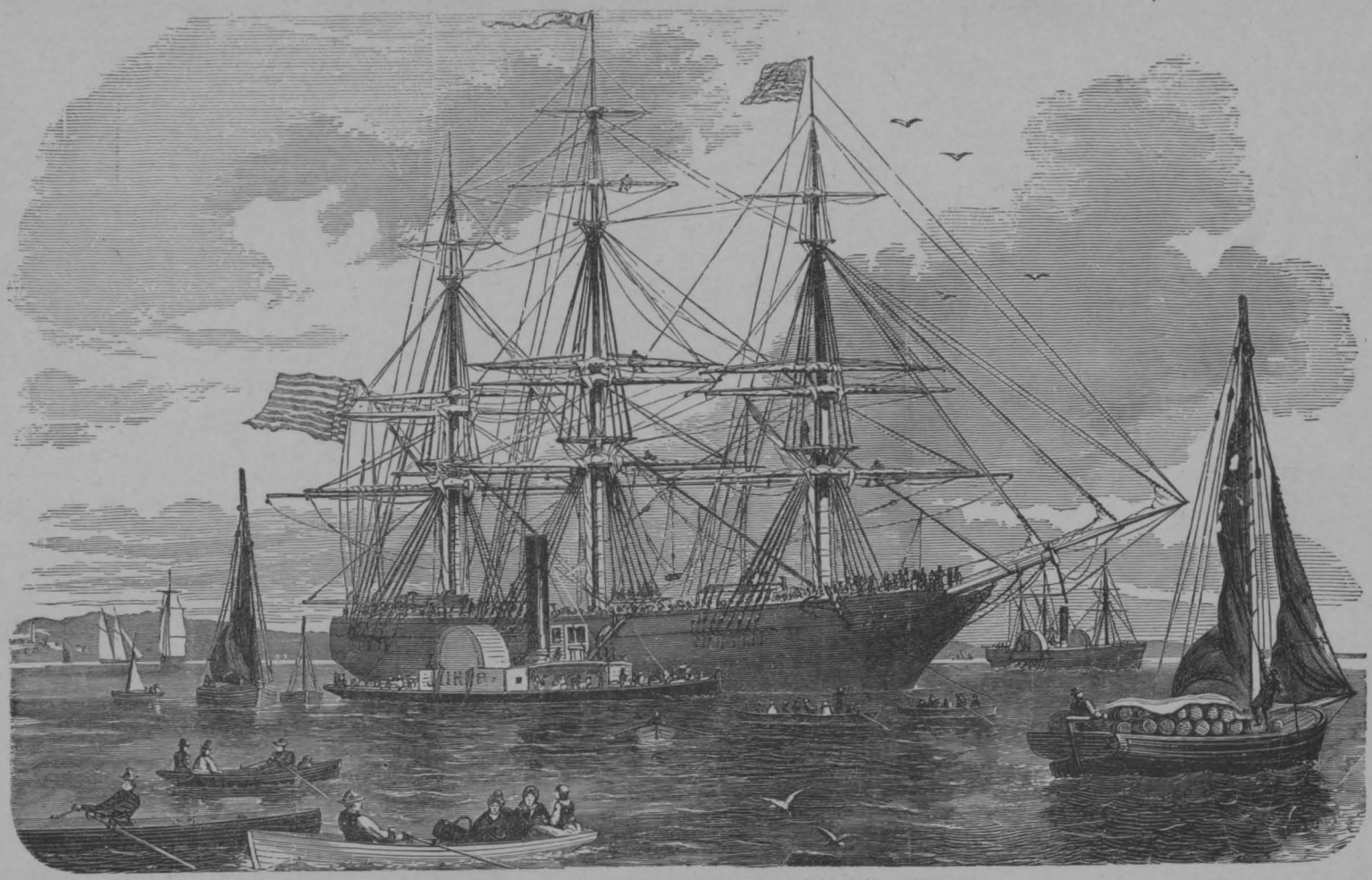
IMPORTS AND EXPORTS OF THE UNITED STATES, AND TONNAGE IN THE FOREIGN TRADE.

	Tonnage.	Dom. exports.	For. exports.	Total exports.	Imports.
1790,	474,374	$19,666,000	$539,156	$20,205,156	$23,000,000
1791,	502,146	18,500,000	512,041	19 012 041	29,200,000
1792,	564,457	19,000,000	1,753,098	20,753,098	31,500,000
1793,	520,764	24,000,000	2,109,572	26,109,572	31,100,000
1794,	628,618	26,500,000	6,526,233	33,026,233	34,600,000
1795,	747,965	39,500,000	8,489,472	47,989,472	69,756,268
1796,	831,899	40,764,097	26,300,000	67,064,097	81,436,164
1797,	876,913	29,850,026	27,000.000	56,850,206	75,379,406
1798,	898,328	28,527,097	33,000,000	61,527,097	68,551,700
1799,	939,400	33,142,522	45,523,000	78,665,522	79,069,148
1800,	972,492	31,840,903	39,130,877	70,971,780	91,252,768
1801,	947,577	47,473,204	46,642,721	94,115,925	111,363,511
1802,	892,104	36,708,189	35,774,971	72,483,160	76,333,333
1803,	949,172	42,205,961	13,594,072	55.800,033	64,666,666
1804,	1,042,404	41,467,477	36,231,597	77,699,074	85,000,000
1805,	1,140,368	42,387,002	53,179,019	95,566,021	120,600,000
1806,	1,208,716	41,253,727	60,283,236	101,536,963	129,410,000
1807.	1,268,548	48.699,592	59,643,558	108,343,150	138,500.000

The commerce of the country received a check from the non-intercourse act of Congress in 1809, and the subsequent war with England. But with the return of peace, our commerce revived. During the prevalence of the war and non-intercourse with Europe, attention was turned by necessity to manufactures. Capital that formerly had been used in navigation and agriculture, now sought employment in manufacturing industries, and these grew so rapidly, that it was not long after the return of peace, before our manufactured goods began to form a part of our exports. By this time, also, the invention of Whitney's cotton gin had so increased the production of cotton that it formed three-fifths of the value of all our exports. The exports and imports from 1821, to 1830, were as follows:



CLIPPER SHIP.



OUTWARD BOUND, LADEN WITH COTTON—RETURN TRIP WITH EMIGRANTS.

	Dom. exports.	For. exports.	Total exports.	Imports.	Ex. specie.	Im. specie.
1821,	43,671,894	21,302,488	64,974,382	62,585,724	10,478,059	8,064,890
1822,	49,874,185	22,286,202	72,160,387	83,241,511	10,810,180	3,369,846
1823,	47,155,408	27,543,622	74,699,030	77,579,267	6,372,987	5,097,896
1824,	50 649,500	25,337,157	75,986,657	80,549,007	7,014,552	8,379,835
1825,	66,944,745	32,590,643	99,535,388	96,340,075	8,932,034	6,150,765
1826,	53,055,710	24,539,612	77,595,322	84,974,477	4,704,533	6,880,966
1827,	58,921,691	23,403,136	82,324,827	79,484,068	8,014,880	8,151,130
1828,	50,669,669	21,595,017	72,264,686	88,509,824	8,243,476	7,489,741
1829,	55,700,193	16,658,478	72,358,671	74,492,527	4,924,020	7,403,612
1830,	59,462,029	14,387,479	73,849,508	70,876,920	2,178,773	8,155,964
	$536,105,024	$229,643,834	$765,748,858	$798,633,400	$71,673,494	$69,144,645

Without dwelling further upon the details of our commercial progress, we will give the aggregate movements of commerce by decades, as furnished by the treasury department, together with some statistics of manufactures and agriculture.

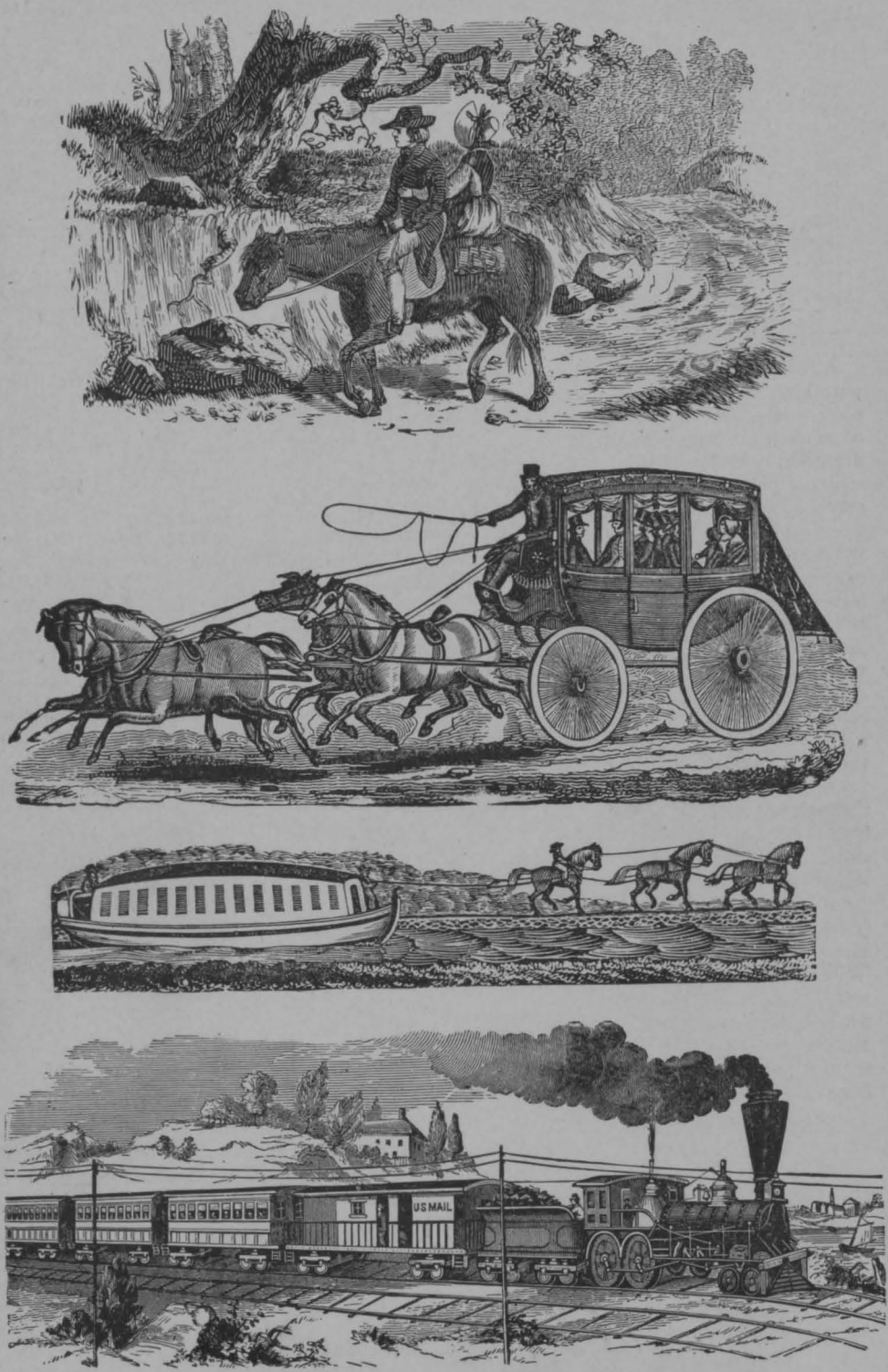
	Exports for periods of ten years. Domestic.	Foreign.	Total.	Imports.	Manufactures. Annual value.	Agriculture. Annual value.
1800,	$293,634,645	$191,344,293	$484,968,938	$591,845,454	..	..
1810,	383,401,077	372,536,294	755,937,371	927,663,500	$145,385,906	..
1820,	462,701,288	127,190,714	589,892,002	688,120,347	62,766,385	..
1830,	536,104,918	229,643,834	765,748,752	798,633,427	111,645,466	..
1840,	892,889,909	199,451,994	1,092,351,903	1,302,476,084	483,278,215	$621,163,977
1850,	1,131,458,801	129,105,782	1,260,564,583	1,267,783,782	1,055,595,899	994,093,842
1860,	2,766,799,881	226,950,036	2,993,749,917	3,004,591,285	2,500,000,000	1,886,000,000
	$6,466,990,519	$1,476,222,947	$7,943,203,466	$8,581,113,879		

Until the year 1842, there had been little market in Europe for our agricultural products. But with the repeal of the British corn laws, the way was opened for the exportation of our grain at a time when the extensive settlement of our great western region was producing a surplus for which we needed to find a market. Grain, in its natural state, or made into pork and beef, is the proper export of our western fields. The corn product of 1855, was 600,000,000 bushels. The number of hogs packed that year, was 2,489,050, with a total weight of 497,900,000 pounds, of which 164,374,681 pounds were exported. Our exports of grain in various forms to Great Britain for the last thirty years, may be seen from the following table:

QUANTITIES OF CORN AND PORK EXPORTED TO GREAT BRITAIN.

	Pork. barrels.	Hams and bacon. lbs.	Lard. lbs.	Corn. bushels.	Wheat. bushels.	Flour. barrels.
1840,	..	1,061	..	104,341	615,972	620,919
1841,	4,769	26,394	444,305	12,548	119,854	208,984
1842,	6,900	160,274	3,430,732	123,665	143,300	208,024
1849,	111,385	53,150,465	21,388,265	12,392,242	608,661	953,815
1858,	13,578	15,365,524	10,288,474	3,215,198	8,926,196	3,512,169
1860,	91,640	19,447,163	18,866,178	3,726,786	699,713	1,926,202
1862,	48,010	155,462,500	62,325,300	5,776,772	18,564,756	2,971,918
1868,	75,681	71,430,224	26,573,120	21,488,433	11,028,544	386,396
1869,	105,210	82,901,728	28,667,968	32,986,804	24,538,646	977,714

But the cotton, rice, and tobacco, of the South, have always contributed largely to our commerce, as well as the manufactures of the Eastern States. In more recent years, also, the opening of our gold mines in California, has brought large additions to our commerce. The following table gives a condensed view of our principal exports from the year 1790.



IMPROVEMENTS IN TRAVEL AND TRANSPORTATION ILLUSTRATED.

HEADS OF EXPORTS.

	Cotton.	Tobacco and r.ce.	Flour and provisions.	Manufactures.	United States specie.	Total of all domestic exports.
1790,	$42,285	$6,103,363	$5,991,171	..	..	$19,666,000
1803,	7,920,000	8,664,000	15,050,000	$2,000,000	..	42,205,961
1807,	14,232,000	7,783,000	15,706,000	2,309,000	..	48,699,592
1816,	24,106,000	15,187,880	20,587,376	2,331,000	..	64,781,896
1831,	31,724,682	6,908,655	12,424,701	5,086,890	9,014,931	61,277,057
1836,	71,284,925	12,607,390	9,588,359	6,107,528	345,738	106,916,680
1847,	53,415,848	10,848,982	68,701,921	10,351,364	2,620	150,637,464
1851,	112,315,317	11,390,148	21,948,651	20,136,967	18,069,580	196,689,718
1859,	161,434,923	23,281,186	37,127,736	33,853,660	57,502,305	335,894,385
1860,	191,806,555	18,473,946	43,767,922	39,803,080	56,946,851	373,189,274
1864,	1,180,113	12,482,255	133,021,299	27,171,017	75,804,747	282,371,843
1868,	152,820,733	26,169,264	102,245,023	..	70,841,396	441,800,072

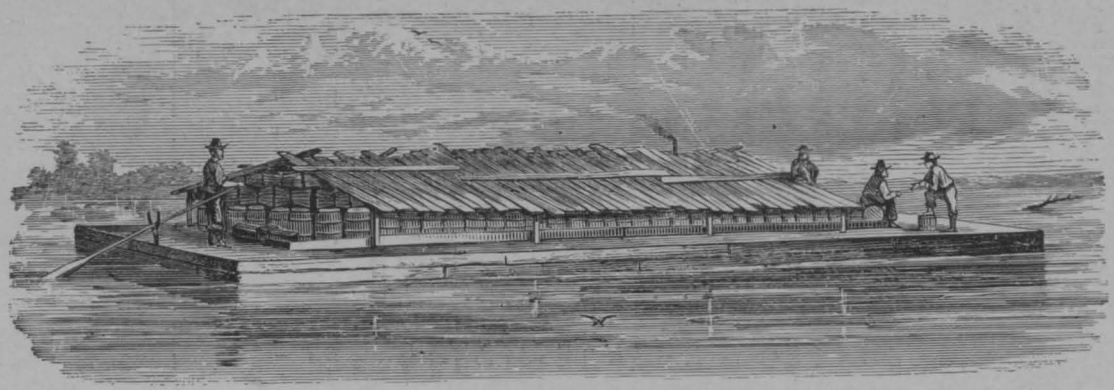
TRAVEL AND TRANSPORTATION.

A hundred years ago, it may be said with almost absolute truth, that there were no roads in the country. The best roads of that time certainly would not now be dignified with that name. The rivers and streams were then the chosen paths of travel, and the roads, such as they were, were directed towards these as most readily facilitating travel, and especially the carriage of goods. The better to effect the latter it was natural that canals should be thought of as channels of transportation. Accordingly we find Washington, who was an engineer and had crossed the Alleghanies before his majority, early considering the connection of the Chesapeake with the Ohio by this means, and the war had no sooner closed than he presided at a commission sitting to consider the improvement of the Potomac river. This improvement resulted finally in a canal to Pittsburg. Pennsylvania at the same time agitated the project of a canal from the Delaware to the lakes. In New York, the Erie canal was projected at the same time, but waited many years for De Witt Clinton to make it a reality. So early were these and other canals planned in order to facilitate travel and transportation. But with the sparse population and the scanty capital of the country, the plans could be carried out only slowly.

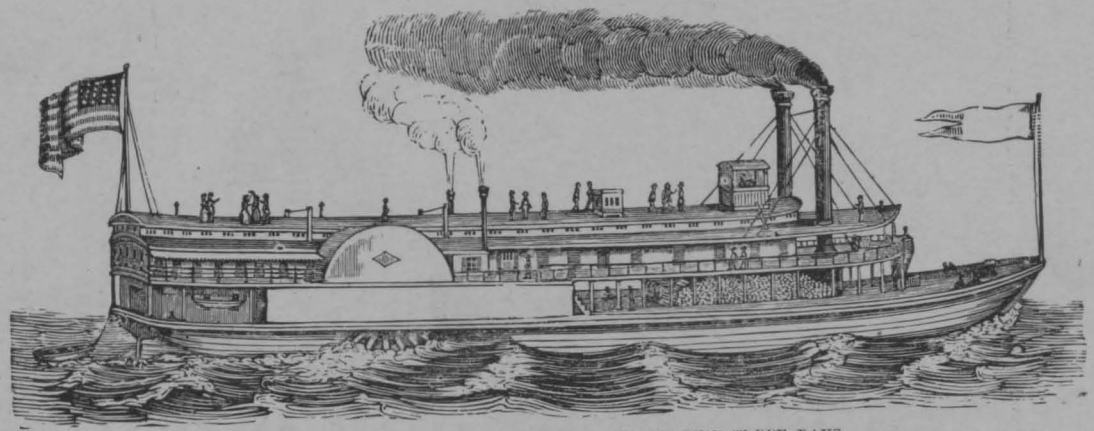
The establishment of a post-office system, authorized by the constitution of the new government, made it necessary to provide roads over which the mails at least could be carried. There may be said to be three periods of road building and so of transportation. From 1790 to 1810 were 20 years of travel by common roads and sailing vessels. From 1810 to 1830, were 20 years of travel by canals and steamboats. From 1830 to the present time, railroads have come into being, and have increased with wonderful rapidity. It was the noble endeavor of the government at the outset to give the means of conveying intelligence from every town and village of the country, to every other. It was the worthy aim of an intelligent people like ours. Let intelligence go first to do its work; travel and the transportation of material goods could come afterwards. In the first year of the working of the post-office department, there were only 1,905 miles of post routes, and nine-tenths of the service on these was performed on horseback, but as the roads were gradually improved, more and more of the service was performed by stage coaches or wagons. In 70 years the post routes were extended over more than 250,000 miles. The following table shows the progress of the mail service.

MAIL SERVICE.

	No. of post offices.	Miles post roads.	By stages. Miles.	Sulkies and horses. Miles.	Steam. Miles.	Rail. Miles.	Annual. Miles.
1791.....	89	1,905	89,650	756,818	..	..	846,468
1811.....	2,403	37,931	2,534,102	3,058,960	..	..	5,592,652
1833.....	8,450	115,176	17,693,839	8,531,909	628,737	..	26,854,485
1859.....	27,977	260,052	23,448,398	27,021,658	4,569,662	27,268,384	86,308,402
1868.....	26,481	216,928	45,540,587		3,797,560	34,886,178	84,224,325



FLATBOAT FROM ST. LOUIS TO NEW ORLEANS, TIME FOUR MONTHS.



STEAMBOAT FROM NEW ORLEANS TO ST. LOUIS, TIME THREE DAYS.

MAIL SERVICE FOR 1875.

Ordinary receipts from post office,	$26,671,218.50
From money orders	$120,142.90
Total expenditures	$33,611,309.65
Receipts from stamps of all kinds	$25,477,511.25
Total mail routes	8,283
Rail roads	871
Aggregate miles	277,873
Annual transportation miles	133,822,216
Total cost of transportation	$13,353,369
Steamboat miles	15,788
Cost of European steamship service	$228,098.25
Number of postmasters	34,294
Subsidies to steamships	$650,0 0
Total expenses of department	$33,611,309.45

While the government did much to provide post roads, the States lent their aid for the same purpose by providing in various ways for the building of roads and keeping them in repair. Plank roads were constructed, and turnpike companies were chartered. Macadamized roads began to be used in 1820. Careful experiments show that a horse can draw three times as much on a Macadamized road as on a common earth road, and on a railway eighteen times as much. In the newer States, formed after the adoption of the federal constitution, the government, as owner of most of the land, appropriated a percentage of the avails of land sales in the construction of roads. The army even was employed in road building. But this system of building roads became, after a time, a subject of political controversy, and was abandoned. But a very beneficial work had been rendered to the country before the scheme was abolished. $30,000,000 had been expended in this way, and as steamboats and railroads were already offering their facilities of transport, the country could afford to dispense with the aid of the general government in this form. In 1807, Fulton's steamboat, the "Clermont," appeared, and went up the Hudson at the rate of four miles an hour, to the astonishment of every body, and shortened the time between New York and Albany, from the seven or eight days of the sailing packets, to thirty-six hours. In 1820, this time was reduced to 20 hours. As late as 1823, however, the time occupied in going from New York to Providence was 20 hours, and from that city to Boston 6 hours more. Now one may make the passage between these cities in seven or eight hours. The following table shows the progress made in locomotion by steam boats.

1811, Clermont's time to Albany,	4 ms.	per h.,	36 hs.
1820, Paragon,	"	"	20
1825, Chief Justice Marshall	"		14 30
1840, Knickerbocker,		"	9.33
1860, average time 18 miles	per	hour,	8
1870, " " 21	"	" "	7

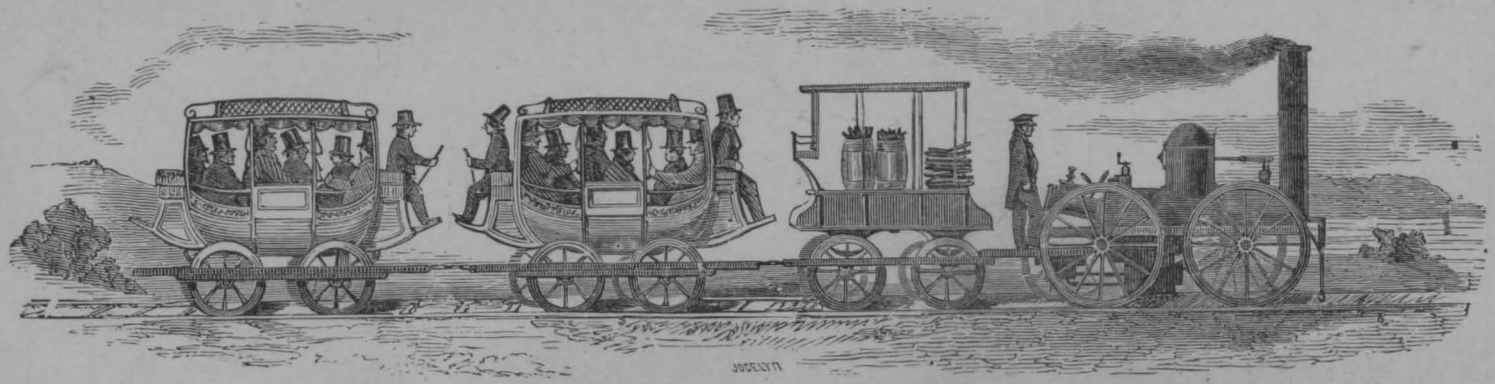
In 1841, the screw propeller was introduced, and now has taken the place of paddle wheels on almost all vessels navigating the lakes or the oceans. The advantages derived from the introduction of steamboats may be seen by reference to travel on that great interior thoroughfare, the Mississippi. Before their introduction it took 120 days to go from New Orleans to St. Louis, a distance of 1300 miles. In 1815, the steamer Enterprize made the passage in 25 days, which was thought something wonderful. In 1823, the average passages were made in twelve days. In 1860, the passage was reduced to three days and some hours.

The rapid increase in the use of steam as a means of transportation on the western waters is shown by the following figures:

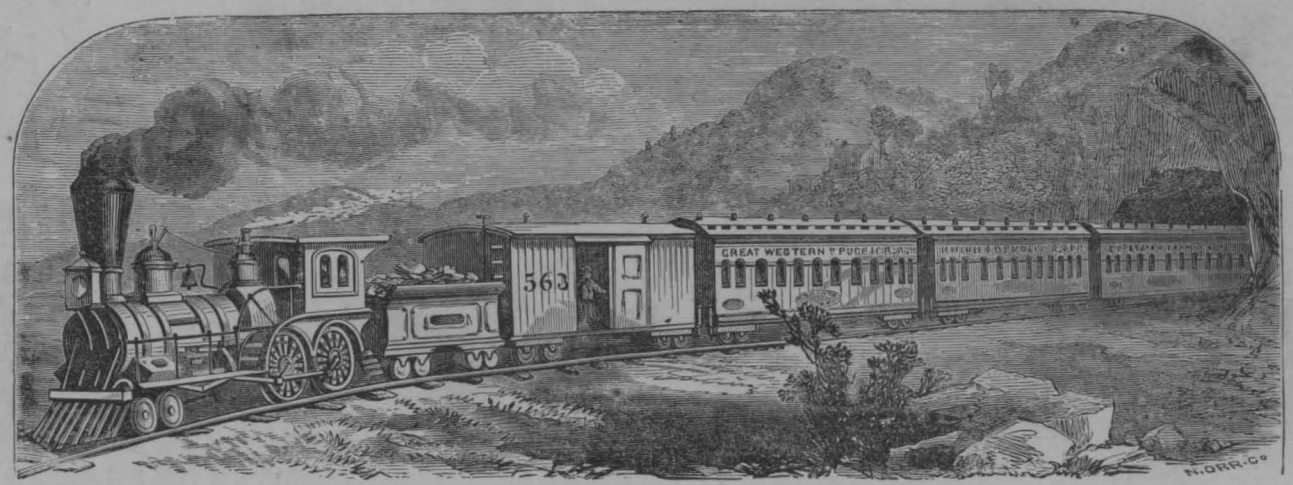
	1842.	1851.	1860.	1838.
New Orleans	28,153	34,736	70,072	52,025
St. Louis	14,725	31,834	55,515	86,135
Cincinnati	12,025	24,709	23,136	69,311
Pittsburg	10,107	16,943	42,474	53,762
Louisville	4,618	15,181	29,037	28,106
Nashville	3,810	3,578	5,268	.
Wheeling	2,595	7,191	11,545	20,717
Vicksburg	..	938	..	2,396
Memphis	..	450	6,143	13,413
Galena and above	..	..	5,849	25,798
Total tons.	76,033	135,560	249,039	351,671

The reduction in cost of transportation has kept pace with the speed which has been attained. In 1815, it cost five dollars to carry a piece of cloth from New Orleans to St. Louis. The same can be carried now for forty cents.

For the transportation of heavy and bulky articles, boats offer a cheaper medium than roads. One horse can draw on



FIRST LOCOMOTIVE EVER RUN ON THE MOHAWK VALLEY RAILROAD.



MODERN TRAIN FROM NEW YORK, TO SACRAMENTO CALIFORNIA, WITH PULLMAN'S PALACE CARS.

a canal seventy times as much as on a common road. Before the advent of railroads therefore, canals were a very desirable improvement in the means of transportation. The construction of the Erie canal, projected soon after the Revolutionary war, was actually begun in 1817, and completed in 1825. It connected the great lakes of the West, and all the region adjacent to them, with the Atlantic through the Hudson river. It was a most important and much needed avenue of communication. Its success was assured from the first, and in ten years it paid for the cost of its construction. Its success and manifest usefulness led to the construction of many other canals connecting various important points both in the eastern and in the western states. As far west as Illinois, a canal was projected to connect Lake Michigan with the Mississippi River, and the work was accomplished in 1848. Before the construction of the Erie canal, the cost of transportation from Buffalo to New York was $100 a ton, and the time required was 20 days. The canal reduced the cost at once to about $14, and subsequently it has been reduced as low as $3. The Erie canal opened an avenue to market for the entire produce of the fertile fields of the West, and while it did this, it also caused a great emigration from the more sterile regions of the East, to the cheaper and richer lands of the West. The system of canals established there brought the whole region into connection with the lakes, or with the great channel of the Mississippi, and so the produce of every part of the West could reach the European market by way either of New York or New Orleans. There were opened in Ohio alone, 819 miles of canal navigation, at a cost of $15,603,345. A general view of the canal system may be given in few figures, leaving out of consideration all but the main lines.

		Miles.	Expenditures.	Width. Feet.	No. of Locks.
Erie canal	Hudson river to lakes	363	$7,143,789	40	84
Pennsylvania canal	Delaware and Ohio	395	12,381,822	40	200
Ohio "	Ohio river and Lake Erie	307	4,695,824	40	152
Miami "	" " "	178	3,750,000	40	102
Indiana "	" " "	379	7,101,000	60	102
Illinois "	Lake Michigan with Illinois river	102	8,654,337	60	2
Total		1,724	$43,726,772		

		Length. Miles.	Cost.	Width.	Locks.
Schuylkill navigation	Pennsylvania	108	$2,500,196	36	120
Lehigh Canal	"	85	4,455,099	60	81
Susquehanna	"	41	897,160	40	12
North Branch	"	73	1,590,379	40	8
" " upper	"	94	4,500,000	40	..
Union	"	82	5,000,000	36	90
Delaware and Hudson	New York	108	9,100,000	75	18
Morris canal	New Jersey	102	3,612,000	32	29
					planes, 22
Total canals		693	$31,654,834		

The canals and steamboats were only fairly established, when railroads began to be built. The increased population of the country, and the great extent over which it was spread, gave a ready welcome to this new instrument of travel, which was also peculiarly adapted to the transportation of the mails, and the lighter and less bulky articles of merchandise. The growth of the railroad system in our country has something of the marvellous about it. The use and benefit of canals were limited by the slowness with which merchandise was, of necessity, moved upon them. Time becomes often an important and even controlling element in transportation. It was in 1825, that accounts reached this country of the success of the Darlington railroad, a road built for the purpose of supplying London with coal, and which carried passengers at a speed of seven miles an hour. At once a disposition was evinced to build similar roads in this country, and in 1827, a road was built from Quincy to Neponset for the purpose of transporting the granite from the quarries at that place. Thus the first railroads, both in England and the United States, were built more with reference to the carrying of freight, than of passengers.

This was occasioned doubtless by the fact that there was at the outset no expectation of gaining very much in speed by the new invention. The chief advantage anticipated was the ability, by means of better grades, and the lessening of friction by the use of the smooth rails, to move greater loads with a given amount of power. Neither by steamboats nor locomotives was it expected at first to secure any such speed as has been attained. This is evident, aside from other proof, from the fact that in the construction of the first roads, it was thought necessary to have a toothed rail, into which a cog wheel should play so as to secure the requisite power of traction. It was supposed that there would not be sufficient adhesion between smooth wheels and a smooth rail to prevent the wheels from slipping. The cog-wheel arrangement would not have been adopted if power, rather than speed, had not been the primary object sought. The Mauch Chunk railroad, in Pennsylvania, leading to the coal mines, was completed in 1827. The Quincy and Mauch Chunk roads were both operated by horses. Locomotives were not used at first. In 1828, twelve miles of the Baltimore and Ohio road were finished, anticipating by two years the completion of the famous Liverpool and Manchester railroad in England, the success of which has commonly been reported as leading to the construction of the first railroad in this country. A short road from Richmond, Va., and one from New Orleans to Lake Pontchartrain, were also constructed in 1831. Thus, several roads, in widely separated portions of the country, were built before the success of the Manchester road was known. The rapidity with which the railroad system has been extended in our country is remarkable. More than two thousand millions of dollars have been expended, in less than fifty years, in building railroads. All the time too, the system has been improving. The roads are better, and better equipped now, than they were at first. Increased ease and comfort in traveling have been secured, and at the same time increased speed and safety. We now not only travel on wheels, but we live on them. Our railway trains may be called little villages of elegant houses, linked together in friendly neighborhood, in which the people talk and read, and eat, and sleep, while spinning over the country at a speed almost incredible. In one of the earliest books treating of railroads, published in 1825, we find the following: "Nothing can do more harm to the adoption of railroads than the promulgation of such *nonsense* as that we shall see locomotive engines travelling at the rate of twelve miles per hour." Such was the condition of knowledge in respect to railroads when Boston was planning to build a railway to Albany. In this centennial year, we have had mail trains running daily from New York to Chicago in 26 hours, and a train has made the trip from New York to San Francisco, from the Atlantic to the Pacific, in three days and eleven hours.

In January, 1868, 373 railroads reported a gross income of $327,547,725, or more than $8.50 to each inhabitant of the country. The number of miles of railroad completed up to June, 1869, were almost half the length of all the railroads of the world. Ours may be called the Railroad Country of the world.

BRIDGES.

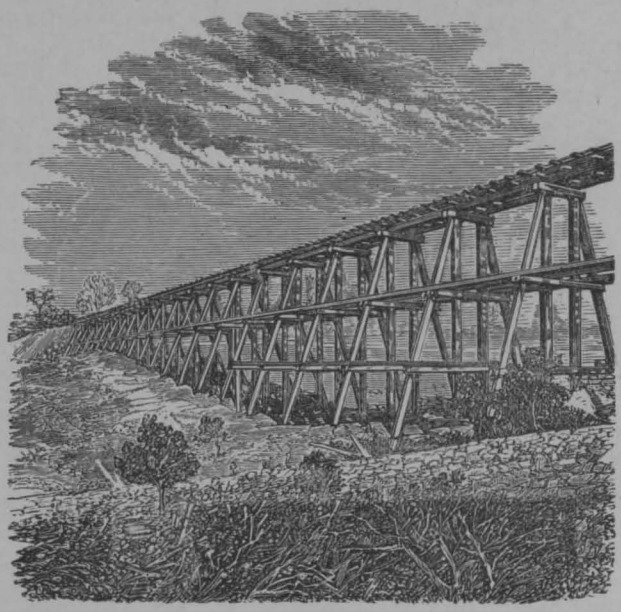
In connection with the subject of travel and transportation, bridges hold a conspicuous and important place. They are, in fact, properly to be considered as the continuation of our highways and railroads, modified so as to afford passage across intenvening rivers or larger bodies of water. Their construction often presents great difficulties, and affords opportunity for the highest engineering skill.

And in this department of construction our American builders have achieved great success and won many splendid triumphs. Indeed, it may truly be said that we now lead the world in bridge building. The plans of our bridges, and the methods of construction in use are very generally adopted by engineers and builders throughout Europe, and our engineers are often consulted in the construction of the most important bridge structures abroad.

We have particularly excelled in the construction of bridges constructed of timber, and more recently in the use of iron. Our excellence in this department of construction has arisen, in part, from the necessities of our situation, and from the great abundance of timber to be found in nearly all parts of our country. The rapid

VIEWS ON THE CENTRAL PACIFIC RAILROAD.

To those unacquainted with the locality it is impossible to convey by description any adequate idea of the irregularities of surface which occur in the Sierra Nevada mountains, which are traversed by this line.



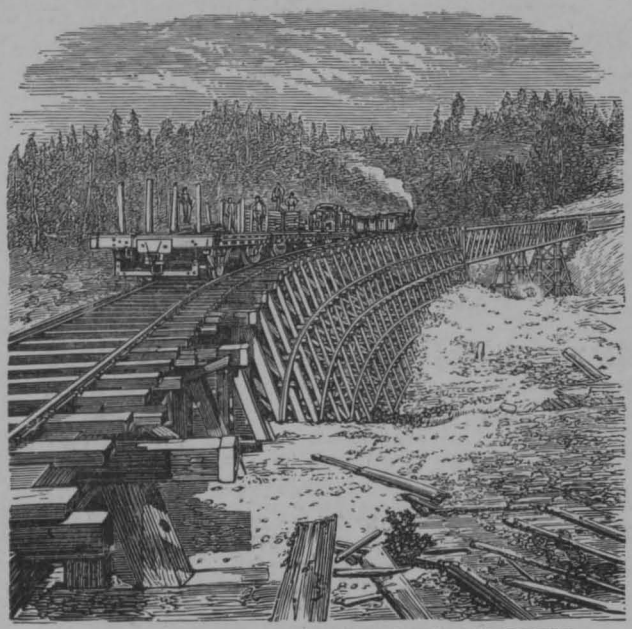
NO. I.—TRESTLE OPPOSITE AUBURN.

The tunneling required has been of small extent. The peculiarity of the line is the very extensive employment of trestle bridging, and it is with the view of illustrating this that our engravings have been chosen, Nos. 1, 2, 4, 5, and 6, being examples of trestle bridging, and No. 3 showing a cutting 63 feet deep and 800 feet long through cemented gravel and sand, of the consistency of solid rock, and which is

NO. II.—TRESTLE AND TRUSS BRIDGE, CLIPPER RAVINE,
(100 feet high.)

NO. III.—BLOOMER CUT,
(63 feet deep, 800 feet long.)

only to be moved by blasting. The trestle bridging has been all constructed as strongly as possible, and of the best obtainable material. The ties, stringers and caps are of the best quality pine (that from Puget's Sound, nearly equal to oak,) and the posts, braces, sills and piles of red-wood. The main posts, 12 inches square, are placed perpendicularly, let into a sill of the same dimensions with mortice and tenon, immediately under the bearing of the track stringers. Outside the main posts, two posts, 12 in. by 12 in., extend down, with a run of 1 foot in 3 inches, to the sill to which they are tenoned, beside being bolted at the top to the main posts with inch bolts and cast-iron washers. The sills rest on piles on stone foundations. Piles, when used, are driven so as to come directly under the main posts and braces. The posts are capped with a timber 12 inches square and 9 feet long, into which the posts are tenoned and pinned. Upon the caps rest corbels 12 inches square and 9 feet long, and upon them are laid the string-



NO. IV.—LONG RAVINE, HOWE TRUSS BRIDGE AND TRESTLE,
(115 feet high.)

NO. V.—TRESTLE AT SECRETTOWN,
(1,000 feet long, 50 feet to 90 feet high.)

ers, 12 in. by 15 in., secured by iron bolts passing down through them to the corbels. The caps are notched 1 inch to receive the corbels. The cross ties, or sleepers, are securely fastened to the stringers, and upon the sleepers are laid the rails in the ordinary manner. The "bents" or frames are placed at intervals of 15 feet from center to center. Trestling thus constructed is said to last from eight to fifteen years. When necessary it can be renewed at small cost, or filled with earthen embankment by transporting material on cars at far less cost and trouble than would have been incurred in constructing an embankment at first.

It now takes three weeks or more to reach San Francisco *via* Panama, from New York. By railroad, the journey can be made in about five days.

NO. VI.—FIRST TRESTLE IN CLIPPER RAVINE.

settlement of the country has called for the construction of a large number of bridges in a comparatively short period of time, while the small amount of capital at our disposal has necessitated the use of the cheapest materials that would answer the purpose, and their disposal in the most economical and effective manner. We have been in no condition to construct bridges of stone, at great cost, and consuming years in the process of construction. Building our railroads at the rate of thousands of miles in a year, our great streams must be spanned in a few weeks or months at the farthest, and at the least expense possible of materials. The result has been the erection of many bridges which have combined great strength with lightness and simplicity of construction. Our Pacific railroads, especially, have given origin to some remarkable specimens of engineering. In crossing the Rocky and Sierra Nevada mountains, deep and wide ravines, more than a hundred feet in depth and a thousand feet in width, often presented themselves, and across these bridges have been thrown, light in appearance almost as the spider's web, yet amply sufficient to bear up the loads of the world's commerce.

Over our larger rivers, also, we have constructed bridges which are justly considered remarkable specimens of engineering skill. Across the Susquehanna river at Havre de Grace, for instance, a wooden bridge has been built, of Howe's plan, 3,271 feet in length, and consisting of twelve spans resting upon granite piers. This bridge combines great lightness and strength.

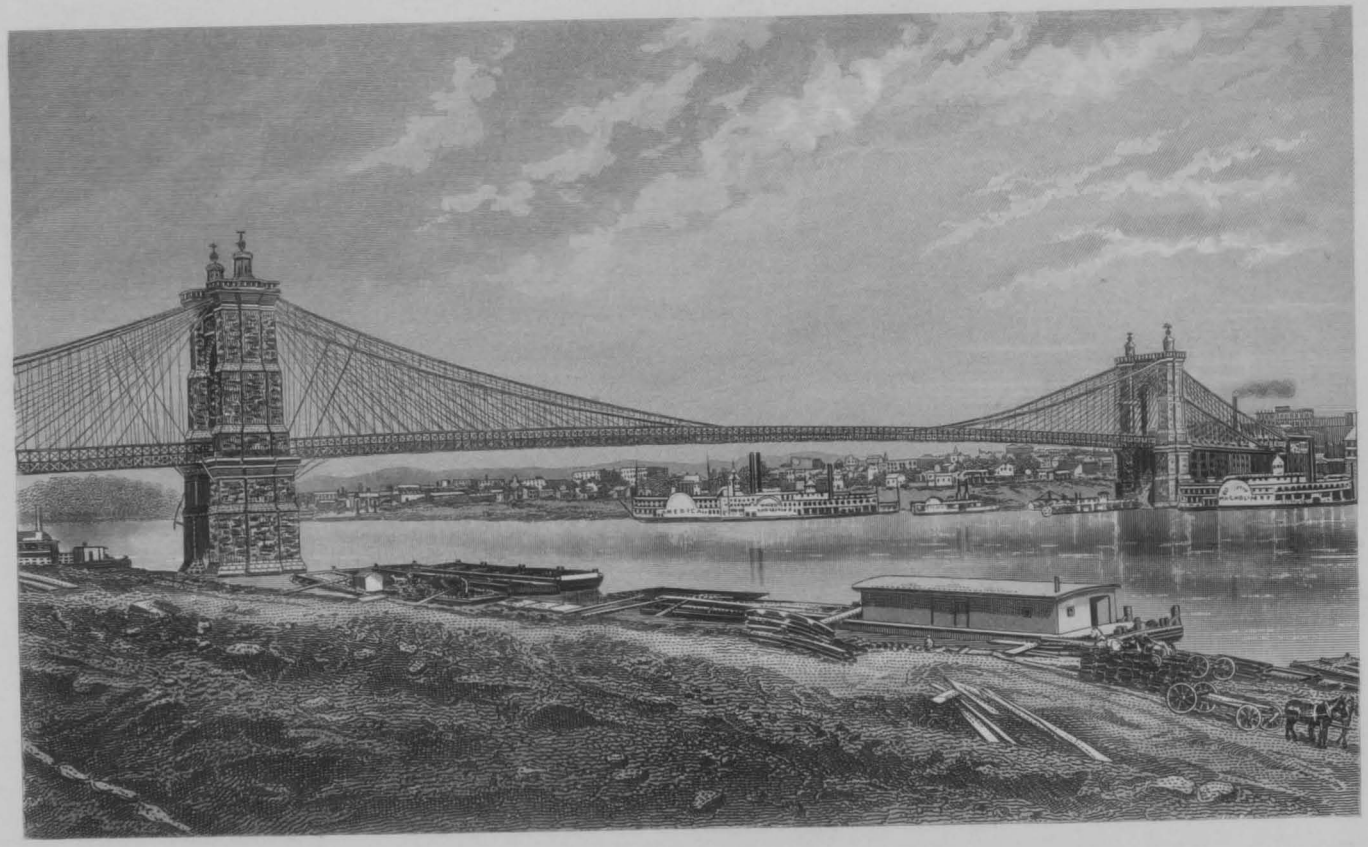
In recent years the tendency has been strong to the adoption of iron and steel in the construction of bridges rather than wood, and already we have some remarkable specimens of bridges built of these materials. One of the finest bridges in the country, and perhaps in the world, is the suspension bridge across the Niagara river, just below the Falls. It was constructed by Mr. Roebling. It is designed for the passage of railway trains and for ordinary vehicles, and has two roadways, one above the other. It has a span of 821 feet, stretching at the altitude of 245 feet above the seething waters below. Fourteen thousand five hundred and sixty wires are employed in the cables which support this structure, and they are deemed adequate to the support of 12,000 tons, and so great is the firmness of the roadway that the passage of a railway train causes a depression of only from three to four inches. It has been in service more than twenty years, and its strength seems unimpaired.

The builder of this bridge added to his reputation by the construction of a suspension bridge over the Ohio river at Cincinnati, of which a representation is here given. It has a total length of 2,220 feet, and a clear span of 1,057 feet, and is 103 feet above low water in the river. The cables supporting the bridge are twelve and one-fourth inches in diameter.

Another and yet more remarkable bridge, designed by the same builder, and now in process of erection under the charge of his son, is designed to connect New York and Brooklyn. It is to be 3,475 feet in length, with a clear span over the East river of 1,595 feet, and with a height above low-water mark of 135 feet. It will be eighty-five feet in width, suspended from four principal cables, each sixteen inches in diameter, composed of galvanized steel wire, having a strength of 160,000 pounds for every square inch of section. The strength is deemed equal to the support of 5,000 tons.

A very remarkable and beautiful bridge has also been completed, recently, across the Mississippi river at St. Louis. It was designed by James B. Eads. It rests on four piers, sunk to the bed-rock of the river through 120 feet of sand. It has spans of 515 and 520 feet. The arches rise sixty feet above the water. The bridge is fifty-four feet in width, and has two roadways, one for railways and the other for carriages. The arches are constructed of steel tubes, sixteen inches in diameter and twelve feet in length, held together by hoops of the same material. The top and bottom tubes are twelve feet apart, and are connected together by a diagonal system of bracing, which secures great lightness and strength. The cost of this bridge, with the tunnel under the city of St. Louis, by which it is approached, has been about $9,000,000, and it stands as one of the finest and most beautiful bridges in the world.

We append several statistical tables which sum up a great many facts in regard to the subject of railroads.



SUSPENSION BRIDGE ACROSS THE OHIO RIVER AT CINCINNATI.

Length of Bridge 2.200 ft.,main span over the river 1.020, short spans 262 ft.each, hight of floor above low water 100 ft.,Cost two millions of dollars

settlement of
the constructi
bridges in a c
time, while th
our disposal h
cheapest mat
the purpose, a
economical a
have been in
bridges of st
suming years
tion. Buildin
of thousands
streams must
or months at
expense possi
has been the
which have c
lightness and
Our Pacific
given origin t
of engineerin
and Sierra N
wide ravines,
depth and a t
presented th
bridges have
ance almost a
sufficient to
world's comm

Over our
constructed b
sidered rema
ing skill. A
at Havre de
bridge has
3,271 feet i
twelve spans
This bridge c
strength.

In recent
strong to the
the construc
wood, and al
ble specimen
materials.
the country,
the suspensi
river, just b
structed by
for the pass
ordinary veh
one above th
feet, stretchi
above the s
teen thousan
are employe

A TABLE

Showing Mileage, Liabilities, and Per Cent. of the Railroads of the United States in 1874.

[From Poor's Manual for Railroads, by permission, the best authority extant.]

Corporate Titles of Companies.	*Length in Miles. Main.*	*Branches.*	*Capital Stock.*	*Total Stock, Div Bonds, Per and Debt. Ct.*	
MAINE.					
Atlantic and St. Lawrence, .	155.00	24.00	$5,000,000	$8,484,000	4
European & N. American, .	278.25	12.00	4,606,866	11,625,383	
Knox and Lincoln, ...	49.00	4.00	364,400	2,759,400	
Maine Central, ...	355.08	40.05	4,343,400	12,231,390	
Portland and Ogdensburg, .	79.25	3.00	1,049,246	3,561,823	
Portland and Rochester, . .	52.50	4.00	636,112	2,190,022	
St. Croix and Penobscot, . .	22.00	8.00	100,000	327,700	
Total, ...	991.08	95.05	$16,100,024	$41,179,718	
NEW HAMPSHIRE.					
Boston, Concord & Montreal,	160.00	10.22	$1,800,000	$3,829,562	6
Cheshire, ...	88.12	12.72	2,153,300	2,984,122	5
Concord, ...	121.50	49.00	1,500,000	1,723,061	10
Concord and Claremont, . .	71.00	6.76	795,587	1,500,087	
Manchester and Lawrence, .	26.14	3.12	1,000,000	1,124,300	10
Monadnock, ...	15.80	.50	197,865	413,533	
Northern, ...	82.91	16.54	3,068,400	3,975,969	8
Wilton, ...	15.43	2.04	215,000	215,000	7
Total, ...	580.90	100.90	$10,730,152	$15,765,036	
VERMONT.					
Central Vermont, ...	338.00	42.00		$10,617,464	
Conn & Passumpsic Rivers,	145.30	15.00	$2,175,500	4,020,910	6
Port. & Ogdensb'g (Vt. Div.)	60.00	3.00		2,500,000	
Rutland, ...	178 00	26.00	6,658,400	9,366.910	2
Sullivan County, ...	26.00	2.60	500,000	1,250.000	
Total, ...	747.30	88.60	$9,333,900	$27,755,284	
MASSACHUSETTS.					
Ashburnham (9 months), . .	3.00		$99,110	$108,113	
Boston and Albany, ...	317.48	340.00	19,864,100	27,169,050	10
Boston, Barre and Gardner, .	36.40	3.00	863,902	1,243,802	
Boston, Clinton & Fitchburg,	147.53	12.69	872,600	2,691,761	
Boston, Hartford and Erie, .	139.00	18.22			
Boston and Lowell, ...	79.73	21.00	3,200,000	5,620,800	6½
Boston and Maine, ...	193.26	105.10	6,921,275	10,335,284	8
Boston and Providence, . .	66.50	22.00	4,000,000	5,900,000	10
Connecticut River, ...	55.85	36.30	2,100,000	2,749,800	10
Eastern, ...	281.97	70.94	4,997,600	17,322,853	
Fitchburg, ...	182.12	52.51	4,000,000	4,623,838	8
Hanover Branch, ...	8.00	1.00	123,950	173,689	6
Nashua, Acton and Boston, .	20.21	1.87	262,000	714,146	
Nashua and Lowell, . . .	53.66	7.35	800,000	1,395,135	9
New Bedford, ...	57.29	13.54	1,678,500	2,297,420	8
Old Colony, ...	265.01	70.54	6,687,300	11,983,433	7
Providence and Worcester, .	59.84	48.65	2,000,000	3,575,655	10
South Shore, ...	11.55	2.56	259,685	534,685	
Springf'd, Athol & N'theast'n,	48.05	2.33	809,760	1,513,807	
Worcester and Nashua, . .	45.69	17.00	1,789,800	2,844,538	10
Worcester and Shrewsbury, .	2.63		32,725	37,933	
Total, ...	2,075,22	848.60	$61,362,307	$102,745,742	
RHODE ISLAND.					
Fall River, Warren and Prov.,	5.80	hired.	$150,000	$466,535	
Newport & Wickford (8 ms.),	3.30		101,000	167,000	
New York, Prov. & Boston, .	67.50	67.05	2,500,000	3,753,000	10
Pawtuxet Valley (3 months),	3.20		96,290	166,675	
Providence and Springfield, .	23.00	3.00	500,000	1,025,156	
Prov., Warren and Bristol, .	13.60	3.00	437,917	556,258	
Wood River Branch (5 ms.),	5.70		46,810	116,257	
Total, ...	122.10	73.05	$3,832,017	$6,250,881	
CONNECTICUT.					
Connecticut Valley, . . .	46.40	5.60	$1,059,800	$3,365,266	
Connecticut Western, . . .	66.70	8.50	1,890,725	4,778,007	
Danbury and Norwalk, . .	33.80	44.00	600,000	1,100,000	
Hartford, Prov. & Fishkill, .	132.93	22.87	2,037,940	4,193,440	
Housatonic, ...	126.23	16.06	2,000,000	2,893,863	8
Naugatuck, ...	61.50	4.50	1,882,900	2,011,390	9
New Canaan, ...	8.30	.50	164,050	259,910	
New Haven and Derby, . .	13.00	1.25	455,700	1,055,700	
New Haven & Northampton,	109.33	22.00	2,460,000	4,707,000	8
N. H., Middletown & W'mantic,	50.00	2.50	1,958,000	5,958,000	
New London Northern, . .	100.00	12.07	1,500,000	2,071,500	8
N. Y., N. H. and Hartford, .	208.30	169.51	15,500,000	17,131,252	10
Norwich and Worcester, . .	66.40	13.60	3,023,400	3,695,896	10
Shepaug, ...	32.28	1.60	255,000	294,841	
Shore Line, ...	50.00	6.00	1,000,000	1,200,000	7
Total, ...	1,100.17	330.56	$35,767,515	$54,696,065	
NEW YORK.					
Adirondack, ...	60.00	2.75	$3,763,000	$6,374,735	
{ Al'y & Susqueh. (D. & H.),	142.00	98.38	5,000,000	12,427,584	
{ Leased Lines, ...	57.12	5.87	372,650	2,065,912	
{ Rens. & Saratoga (D. & H.),	182.41	51.10	6,000,000	9,950,835	
Buffalo Creek, ...	3.75	2.50	248,000	248,000	
Buffalo, Corry & Pittsburg, .	43.20	5.00	428,718	1,676,948	
Buffalo and Jamestown, . .	30.00	1.75	555,880	807,651	
Buffalo, New York & Phila.,	120.55	14.50	1,691,150	5,858,850	
Cayuga, ...	38.00	3.50	300,000	1,100,000	
Cayuga & Susq. (D., L. & W.),	34.81	6.00	589,110	589,110	9
Caz., Canastota & De Ruyter,	29.25	15.00	614,033	776,340	
{ Chemung (N. Cen.), . . .	17.36	2.19	$380,000	$380,000	8
{ Elm., Jeff. & Cana. (N. C.),	46.84	9.22	500,000	500,000	5
Cooperstown & Susq. Valley,	16.60	1.25	308,405	420,715	
Dunk., Alleg. Val. & Pittsb.,	90.60	9.06	1,300 000	4,726,645	
Dut. & Col. (N. Y., B. & M.),	63.25	7.20	1,638,487	3,195,485	
Erie Railway, ...	525.63	538.83	86,526,910	134,635,927	
Leased, etc., lines, . . .	433.37	165.21	13,242,675	22,861,259	
Flush'g, N. Shore & Central,	38.00	6.37	{ 893,000	4,826,900	
Central Branch, ...	38.00	2.10	{		
Fonda, Johnst'n & Gloversv.,	10.00	1.00	300,000	633,316	
Geneva, Ithaca & Athens, .	76.50	8.52	980,600	2,735,821	
Greene (D. L. & W.), . . .	8.00	1.00	200,000	370,000	6
Gr'n'w'h & J'nsonv. (R. & S.)	14.00	.75	130,845	329,026	
Harlem Ex. (N. Y., B. & M.)	116.00	8.21	4,000,000	8,040,509	
Lake Champlain & Moriah, .	9.12	3.12	200,000	314,248	
Lake Ontario, ...	57.30	5.45	1,873,503	4,030,303	
Long Island, ...	158.00	62.00	3,300,000	5,000,000	
Leased lines, ...	14.00	1.13	108,540	508,540	
Middleburg and Schoharie, .	5.75	1.00	85,800	103,200	
M., U. & W. G. (N. J. Mid.),	13.00	.52	123,150	540,703	
Monticello and Port Jervis, .	23.75	4.26	420,207	1,126,192	
N. Y. and Canada (D. & H.),	60.00	4.58	2,115,200	6,115,200	
N. Y. Cen. & Hudson River,	740.17	1,279.78	89,428,800	127,914,710	8
Leased lines, ...	133.07	34.26	2,843,000	3,466,405	6
New York and Harlem, . .	129.96	45.15	9,000,000	19,762,103	8
N. Y., Houst. & Northern, .	25.36	2.53	1,000,000	1,474,374	
N. Y., Kingston & Syracuse,	74.00	5.30	2,662,922	4,765,614	
N. Y. & Oswego Midland, .	379.00	56.07	6,800,522	29,148,652	
Leased lines, ...	54.25	2.77	818,837	1,211,337	
Ogdensburg & Lake Champ.,	122.00	18.00	5,077,000	6,045,000	7-8
Oswego and Syracuse, . .	34.98	23.76	1,150,400	1,324,400	9
Poughkeepsie and Eastern, .	41.91	2.25	524,464	1,856,272	
Rochester and Pine Creek, .	6.50	.66	120,127	135,127	
Rochester and State Line, .	24.10	1.65	27,034	1,132,305	
Rome, Watert'n & Ogdensb.,	189.63	29.25	3,147,500	5,767,425	7
Oswego & Rome (Leased),	28.58	3.25	268,000	880,128	
Schoharie Valley, ...	4.38	.30	100,000	126,486	
Skaneateles, ...	5.00	.05	77,800	112,800	
Sodus Point and Southern, .	33.60	2.00	715,967	2,049,954	
Southfield Branch, ...	1.00		1,000	19,496	
Southern (L. I.), ...	73.25	17.13	1,000,000	5,217,659	
Leased Branches, . . .	15.60	1.21	144,122	309,320	
Southern Central, ...	116.00	14.00	1,784,771	4,285,158	
Sterling Mountain, ...	7.60	1.00	80,000	430,000	
Syracuse, Bing'm'n & N. Y.,	81.00	19.00	2,004,000	3,801,619	3
Syracuse and Chenango, . .	43.49	2.00	699,709	1,881,259	
Syracuse Northern, . . .	45.00	4.00	1,005,044	2,165,044	
Troy and Boston, ...	34.91	10.44	1,609,010	3,714,223	4
Leased lines, ...	20.38	2.01	475,400	564,100	
Utica and Black River, . .	87.06	9.90	1,769,620	2,845,620	6
Leased lines, ...	54.06	2.42	960,047	1,380,447	
Utica, Chenango & Susq. Val.,	98.00	18.75	3,783,700	4,047,433	6
Valley, ...	11.50	.50	750,000	750,000	8
Wallkill Valley, ...	33.00	3.00	754,747	1,897,071	
Warwick Valley, ...	10.16	.44	225,000	285,000	7
Total, ...	5,331,86	2,667.22	$278,998,316	$483,957,395	
NEW JERSEY.					
Belvidere, Dela. & Flem., .	83.70	14.60	$1,145,800	$4,875,562	
Bridgeton and Port Norris, .	25.00	2.00	300,000	707,000	
Camden and Atlantic, . . .	60.00	7.30	1,215,869	2,315,020	5¾
May's Ldg. & Egg H. City,	7.00	.23	32,500	70,000	
Cam., Gloucester & Mt. Eph.,	5.00		41,650	89,468	
Central, ...	98.64	250.17	20,000,000	42,433,472	10
Lehigh and Susq., & Brs.,	177.60	112.92	6,000,000	13,223,346	8
South Branch (Leased), .	16.00	1.00	438,300	438,300	6
Ferro Monte, ...	2.50		30,000	30,000	5
Freehold and Jamesburg, .	27.65	2.00	283,745	283,745	
Green Pond, ...	4.00		87,000	160,611	
Hibernia Mine, ...	5.50		150,000	150,000	25
Jersey City and Bergen, . .	10.00		110,100	694,100	
Montclair, ...	20.00	4.00	697,175	4,086,334	
Morris and Essex, ...	118.00	144.00	15,000,000	30,371,056	7
Leased Roads, ...	19.00	2.18	140,447	329,758	6
Newark and Clinton, . . .	5.75		60,000	145,350	
New Jersey Midland, . . .	74.00	6.80	1,423,745	6,803,541	
New Jersey and New York, .	36.00	2.56	1,201,810	1,977,449	
New Jersey Southern, . .	175.25	12.00	5,000,000	9,820,000	
New Jersey West Line, . .	15.00		200,000	2,000,000	
Northern, ...	21.25	4.60	1,000,000	1,400,000	4
Ogden Mine, ...	12.00	2.00	450,000	450,000	5
Sussex, ...	34.00	2.50	1,638,600	1,875,100	3
Tuckerton, ...	31.00	1.62	203,424	757,213	
United Companies, ...	169.00	247.91	19,880,400	40,581,056	1
Leased Lines, ...	123.30	63.27	1,319,200	2,458,172	va
Warren (D. L. & W.), . .	18.25	6.00	1,800,000	3,041,400	7
West Jersey, ...	59.43	11.69	1,359,750	3,841,750	4
Leased Lines, ...	68.73	4.97	773,900	1,556,102	6
Total, ...	1,524.55	906.32	$81,993,415	$176,957,905	
PENNSYLVANIA.					
Allegheny Valley, ...	260.50	82.10	$2,256,400	$26,478,723	
Barclay (Towanda Coal), .	16.23	6.30	1,000,000	1,015,500	3½
Bell's Gap, ...	8.40	.85	200,000	415,000	
Bellefonte and Snowshoe, .	21.20	3.75	600,000	699,000	8
Catasauqua and Fogelsville,	25.50	8.00	426,900	426,900	6
Chartiers (Penn. Co.), . .	22.80	2.91	645,970	1,155,899	
Corning, Cow'que & Antrim,	65.00	8.61	1,600,000	1,600,000	7
Cornwall, ...	6.97	2.67	300,000	300,000	11

settlement of
the construct
bridges in a c
time, while th
our disposal h
cheapest mat
the purpose, a
economical a
have been ir
bridges of st
suming years
tion. Buildir
of thousands
streams must
or months at
expense possi
has been the
which have c
lightness and
Our Pacific
given origin t
of engineerin
and Sierra N
wide ravines,
depth and a t
presented th
bridges have
ance almost a
sufficient to
world's comm

Over our l
constructed b
sidered remar
ing skill. A
at Havre de G
bridge has b
3,271 feet ir
twelve spans
This bridge c
strength.

In recent
strong to the
the construct
wood, and alr
ble specimens
materials. O
the country,
the suspensio
river, just be
structed by M
for the passa
ordinary vehi
one above the
feet, stretchin
above the se
teen thousand
are employed

Corporate Titles of Companies.	Length in Miles. Main.	Branches.	Capital Stock.	Total Stock, Div. Bonds, and Debt.	Per Ct.
Cumberland Valley,	86.20	18.88	$1,777,850	$2,130,150	9
Roads operated,	45.80	3.79	993,000	2,393,000	
Delaware and Hudson,	70.50	65.00	2,200,000	4,744,771	10
Delaware, Lack'na & West'n,	195.00	151.00	23,500,000	31,177,239	12½
East Broad Top,	30.00	4.42	409,000	994,427	
Elmira and Williamsport,	78.00	19.46	1,000,000	2,620,000	6
Erie and Pittsburg,	81.50	20.00	1,996,400	5,453,400	7
Hanover Branch,	12.50	2.26	116,850	116,850	10
Roads operated,	35.50	1.78	282,592	367,592	
Hunt'gdon & Broad Top M't'n,	58.75	16.50	1,998,250	4,266,890	
Ironton,	11.00	2.00	200,000	300,000	6
Jamestown & Franklin,	52.50	18.00	605,027	2,632,878	
Junction,	4.62	5.91	185,250	985,250	
Lawrence,	17.98	3.96	443,700	789,700	10
Lawrence and Evergreen,	2.61		10,000	22,500	
Lehigh Valley,	243.03	144.63	24,419,250	41,278,250	10
Little Saw Mill Run,	3.00	1.00	100,000	174,703	10
Lykens Valley,	21.50	10.25	600,000	1,000,000	10
Lykens Valley,	.12		75,000	75,000	12
Monongahela Inclined Plane,	27.00	1.00	291,034	390,507	
Montrose,	10.50	.90	110,000	235,000	
Mont Alto,	.33		52,625	131,730	
Mt. Oliver Inclined Plane,	6.50	.51	124,100	289,900	
Muncy Creek,	14.97	3.87	605,000	607,700	10
Newcastle and Beaver Valley,	36.25	1.00	324,478	898,354	
Newcastle and Franklin,	149.68	129.73	5,842,000	20,844,995	3½
Northern Central,	9.80	1.00	81,500	311,203	
Northeast Pennsylvania,	67.70	50.80	3,699,450	9,029,450	5
North Pennsylvania,	123.00	33.00	4,959,450	9,024,779	
Oil Creek & Alleghany River,	10.50	1.02	75,000	226,962	
Parker and Karns City,	47.00	57.00	5,000,000	6,109,500	20
Parker and Karns City,	441.80	607.60	68,719,400	149,888,397	10
Pennsylvania Coal,	36.00	28.00	1,182,550	1,882,550	7
Pennsylvania,	380.30	60.10	4,780,582	13,738,208	6
Harris. & Lan.,	127.99	56.74	4,561,700	7,561,700	5
Leased Roads,	24.00	1.50	1,500,000	2,696,992	5
Pennsylvania & New York,	46.00	6.50	220,606	1,720,606	
Sullivan & Erie (Leased),	12.50	1.80	393,172	1,826,574	
Phil'a & Baltimore Central,	287.51	132.32	8,448,700	26,078,890	
Leased Roads,	327.00	438.70	34,274,575	88,649,458	10
Philadelphia and Erie,	398.30	287.80	18,285,567	28,382,669	10
Philadelphia and Reading,	98.69	127.95	11,524,250	13,881,124	8
Leased Lines,	7.00	1.00	250,000	381,727	
Phil'a, Wil'n and Baltimore,	9.13	.88	542,259	937,448	
Pit Hole Valley,	149.60	37.70	1,960,682	14,129,217	
Pittsb'gh & Castle Shannon,	22.27	2.61	275,820	313,827	
Pittsburgh & Connellsville,	30.00	12.71	674,464	2,084,192	
Leased Lines,	58.70	9.15	508,268	2,790,563	
Pitts'gh, Virg'a & Charlest'n,	27.30	13.59	869,450	2,863,450	6
Reading and Columbia,	31.23	6.38	200,000	1,304,059	
Shamokin Val. & Pottsville,	9.10	.24	55,900	145,963	
Shenango and Allegheny,	17.78	2.26		377,500	
Somerset and Mineral Point,	8.50	.13	37,800	56,800	
South Mountain Iron Co.'s,	10.30		141,600	513,817	
Spring Brook,	30.60	8.88	580,900	820,400	
Stony Creek,	9.00	.50	165,000	165,000	8
Tioga,	26.30	5.03	825,950	1,923,950	8
Westchester,	32.00	1.00	500,000	579,641	
West Chester and Phil'a,	71.47	10.20	759,628	4,217,690	
Wheeling, Pittsb'gh & Balt.,					
Wilmington and Reading,					
Total,	4,710,31	2,734.52	$251,342,899	$560,635,214	
Delaware.					
Delaware,	99.25	6.25	$1,330,950	$2,261,697	6
Kent County (Md.),	31.00	4.00	400,000	800,000	6
Frankfort and Breakwater,	16.00	1.87	203,700	397,500	
Junction and Breakwater,	30.00	2.00	306,600	746,000	
Newcastle and Wilmington,	5.50	3.30	249,052	882,256	8
Newcastle and Frenchtown,	20.00	.50	150,000	150,000	8
Wilmington and Western,	6.00	.50	150,000	150,000	
Total,	207.75	18.42	$2,789,652	$5,347,553	
Maryland.					
Annapolis and Elkridge,	20.50	2.00	$300,000	$588,566	
Baltimore and Ohio,	422.35	347.03	16,815,362	46,691,648	10
Leased Lines,	150.00	15.00	2,000,000	3,000,000	
Washington Branch,	30.00	30.00	1,650,000	1,670,000	10
Parkersburg Branch,	103.50	10.00	5,680,685	7,944,967	
Baltimore and Potomac,	92.13	3.20	3,553,250	9,357,030	
Cumberland and Penn,	55.00	22.25	10,259,500	13,418,600	4
Dorchester and Delaware,	33.50	3.35			
Eastern Shore,	54.00	2.00	500,000	1,500,000	
Frederick & Pennsylvania,	38.00	1.90	295,000	875,000	
Maryland and Delaware,	28.60	1.20	312,528	955,645	
Queen Anne and Kent,	36.00	2.00	260,000	531,600	
Western Maryland,	90.00	3.05	683,243	4,565,248	
Wicomico and Pocomoke,	23.00	2.00	160,000	370,000	
Worcester,	14.00		100,000	310,000	
Total,	1,189.98	445.93	$42,669,568	$91,508,304	
Ohio.					
Ash., Youngst'n & Pittsb'g,	62.60	5.20	$1,806,287	$3,590,876	
Atlantic & Great Western,	423.28	83.80	34,671,549	104,190,215	
Cleveland & Mahon'g Val.,	123.35	94.97	2,759,791	4,727,391	12¾
Balt., Pittsburg & Chicago,	271.20	3.45	6,357,893	6,357,893	
Central Ohio,	137.00	30.36	2,851,900	5,635,053	6
Cin., Hamilton & Dayton,	59.93	39.50	3,500,000	7,761,674	
Cin., Ham. & Indianapolis,	98.40	7.60		2,840,956	
Cin. & Muskingum Valley,	148.44	13.84	2,996,670	5,674,486	
Cin., Richmond & Chicago,	42.00	2.63	382,600	1,042,008	
Cin., Sandusky & Cleveland,	144.40	14.12	4,176,637	6,880,884	6
Leased Lines,	44.37	2.00	1,000,000	2,008,200	
Clevel'd, Col., Cin. & Ind.,	391.75	110.50	14,991,693	20,341,036	7½
Cincinnati & Springfield,	48.50	13.10	1,100,000	4,299,547	
Cleveland, Mt. Ver. & Dela.,	144.40	14.70	1,726,313	4,875,232	
Leased Lines,	12.50	1.20	195,455	323,213	5
Cleveland and Newburg,	3.33		44,740	77,761	
Cleveland and Pittsburg,	225.50	82.00	11,243,211	16,407,263	7
Columbus and Stocking Val.,	89.00	25.00	$1,855,250	$4,362,653	8
Dayton and Michigan,	142.00	21.00	3,678,199	6,898,883	8 3½
Dayton and Union,	31.78	1.82	86,000	613,445	
Harrison Branch,	7.00	.49	200,000	204,160	8
Iron (& Vinton Br., 2.34 m.),	16.75	2.50	129,550	484,368	
Lake Erie and Louisville,	87.63	3.79	1,150,650	2,612,523	
Lake Shore & Mich. South.,	1,024.70	617.40	50,000,000	87,035,000	10 4 3½
Leased Lines,	150.68	22.46	2,565,027	6,885,752	6
Lake Sh. & Tuscarawas Val.,	101.14	22.60	2,024,295	5,184,251	
Little Miami & Col. & Xenia,	196.70	60.99	4,608,250	6,850,250	8
Mansf'd, Coldw. & S. Mich.,	82.70	2.53	1,481,092	3,241,227	
Marietta and Cincinnati,	276.80	59.65	14,000,000	31,391,505	
Cincinnati & Baltimore,	5.60	9.08	747,350	1,598,270	8
Marietta, Pittsb. & Clevel'd,	103.50	8.00	1,473,393	3,501,663	
Newark, Som. & Straitsv.,	44.00	4.06	937,400	1,872,806	7
Pittsburg, Cin. & St. Louis,	201.00	63.00	8,433,750	23,430,750	
Pittsb., Ft. Wayne & Chicago,	468.39	192.90	23,814,286	37,349,286	7
Leased Lines,	36.90	.80	1,055,000	1,410,908	10
Rocky River,	5.53	.36	75,863	107,863	
Sandusky, Mansf'd & New'k,	116.25	7.09	1,037,553	3,349,834	
Toledo, Tiffin & E'st'n (Pen.),	43.06	3.54	276,068	1,567,586	
Total,	5,612.06	1,647.59	$209,398,767	$426,986,691	
Michigan.					
Chicago & Canada Southern,	67.00	6.00	$1,568,447	$4,328,447	
Chicago and Lake Huron,	232.00	8.00	5,775,000	13,351,508	
Chicago & Mich. Lake Shore,	250.00	25.70	1,511,168	9,234,335	
Chicago, Det. & Can. Gr. T'k,	59.37	8.08	978,985	2,073,985	4
Detroit and Bay City,	114.00	3.75	1,325,750	3,781,750	
Detroit and Milwaukee,	189.00	28.00	2,517,140	10,951,373	
Detroit, Hillsdale & Indiana,	64.80	3.40	344,093	1,955,587	
Detroit, Lans. & Lake Mich.,	190.00	20.75	1,678,100	8,320,756	
Flint and Pere Marquette,	283.78	44.72	3,298,200	11,090,522	
Ft. Wayne, Jackson & Sag'w,	100.00	5.75	1,200,000	3,213,768	
Grand Rapids and Indiana,	355.00	25.00	2,800,000	11,274,099	
Traverse City Branch,	26.00	.23	205,000	480,440	
Gd. Rapids, Newago & L. S.,	35.43	3.00	533,001	1,332,739	
Grand River Valley (M. C.),	94.00	4.70	492,000	1,992,000	5
Hecla and Torch Lake,	4.50	.50	100,000	174,061	
Jack., Lans. & Sag'w (M. C.),	236.00	23.10		5,014,941	
Kal'zoo & S. Haven (M. C.),	39.29	2.65		710,000	
Marq., Hought'n & Onton'gon,	88.80	20.00	2,306,600	8,673,630	
Michigan Central,	398.90	293.00	18,738,204	32,428,657	
Michigan Lake Shore,	68.50	3.50	450,000	1,330,000	
Mineral Range,	12.50	1.50	101,525	334,620	
Paw Paw,	4.00	.50	15,000	55,000	
Saginaw Valley & St. Louis,	34.00	2.70	121,775	519,802	
St. Clair & Chicago Air Line,	22.00	1.00	6,000	376,000	
Total,	2,948.86	537.53	$46,065,988	$133,006,120	
Indiana.					
Chicago, Cincin. & Louisv.,	71.47	4.30	$1,000,000	$2,650,000	
Cincin., Lafayette & Chicago,	56.40	9.00	1,929,200	3,701,222	
Cincin., Richmond & Ft. W.,	91.50	4.50	2,000,000	3,812,538	
Ciucinnati, Wabash & Mich.,	92.00	6.00	1,264,000	2,544,000	
Columbus, Chic. & Ind. Cen.,	586.70	89.80	13,328,569	38,188,293	
Evansville & Crawfordsville,	132.00	10.00	1,144,515	2,251,744	
Evansv. Terre Haute & Chi.,	55.00	8.50	423,917	1,629,172	
Ft. Wayne, Munice & Chic.,	709.00	2.70	1,000,000	3,705,677	
Indiana & Illinois Central,	85.00	4.00	2,000,000	3,955,000	
Indianapolis, Bloom. & W.,	343.04	38.81	5,876,500	15,838,151	
Ind'apolis, Cin. & Lafayette,	178.50	40.59	5,668,697	17,252,268	
Martinsville Branch (leased),	39.00	1.00	400,000	800,000	
Ind'apolis, Peru & Chicago,	75.00	7.75	5,000,000	5,635,000	
Mich. City & Indianapolis,	13.00		250,000	250,000	
Indianapolis and St. Louis,	100.00	20.00	600,000	4,237,975	
Indianapolis & Vincennes,	117.00	18.00	1,402,000	5,139,668	
Jefferson, Mad. & Indianap.,	224.00	27.00	2,000,000	6,853,000	7
Logansport, Craw., & S. W.,	95.00	5.00	1,500,000	3,500,000	
L., M. & Bloom. (T.W. & W.),	36.00	7.80	117,073	783,073	
Louisv., New Alb. & Chicago,	228.00	17.00	3,000,000	3,000,000	
Louisv., N. Alb. & St. L. Air L.,	27.75	1.00	1,811,810	2,846,591	
Ohio and Mississipi,	393.00	78.62	24,030,000	35,224,029	
Toledo, Wabash & Western,	627.60	111.00	16,000,000	36,541,204	
Leased Lines,	233.80	15.00	3,074,073	7,016,073	
Terre Haute & Indianapolis,	111.76	37.70	1,988,150	3,653,002	12
White Water Valley,	61.82	5.96	380,025	1,695,744	
Leased Lines,	9.10	.89	220,000	442,972	
Total,	4,252.00	566.92	$97,399,529	$213,306,391	
Illinois.					
Cairo and St. Louis,	90.00	3.30	$2,625,000	$5,154,472	
Cairo and Vincennes,	157.00	17.00	2,625,000	9,036,000	
Carbondale & Shawneetown,	18.00	1.00	356,200	556,200	
Chicago and Alton,	339.40	103.04	12,363,200	20,135,100	10
Leased Lines,	289.70	39 81	8,074,733	15,405,733	7
Chicago, Burl. & Quincy,	1,268.25	314.19	26,639,013	55,738,677	10
Chicago, Danv. & Vincennes,	198 00	8.00	2,500,000	7,044,683	
Chicago & Illinois Southern,	39.00	.50	200,000	1,200,000	
Chicago and Iowa,	80.00	9.00	1,328,000	3,178,000	
Chicago & Northwestern,	1,145.37	431.74	36,577,174	67,123,604	
Chicago and Pacific,	36.00	1.80	232,900	412,900	
Chicago and Paducah,	166.00	11.00	3,900,000	6,708,000	
Chicago, Pekin & Southw.,	63.80	2.45	826,500	1,895,223	
Chicago, Rock Isl. & Pacific,	674.46	183.09	26,266,000	35,603,124	
Chi., & Southw. (leased),	303.00	15.15	7,000,000	12,000,000	
Edwardsville,	8.00	1.00	10,000	82,649	
Gilman, Clinton & Springf'd,	111.00	5.50	2,000,000	5,498,128	
Grand Tower & Carbondale,	24.15	6.86	500,000	1,000,000	
Illinois Central,	705.50	135.94	29,000,000	38,842,000	
Illinois Midland,	178.70	11.43	2,000,000	6,175,000	
Illinois and St. Louis,	14.50	8.30	1,360,100	1,603,729	
Iron Mtn., Chester & East'n,	42.00	2.00	1,000,000	1,660,000	
Laf., B. & Miss. (T.W. & W.),	81.00	3.90	1,000,000	2,300,000	
Paris and Danville,	34.50	.90	715,000	2,635,000	
Pekin, L. & Dec. (T.W. & W.),	67.25	5.60	1,500,000	2,576,000	
Peoria, Pekin & Jacksonv.,	83.00	12.00	1,239,700	3,290,709	

Corporate Titles of Companies.	Length in Miles. Main.	Branches.	Capital Stock.	Total Stock, Bonds, and Debt.	Div. Per Ct.
Peoria and Rock Island,	96.00	4.00	$1,858,150	$4,092,219	
Quincy, Alton & St. Louis,	46.33	4.00	756,100	1,931,100	
Rockf., Rock Isl. & St. Louis,	202.94	26.59	4,732,579	13,876,377	
St. Louis, Alton & Terre H.,	251.00	25.00	4,768,400	11,768,400	3
Bellev. & So. Ill. (leased),	71.00	5.60	1,680,000	2,780,000	
St. Louis and Southeastern,	358.00	35.00	8,409,200	20,629,070	
St. L., Vandalia & Terre H.,	158.40	23.00	2,377,450	7,877,450	
Sp'd & Ill. South'n (O. & M.),	221.40	12.00	3,885,500	8,607,041	
Sycamore and Cortlandt.	4.50	1.00	40,000	45,000	
Toledo, Peoria & Warsaw,	230 25	26.00	5,700,000	13,215,179	
Western Union (C. & N. W.),	212.41	23.60	4,000,000	7,756,256	
Total,	8,073.71	1,510.39	$210,546,899	$399,968,274	
Wisconsin.					
Chicago, Milw. & St. Paul,	1,457.00	182.00	$27,673,744	$56,446,238	
Green Bay and Minnesota,	215.00	15.00	738,000	6,738,000	
La C., Tr & P. (C. & N.W.),	30.00	2.80	1,000	1,376,774	
Milw., Lake Shore & West.,	125.60	6.28	1,000,000	4,100,000	
Milwaukee and Northern,	129.00	4.00	2,014,700	4,300,829	
Mineral Point,	57.00	3.00	1,200,000	1,520,000	
Northw. Union (C. & N. W.),	63.30	4.00		3,500,000	
Sheboygan & Fond du Lac,	78.00	8.00	1,267,000	2,862,689	
West Wisconsin,	197.00	10.00	4,030,000	8,455,500	
Wisconsin Central,	194.00	23.50	1,900,100	6,794,600	
Wisconsin Valley,	90.00	2.00	491,000	2,022,433	
Total,	2,627.90	260.58	$40,285,544	$97,417,063	
Minnesota.					
Cen. of M'a (Wells to Mank.),	40.00	2.00	650,000	1,050,000	
Lake Superior & Mississippi,	156.00	14.00	5,195,000	12,993,043	
Minneap. & Duluth (N. P.),	15.00	2.00	91,200	816,888	
Minneap. & St. Louis (N. P.),	27.00	5.00			
Northern Pacific,	426.50	20.00	202,326	31,759,966	
St. Paul 1st Div.—Main L., and 1st Div.—Br. Line, Pacific. St. Vincent Ext'n,	207.00	10.75	500,000	12,138,959	
	76.00	10.00	1,468,600	5,402,332	
	47.00	2.00	5,000,000	5,438,186	
St. Paul and Sioux City,	121.27	10.00	4,400,000	4,760,337	8
St. P., Stillw. & Taylor's F'ls,	23.75	1.00	283,500	881,844	10
Sioux City and St. Paul,	147.50	7.37	2,800,000	5,186,479	
Southern Minnesota,	167.50	10.75	3,825,000	9,424,953	
Stillw. & St. P. (L. S. & M.),	13.00	1.10	400,000	815,549	
Win. & St. Pet'r (C. & N.W.),	327.00	36.00	410,000	11,315,000	
Win., M. & N. U. (C. & N.W.),	3 75	.22	100,000	188,213	
Total,	1,798.27	122.19	$25,255,626	$102,171,749	
Dakota.					
Dakota and Northwestern, Dakota Southern,	61.50	3.00	$1,500,000	$2,700,000	
Iowa.					
Burl'n, Cedar Rap. & Minn.,	407.75	24.82	$5,000,000	$15,000,000	
Burlington & Southwestern,	150.00	4.00	2,000,000	4,500,000	
Cedar F'ls & Minn. (Ill. C.),	75.58	3 06	1,587,000	3,174,000	
C'd R. & Mo. R. (C. & N. W.),	274.20	10.00	7,620,000	11,234,000	4
Central of Iowa,	189.60	15.10	5,688,000	10,215,000	
Chicago, Clinton & Dubuque,	60.00	3.00	960,000	2,460,000	
Chicago, Dubuque & Minn.,	134.00	16.00	2,500,000	7,025,000	
Chi., Ia. & Ne. (C. & N. W.),	81.30	16.74	3,916,200	4,695,900	8
Davenport & St. Paul,	156 70	10.00	3,040,000	6,280,000	
Des Moines & Fort Dodge,	88.60	2.00		2,400,000	
Dubuque & Sioux C. (Ill. C.),	142.89	16.08	5,000,000	5,882,000	5
Dubuque and Southwestern,	54.76	3.97	1,180,804	1,753,307	
Ia. Falls & Sioux C. (Ill. C.),	183.60	6.72	4,625,000	7,577,500	
Iowa & Midland (C. & N.W.),	68.80	3.93	44,947	1,479,039	
Keokuk and Des Moines,	161.50	12.70	3,924,600	6,320,598	
Missouri, Iowa & Nebraska,	85.00	4.20	1,500,000	3,500,000	
Sioux City & Pacific,	106.82	14.96	2,068,400	3,695,400	7
Stanw. & Tip'n (C. & N. W.),	8.50			156,975	
Total,	2,428.79	167.68	$50,784,951	$97,249,719	
Mississippi.					
Mississippi and Tennessee,	100.00	6.50	$825,407	$3,240,816	
Mobile and Ohio,	528.60	47.52	5,820,000	19,854,535	
Vicksburg and Meridian,	140.00	5.00	1,205,094	4,452,556	
West Feleciana,	27.00	.50	760,000	875,000	
Total,	795.60	59.52	$8,610,501	$28,422,707	
Louisiana.					
La. and Texas (Morgan's),	97.25	7 33	$3,980,000	$3,980,000	
New Orleans and Mobile,	141.00	7.20		6,500,000	
New Orleans and Texas,	65.00	3.00		5,000,000	
N. O., St. Louis & Chicago,	569.00	79.00	14,022,650	37,244,107	
Total,	870.25	96.53	$18,002,650	$52,724,107	
Kentucky.					
Eastern Kentucky,	34.00	6.50	$1,500,000	$2,629,803	
Glasgow Branch,	10.50	.50	133,000	173,000	
Kentucky Central,	90.00	11.00		1,081,000	
Louisv., Cin. & Lexington,	231.13	26.50	3,842,127	9,042,106	
Louisville and Nashville,	695.18	62.71	8,984,601	25,846,956	
Louis., Pad. & Southwestern,	231.00	10.00	4,178,600	8,078,600	
Paducah & Memphis,	168.00	8.40	2,927,150	5,630,070	
Total,	1,378.81	125.61	$21,565,478	$52,481,535	
Tennessee.					
East Tenn., Virg. & Georgia,	269.00	22.00	$1,968,274	$6,215,639	6
Nashv., Chattan'ga & St. L.,	342.00	30.00	6,575,296	13,006,225	
Nashville and Decatur,	134.80	8.60	1,511,801	4,135,807	
Tennessee and Pacific,	31.03	4.00	635,070	786,612	
Total,	776.83	64.60	$10,690,447	$24,144,283	

Corporate Titles of Companies.	Length in Miles. Main.	Branches.	Capital Stock.	Total Stock, Bonds, and Debt.	Div. Per Ct.
Arkansas.					
Arkansas Central,	48.00	3.00	$500,000	$1,820,000	
Little Rock and Fort Smith,	100.00	5.00	3,000,000	6,000,000	
Memphis and Little Rock,	131.00	2.50	4,000,000	7,500,000	
Total,	279.00	10.50	$7,500,000	$15,320,000	
Virginia.					
Alex. and Fredericksburg,	32.40	1.62	$1,000,000	$2,174,757	
Atlantic, Mississippi & Ohio,	328.00	30.00	6,921,900	22,449,654	
Chesapeake and Ohio,	427.82	40.00	15,898,402	46,561,202	
Petersburg,	82.00	8.00	1,724,200	2,133,511	
Richmond and Danville,	195.60	16.80	4,000,000	7,580,253	
Rich., Fred'ksb'g & Potomac,	87.00	6.25	1,509.100	2,470,201	
Richmond and Petersburg,	25.25	3.90	1,008,600	1,371,585	
Seaboard and Roanoke,	80.00	8.00	1,365,600	1,575,600	8
Washington and Ohio,	47.60	2.00	1,919,726	2,292,063	
Wash'n City, V. M. & G. S.,	358.00	9.00		7,696,592	
Total,	1,663.67	125.57	$34,947,528	$96,324,418	
South Carolina.					
Charlotte, Columbia & Aug.,	195.00	12.00	$2,578,000	$4,828,792	
Cheraw & Darlington,	40.00	2.00	372,100	691,864	
Greenville and Columbia,	164.20	10.00	1,515,113	3,649,249	
Northeastern,	102.00	8.79	899,350	2,181,578	
Port Royal,	110.00	6.00	3,000,000	4,800,000	
Savannah and Charleston,	104.00	4.90	1,000,000	2,427,800	
South Carolina,	242.00	30.00	5,819,275	11,526,231	
Spartanburg and Union,	69.00	3.40	751,296	1,424,666	
Total,	1,026.20	77.09	$15,955,134	$31,530,480	
North Carolina.					
Atlantic, Tenn. and Ohio,	47.00	1.00	$424,100	$676,835	
Atlantic & North Carolina,	95.00	5.00	1,600,000	1,800,000	
Carolina Central,	240.00	20.00	4,000,000	10,000,000	
North Carolina (R. & D.),	223.00	10.00	4,000,000	4,380,000	2½
Raleigh & Augusta Air Line,	44.00	3.00	1,326,000	1,326,000	
Raleigh and Gaston,	97.00	5.00	1,500,000	1,885,000	
Western N. Carolina (E. D.),	114.00	1.50	6,000,000	7,125,000	
Western of North Carolina,	43.00	3.00	1,000,000	1,045,729	
Wilm'ton, Columbia & Aug.,	189.00	9.00	300,000	5,034,257	
Wilmington & Weldon,	180.00	9.50	1,456,200	3,126,775	
Total,	1,272.00	67.00	$21,606,300	$36,399,696	
West Virginia.					
Laurel Fork and Sand Hill,	7.50	1.00	$140,750	$140,750	
Georgia.					
Atlanta and West Point,	86.74	8.91	$1,232,200	$1,315,200	4
Atlantic and Gulf,	347.00	16.00	4,479,677	8,181,641	7
Central,	294.50	28.92	7,500,000	10,781,000	4
Southwestern,	305.50	20.00	4,211,600	4,902,600	4
Leased Lines,	108.50	5.42	933,700	1,062,700	7
Georgia,	232.00	25.00	4,200,000	4,808,000	8
Macon & Augusta (leased),	79.00	3.90	1,971,541	2,741,541	
Macon and Brunswick,	197.00	5.50	3,500,000	5,750,000	
North and South,	23.00	1.00	412,523	714,098	
Rome,	20.00	1.20	250,844	250,844	1½
Western and Atlantic,	138.00	11.00	5,000,000	5,000,000	
Total,	1,831.24	131.85	$33,692,085	$45,507,624	
Alabama.					
Alabama Central,	81.30	3.93	$2,000,000	$3,600,000	
Alabama and Chattanooga,	296.00	14.80	2,700,000	13,093,000	
Memphis and Charleston,	290.00	25.00	5,312,725	10,006,047	
Mobile & Ala. Grand Trunk,	60.00	1.50	300,000	1,050,742	
Mobile and Girard,	84.00	6.50	1,279,033	2,105,458	
Mobile and Montgomery,	179.00	6.20	3,022,518	6,283,518	
Montgomery and Eufaula,	80.00	3.25	1,149,350	3,070,631	
Selma, Rome and Dalton,	237.00	11.90	3,750,000	12,980,000	
South & North Ala. (L. & N.),	182.00	20.03	3,458,467	10,725,436	
Vicksburg and Brunswick,	22.50	1.50	767,540	767,540	
Western,	160.00	15.50	2,008,324	5,235,032	
Total,	1,671.80	110.11	$25,747,957	$68,917,404	
Missouri.					
Atlantic and Pacific,	332.00	30.29	$19,760,000	$37,573,000	
Pacific of Missouri,	299.00	49.50	7,000,000	20,304,000	7
Leased Lines,	126.75	11.04	2,695,000	4,615,000	
Chil., Brun. (St. L., K. C. N.),	36.25	2.50	365,000	865,000	
Hannibal and St. Joseph,	296.50	27.70	14,250,828	23,397,728	
Kan. C., St. Jos. & C. Bluffs,	274.51	20.57	2,789,414	10,658,058	
Louisiana & Missouri River,	101.00	8.51	4,226,133	8,526,133	
Mississippi Valley & West'n,	40.00	5.00	800,000	1,600,000	
St. L., Iron Mtn. & Southern,	694.25	91.00	22,046,293	49,631,170	
St. L., C. B. & O. (St. L. K. C. N.),	42.00		1,100,000	1,772,000	
St. L., Kan. City & Northern,	353.50	51.00	24,000,000	31,406,703	
Leased Lines,	150.75	11.70	1,500,000	4,000,000	
Total,	2,746.51	308.81	$100,532,668	$194,348,792	
Kansas.					
Atchison and Nebraska,	148.60	4.97		$4,313,035	
Atch'n, Topeka & Santa Fe,	482.10	29.63	$6,615,000	20,564,000	
Leased Lines,	27.30	2.77	100,000	512,000	
Junc. City & Ft. Kear. (K. P.),	33.33	2.71	920,000	1,520,000	
Kansas Pacific,	673.00	48.00	9,689,950	32,668,356	
Leavenw., Lawrence & Gal.,	187.57	9.20	5,000,000	11,202,735	
Missouri, Kansas & Texas,	787.19	91.77	21,405,000	42,665,678	
Missouri Riv., Ft. Sc't & Gulf,	161.00	16.10		7,638,819	
Union Pacific (Cen. Branch),	100.00	15.00	1,600,000	3,200,000	
Total,	2,600.09	220.15	$45,329,950	$134,284,623	

settlement of
the construct
bridges in a c
time, while th
our disposal h
cheapest mat
the purpose, a
economical a
have been ir
bridges of st
suming years
tion. Buildir
of thousands
streams must
or months at
expense possi
has been the
which have c
lightness and
Our Pacific
given origin t
of engineerin
and Sierra N
wide ravines,
depth and a t
presented th
bridges have
ance almost a
sufficient to
world's comm

Over our l
constructed b
sidered remar
ing skill. Ac
at Havre de G
bridge has b
3,271 feet in
twelve spans
This bridge c
strength.

In recent y
strong to the
the constructi
wood, and alr
ble specimens
materials. O
the country, a
the suspensio
river, just be
structed by M
for the passag
ordinary vehi
one above the
feet, stretchin
above the see
teen thousand
are employed

Corporate Titles of Companies.	Length in Miles. Main.	Branches.	Capital Stock.	Total Stock, Bonds, and Debt.	Div. Per Ct.
NEBRASKA.					
Burl'ton & Mo. River in Neb.,	192.06	17.76	$8,537,800	$15,933,975	
Omaha & Southw. (leased),	48.74	3.00	974,800	2,008,800	
Midland Pacific,	84.00	5.00	1,500,000	2,600,000	
Omaha and Northwestern,	40.00	2.00	400,000	777,209	
St. Joseph and Denver City,	268.00	10.00	4,000,000	12,000,000	
Sioux City and Pacific,	106.82	11.96	2,068,400	3,696,400	
Fre., Elk. & Mo. Val. (l's'd),	51.13	3.00	690,000	1,380,000	
Total,	790.75	52.72	$18,171,000	$38,396,384	
TEXAS.					
Galv., Houston & Hend'son,	50.00	11.00	$1,000,000	$2,754,003	
Galv., Har'b'g & San Antonio,	155.00	16.00	2,051,468	4,709,520	
Gulf, Western Tex. & Pacific,	68.80	4.00	1,054,600	2,440,600	
Houston and Texas Central,	508.00	30.00	820,000	13,499,000	
International & Gt. North'n,	459.25	20.00	5,500,000	18,688,810	
Texas and Pacific,	320.00	20.00	1,600,000	22,473,409	
Total,	1,561.05	101.00	$12,026,068	$64,565,342	
FLORIDA.					
Florida,	154.00	5.00	$3,000,000	$3,000,000	
Jacksonv., Pensa. & Mobile,	179.00	8.80		3,472,000	
Pensacola and Louisville,	45.20	2.00	450,000	699,627	
Total,	378.20	15.80	$3,450,000	$7,171,627	

Corporate Titles of Companies.	Length in Miles. Main.	Branches.	Capital Stock.	Total Stock, Bonds, and Debt.	Div. Per Ct.
COLORADO.					
Arkansas Valley (K. P.),	56.50	2.82	$1,520,000	$2,645,000	
Colorado Central,	83.00	8.50	1,369,300	1,984,800	
Denv. & Boulder Val. (D.V.),	27.00	2.40	825,000	1,450,000	
Denver Pacific,	106.00	5.13	4,000,000	6,353,614	
Denver and Rio Grande,	161.00	7.50	4,500,000	6,910,000	
Total,	435.50	26.35	$12,214,300	$19,543,414	
UTAH.					
American Fork,	16.00	1.00	$300,000	$600,000	
Bingh'm Canon & Ca'p Floyd,	20.00	2.00	300,000	540,000	10
Utah Central,	37.40	4.00	1,500,000	2,500,000	10
Utah Northern,	84.00	6.20	1,500,000	3,500,000	12
Utah Southern,	48.00	3.00	1,000,000	1,660,000	
Wasatch and Jordan Valley,	21.00	2.00	200,000	365,000	
Total,	226.00	18.20	$4,800,000	$9,165,000	
CALIFORNIA.					
California Pacific,	60.00	10.00	$12,000,000	$21,883,512	
Sacramento Valley,	23.00	2.00	936,000	1,439,507	
San Francisco & N. Pacific,	56.00	2.00	1,859,000	1,859,000	
Southern Pacific,	278.00	25.00	14,071,100	25,071,100	
Total,	417.00	39.00	$28,839,100	$50,227,200	
Union Pacific,	1,038.00	113.00	$36,745,000	$113,633,624	
Central Pacific,	1,222.00	120.40	54,275,500	119,106,500	

STATEMENT

Showing the number of miles of Railroad constructed each year in the United States, from 1830 *to* 1874, *inclusive.*

Year.	Miles in Operation.	Annual Increase of Mileage.	Year.	Miles in Operation.	Annual Increase of Mileage.	Year.	Miles in Operation.	Annual Increase of Mileage.	Year.	Miles in Operation.	Annual Increase of Mileage.
1830	23		1842	4,026	491	1853	15,360	2,452	1864	33,908	75
1831	95	72	1843	4,185	159	1854	16,720	1,360	1865	35,085	1,177
1832	229	134	1844	4,377	192	1855	18,374	1,654	1866	36,827	1,742
1833	380	151	1845	4,633	256	1856	22,016	3,647	1867	39,276	2,449
1834	633	253	1846	4,930	297	1857	24,503	2,647	1868	42,255	2,979
1835	1,098	465	1847	5,598	668	1858	26,968	2,465	1869	47,208	4,953
1836	1,273	175	1848	5,996	398	1859	28,789	1,821	1870	52,898	5,690
1837	1,497	224	1849	7,365	1,369	1860	30,635	1,846	1871	60,568	7,670
1838	1,913	416	1850	9,021	1,656	1861	31,286	651	1872	66,735	6,167
1839	2,302	389	1851	10,982	1,961	1862	32,120	834	1873	70,683	3,948
1840	2,818	516	1852	12,908	1,926	1863	33,170	1,050	1874	72,623	1,940
1841	3,535	717									

CONGRESSIONAL LAND GRANTS FOR RAILROADS, ETC.

In 1850, Congress established a precedent, in the case of the Illinois Central and Mobile and Ohio Railroads, of granting to States, in aid of construction of railroads upon specified routes, six alternate sections of public lands of 640 acres each (and equaling 3,840 acres to the mile), to be taken by the *odd* numbers within six miles of the line of the road proposed. In case such a number of sections of *odd* numbers of public lands could not be found within six miles of such line (in consequence of the previous sale or reservation of the same by the Government), then the grant was to be enlarged so as to apply to the *odd* sections within fifteen miles of the line on either side, so as to make up the full amount intended to be granted. Many of the grants were subsequently further enlarged, so as to apply to sections of odd numbers within twenty miles of the line. Upon the sections of public lands of *even* numbers within the limits of the grant, the price was raised from $1.25 to $2.50 per acre.

Although the grants were made to the several States, they were in all cases, as speedily as possible, transferred to railroad companies, chartered by them to construct lines upon the general route specified in the Act of Congress, and usually without any other conditions than those imposed in such Act, the most important of which related to the *time* in which the roads should be built.

The following shows the companies to which the several grants have been conveyed, the number of acres called for by each grant, and the number of acres certified to each company up to June 30, 1873:

Name of Road.	Acres Certified.	Quantities Granted.
ILLINOIS.		
Illinois Central, } Mobile and Chicago, }	2,595,053.00	2,595,053.00
MISSISSIPPI.		
Mobile and Ohio River,	737,130.29	1,004,640.00
Vicksburg and Meridian,	198,027.82	404,800.00
Gulf and Ship Island,		652,800.00
ALABAMA.		
Mobile and Ohio River,	419,528.44	230,400.00
Alabama and Florida,	*394,522.99	419,520.00
Selma, Rome and Dalton,	440,700.16	481,920.00
Coosa and Tennessee,	*67,784.96	132,480.00
Mobile and Girard,	*504,145.86	840,880.00
Coosa and Chattanooga,		150,000.00
South and North Alabama,	308,183.87	576,000.00
Alabama and Chattanooga,	461,456.09	897,920.00

Name of Road.	Acres Certified.	Quantities Granted.
FLORIDA.		
Florida Railroad and Branch,	281,984.17	442,542.14
Florida and Alabama,	*165,688.00	165,668.00
Pensacola and Georgia,	*1,275,212.93	1,568,720.81
Florida, Atlantic and Gulf Central,	*37,583.29	183,153.00
LOUISIANA.		
Vicksburg and Shreveport,	353,211.70	610,880.00
New Orleans, Opelousas and Gt. Western,	719,193.75	967,840.00
New Orleans, Baton Rouge and Vicksburg,		1,600,000.00
ARKANSAS.		
Cairo and Fulton,	1,115,408.41	1,160,667.00
" " "	191,371.33	1,040,000.00
Memphis and Little Rock,	127,238.51	438,646.00
" " "	6,709.19	365,530.00
Little Rock and Fort Smith,	550,520.18	550,525.00
" " "	118,950.40	438,171.00
Iron Mountain Railroad,		864,000.00

* Grants that have expired according to the limitations of the statute; the lands have not, however, been restored to the mass of public lands, Congress having taken no action to that end.

Name of Road.	Acres Certified.	Quantities Granted.
Missouri.		
Hannibal and St. Joseph,	599,031.65	781,944.83
Pacific and Southwestern Branch,	1,161,204.51	1,161,235.07
Cairo and Fulton,	63,540.11	219,262.31
" " "		182,718.00
St. Louis and Iron Mountain,		640,000.00
Iowa.		
Burlington and Missouri River,	291,725.00	948,643.66
" " "	96,176.99	101,110.67
Chicago, Rock Island and Pacific,	482,254.36	1,261,181.60
" " "	161,034.68	160,991.23
Cedar Rapids and Missouri River,	778,909.17	1,298,739.00
" " "	343,313.09	
Iowa Falls and Sioux City,	1,226,163.89	1,226,163.05
McGregor and Missouri River,	137,572.27	1,536,000.00
Sioux City and St. Paul,	396,888.80	524,800.00
Sioux City and Pacific,		580,000.00
Michigan.		
Port Huron and Milwaukee,	6,428.68	312,384.32
Detroit and Milwaukee,	30,998.75	355,420.19
Jackson, Lansing and Saginaw,	742,940.56	1,052,469.19
Flint and Pere Marquette,	512,529.38	586,828.73
Grand Rapids and Indiana,	629,182.62	629,182.62
Grand Rapids and Ind., from Ft. Wayne to Grand Rapids,	212,583.40	531,200.00
Bay de Noquet and Marquette,	128,000.00	128,000.00
Marquette and Ontonagon,	432,707.47	552,513.24
Chicago and Northwestern,	515,356.75	564,480.00
" " "		188,800.00
Wisconsin.		
West Wisconsin,	796,672.51	999,983.38
St. Croix and Lake Superior,	524,718.15	524,714.95
" " "		350,000.00
Branch to Bayfield,	318,740.80	318,737.74
" "		215,000.00
Chicago and Northwestern,	522,144.51	600,000.00
Wisconsin Central—formerly Portage, Winnebago and Superior,	398,265.73	750,000.00
Minnesota.		
St. Paul and Pacific	1,217,827.31	1,248,638.95
Branch St. Paul and Pacific,	539,449.16	1,475,000.00
Saint Vincent extension of St. Paul and Pacific R. R. South terminus changed from Crow Wing to St. Cloud,	1,920.00	2,000,000.00
Minnesota Central,	178,978.88	353,403.00
" "		290,006.00
Winona and St. Peter,	1,164,327.53	{ 720,000.00 { 630,000.00
St. Paul and Sioux City,	910,786.71	{ 860,000.00 { 150,000.00
Lake Superior and Mississippi,	586,600.04	920,000.00
Minnesota Southern,	249,668.67	735,000.00
Hastings and Dakota River,	153,489.45	556,000.00

Name of Road.	Acres Certified.	Quantities Granted.
Kansas.		
Leavenworth, Lawrence and Galveston,	255,967.83	800,000.00
Atchison, Topeka and Santa Fe,	2,471,730.70	3,000,000.00
Union Pacific, Southern Branch,		500,000.00
Union Pacific, Denver City,	172,092.92	1,700,000.00
St. Joseph and Denver City,		
Kansas and Neosho Valley, now known as Missouri River, Ft. Scott and Gulf R. R.,	13,849.52	2,350,000.00
Southern Branch of the Union Pacific R. R., now Missouri, Kansas & Texas R. R.,	878,073.64	1,520,000.00
California.		
Placerville and Sacramento Valley,		200,000.00
Oregon Branch of the Central Pacific,	159,956.47	3,000,000.00
Stockton and Copperopolis,		320,000.00
Oregon.		
Oregon and California,	221,896.00	3,500,000.00
Oregon Central,		1,200,000.00

RECAPITULATION.

States.	Acres Certified.	Acres Granted.
Illinois,	2,595,053.00	2,595,053.00
Mississippi,	905,158.11	2,062,240.00
Alabama,	2,596,322.37	3,729,120.00
Florida,	1,760,468.39	2,360,114.00
Louisiana,	1,072,405.45	3,178,720.00
Arkansas,	1,908,754.95	4,804,871.14
Missouri,	1,823,776.27	3,745,160.21
Iowa,	3,907,602.52	7,207,837.98
Michigan,	2,805,608.15	4,931,361.16
Wisconsin,	2,153,435.78	3,758,436.07
Minnesota,	4,371,058.91	9,913,495.95
Kansas,	3,522,083.06	6,870,000.00
California,	159,956.47	3,520,000.00
Oregon,	221,896.00	4,700,000.00
Corporations,	4,784,238.43	151,144,766.00
Total,	34,620,827.86	214,031,807.97

CORPORATIONS.

Name of Road.	Acres Certified.	Quantities Granted.
Union Pacific,	705,152.49	12,000,000.00
Central Branch Union Pacific,	186,453.28	245,166.00
Kansas Pacific,	413,001.71	6,000,000.00
Denver Pacific,		1,100,000.00
Central Pacific,	304,385.78	8,000,000.00
Western Pacific,	367,574.78	1,100,000.00
Burlington and Missouri River, Nebraska,	2,370,653.16	2,444,800.00
Sioux City and Pacific,	40,196.64	60,000.00
Northern Pacific,	630,717.85	47,000,000.00
Atlantic and Pacific,	500,091.33	42,000,000.00
Southern Pacific of California,	5,966.33	6,000,000.00
Southern Pacific,		3,520,000.00
Texas Pacific,		18,000,000.00
New Orleans, Baton Rouge and Vicksburg,		4,000,000.00

The Government has also, at former periods, granted lands to the extent of 4,405,986 acres to aid in the construction of *canals*, and, more recently, 2,412,544.23 acres to aid in the construction of *wagon* roads, making the total number of acres granted to aid works of internal improvements, 216,444,352.20 acres, or about 338,000 square miles—an area exceeding in extent that of the six New England States, with New York, New Jersey, Pennsylvania, Ohio, Indiana and Illinois combined. But it must by no means be supposed that such an immense extent of territory can be availed of by companies to which the grants have been made. In Iowa, for example, the grants made call for 7,207,837.98 acres. Of these, only 3,511,149.60 acres have been certified, there not having been an amount of Government lands of *odd* sections, within the limits of the grants at the time they were made, equaling the nominal amounts of the same. Two companies in the State named will not receive one-half the number of acres to which their grant entitles them. The amount of the certificates yet to be made in the several States will probably reach 35,000,000 or 40,000,000 of acres. The certifications hereafter to be made to the Pacific railroads will, for similar reasons, fall far short of the nominal amounts of the grants to them, though, perhaps, not to so great an extent as in the grants made to the States.

STATEMENT

Showing the Amount and Character of the Various Classes of the Debts of the United States, as existing on the 1st day of June, 1875.

RECAPITULATION.

DEBT BEARING INTEREST IN COIN.

Bonds at 6 per cent.,	$1,131,516,500.00
Bonds at 5 per cent.,	590,632,750.00
Principal,	1,722,149,250.00
Interest,	33,450,686.55

DEBT BEARING INTEREST IN LAWFUL MONEY.

Certificates of Indebtedness at 4 per cent.,	$678,000.00
Navy Pension Fund at 3 per cent.,	14,000,000.00
Principal,	14,678,000.00
Interest,	181,800.00

DEBT ON WHICH INTEREST HAS CEASED SINCE MATURITY.

Principal,	$7,375,810.26
Interest,	208,449.19

DEBT BEARING NO INTEREST.

Old Demand or Legal Tender Notes,	$377,135,722.50
Certificates of Deposit,	55,345,000.00
Fractional Currency,	43,615,773.00
Coin Certificates,	19,910,000.00
Principal,	496,007,095.50
Unclaimed Interest,	23,594.84
Total Debt,	$2,274,074,686.34

BONDS ISSUED TO THE PACIFIC RAILWAY COMPANIES.

Central Pacific,	$25,885,120.00
Kansas Pacific,	6,303,000.00
Union Pacific,	27,236,512.00
Central Branch, Union Pacific,	1,600,000.00
Western Pacific,	1,970,560.00
Sioux City and Pacific,	1,628,320.00
Total,	$64,623,512.00
Interest Accrued and not yet paid,	$1,615,587.80
Interest Paid by the United States,	26,264,102.34
Interest Repaid by Transportation of Mails, etc.,	6,116,596.85
Balance of interest Paid by the United States,	$20,147,505.49

settlement of
the construct
bridges in a c
time, while th
our disposal li
cheapest mat
the purpose, a
economical a
have been ir
bridges of st
suming years
tion. Buildir
of thousands
streams must
or months at
expense possi
has been the
which have c
lightness and
Our Pacific
given origin t
of engineerin
and Sierra N
wide ravines,
depth and a t
presented the
bridges have
ance almost as
sufficient to
world's comm

Over our l
constructed b
sidered remar
ing skill. Ac
at Havre de G
bridge has b
3,271 feet in
twelve spans
This bridge co
strength.

In recent y
strong to the
the constructi
wood, and alr
ble specimens
materials. O
the country, a
the suspension
river, just be
structed by M
for the passag
ordinary vehic
one above the
feet, stretching
above the see
teen thousand
are employed

STATEMENT OF THE MILEAGE OF RAILROADS IN EACH STATE AND GROUP OF STATES, 1874–1845.

MILES OF RAILROAD IN	1874	1873	1872	1871	1870	1869	1868	1867	1866	1865	1864	1863	1862	1861	1860	1859	1858	1857	1856	1855	1854	1853	1852	1851	1850	1849	1848	1847	1846	1845
Maine,	957	905	871	871	786	580	560	521	521	521	505	505	505	472	472	472	468	451	429	415	360	334	323	293	245	168	90	62	62	62
New Hampshire,	918	877	810	790	736	702	667	667	667	667	661	661	661	691	661	661	657	657	657	657	644	644	568	537	467	386	223	175	92	92
Vermont,	778	721	710	675	614	614	605	587	587	587	587	587	562	562	554	546	529	529	529	529	512	506	471	413	290	214	103			
Massachusetts,	1,786	1,755	1,658	1,606	1,480	1,480	1,425	1,401	1,331	1,297	1,285	1,285	1,285	1,264	1,264	1,264	1,264	1,264	1,264	1,264	1,144	1,105	1,047	1,038	1,035	948	790	718	626	567
Rhode Island,	173	159	136	136	136	125	125	125	125	125	125	125	108	108	108	108	108	108	108	108	94	68	68	68	68	68	68	68	50	50
Connecticut,	897	897	868	820	742	692	637	637	637	637	630	630	630	630	601	601	590	590	590	496	496	496	496	451	402	289	202	202	202	202
New England States,	5,509	5,314	5,053	4,898	4,494	4,293	4,019	3,938	3,868	3,834	3,793	3,793	3,751	3,697	3,660	3,652	3,618	3,599	3,577	3,469	3,250	3,153	2,973	2,800	2,508	2,073	1,276	1,225	1,032	937
New York,	5,250	5,165	4,925	4,470	3,928	3,658	4,329	3,245	3,179	3,002	3,821	2,792	2,728	2,700	2,682	2,679	2,661	2,651	2,629	2,583	2,534	2,387	2,031	1,623	1,361	1,180	869	764	727	721
New Jersey,	1,438	1,418	1,378	1,265	1,125	1,011	973	942	879	864	864	756	633	587	560	536	516	507	485	466	375	347	318	303	206	206	206	185	186	186
Pennsylvania,	5,687	5,550	5,369	5,113	4,656	4,598	4,398	4,311	4,097	3,728	3,360	3,771	3,006	2,802	2,598	2,442	2,340	2,081	1,925	1,800	1,537	1,404	1,372	1,297	1,240	1,120	1,048	1,006	840	798
Delaware,	280	264	254	227	224	210	165	165	147	134	127	127	127	127	127	127	127	115	79	56	44	39	39	39	39	39	39	39	39	39
Maryland & Dist. Col.,	1,060	1,046	1,012	820	671	588	535	527	484	446	408	408	408	386	386	277	352	352	327	327	327	327	327	274	259	259	259	259	259	259
West Virginia,	576	576	561	485	387	387	365	365	365	365	361	361	361	361	352	352	352	352	241	241	241	241	241	159	97	97	97	97	97	97
Middle States,	14,291	14,019	13,499	12,380	10,991	10,452	9,765	9,555	9,144	8,539	7,941	7,615	7,263	6,963	6,706	6,413	6,348	6,068	5,686	5,473	5,058	4,745	4,328	3,795	3,204	2,901	2,518	2,350	2,148	2,100
Ohio,	4,398	4,258	4,108	3,740	3,538	3,448	3,398	3,398	3,372	3,331	3,311	3,311	3,101	2,947	2,946	2,812	2,651	1,895	1,807	1,486	1,317	1,200	756	588	575	319	301	274	129	84
Michigan,	3,361	3,309	2,976	2,116	1,638	1,325	1,199	1,163	1,039	941	898	898	853	810	779	737	642	602	501	474	444	431	431	379	342	270	270	270	238	238
Indiana,	3,890	3,714	3,649	3,529	3,177	2,853	2,600	2,506	2,217	2,217	2,195	2,175	2,175	2,175	2,163	2,014	1,995	1,895	1,807	1,406	1,317	1,209	756	558	228	86	86	42	30	30
Illinois,	6,759	6,589	6,361	5,904	4,823	4,031	3,440	3,224	3,191	3,157	3,156	3,156	2,958	2,917	2,790	2,781	2,730	2,502	2,235	887	778	759	412	271	111	52	22	22	22	22
Wisconsin,	2,428	2,203	1,878	1,725	1,525	1,512	1,235	1,036	1,036	1,010	1,010	990	961	933	905	826	647	630	276	187	97	71	71	50	20					
Minnesota,	1,990	1,950	1,906	1,612	1,092	795	572	482	298	213	157	31																		
Iowa,	3,765	3,728	3,643	3,160	2,683	2,095	1,523	1,283	998	891	805	792	731	701	655	533	379	344	254	68										
Kansas,	2,150	2,100	2,063	1,760	1,501	931	648	494	240	40	40																			
Nebraska,	1,107	1,107	1,051	943	705	473	473	473	305	122																				
Missouri,	2,889	2,858	2,673	2,580	2,000	1,712	1,354	1,085	925	925	925	868	838	838	817	724	547	318	144	139	38	38								
Wyoming Territory,	459	459	459	459	459	447	447	82																						
Utah,	459	372	349	257	257	257																								
Dakota,	275	275	234	65																										
Colorado,	682	603	483	328	157																									
Indian Territory,	279	279	279	92																										
Western States,	34,882	33,804	32,112	28,388	23,540	19,884	16,889	15,226	13,621	12,847	12,497	12,221	11,657	11,320	11,064	10,427	9,595	8,186	7,024	4,567	4,001	3,708	2,426	1,846	1,276	727	679	608	419	374
Virginia,	1,638	1,573	1,537	1,490	1,486	1,483	1,464	1,464	1,442	1,407	1,379	1,379	1,379	1,379	1,379	1,301	1,168	1,137	951	912	839	752	632	520	384	303	303	303	270	323
North Carolina,	1,315	1,265	1,250	1,190	1,178	1,130	1,097	1,042	1,042	984	984	984	937	937	937	937	849	733	694	582	572	420	351	283	283	154	87	87	87	87
South Carolina,	1,320	1,320	1,290	1,201	1,139	1,101	1,076	1,007	1,007	1,007	973	973	973	973	973	973	905	879	848	759	669	652	598	378	289	263	241	204	204	204
Georgia,	2,260	2,260	2,160	2,108	1,845	1,652	1,575	1,548	1,502	1,420	1,420	1,420	1,420	1,420	1,420	1,371	1,297	1,242	1,165	1,020	983	962	910	795	643	609	609	609	576	516
Florida,	484	466	466	466	466	466	437	437	416	416	402	402	402	402	402	290	198	128	56	21	21	21	21	21	21	21	21	38	38	38
Alabama,	1,722	1,722	1,628	1,496	1,157	916	953	851	839	805	805	805	805	743	743	628	532	532	454	334	304	304	214	183	183	133	91	46	46	46
Mississippi,	1,018	990	990	990	990	990	898	898	898	898	862	862	862	862	862	698	604	483	413	278	222	96	96	75	75	66	66	60	42	42
Louisiana,	539	539	539	539	479	375	335	335	335	335	335	335	335	335	335	295	281	261	249	203	198	89	80	80	80	66	66	40	40	40
Texas,	1,650	1,578	1,078	865	711	583	513	513	471	465	451	451	451	392	307	284	205	157	71	40	32									
Kentucky,	1,326	1,320	1,266	1,123	1,017	852	813	635	581	567	567	567	567	549	534	534	458	305	268	242	242	167	94	94	78	55	28	28	28	28
Tennessee,	1,620	1,620	1,520	1,520	1,492	1,451	1,436	1,358	1,296	1,296	1,296	1,253	1,253	1,253	1,253	963	888	770	541	466	329	291	185	112						
Arkansas,	700	700	450	258	256	128	86	38	38	38	38	38	38	38	38															
Southern States,	15,602	15,353	14,112	13,446	12,196	11,107	10,693	10,126	9,867	9,632	9,511	9,468	9,422	9,283	9,182	8,274	7,386	6,627	5,707	4,857	4,411	3,754	3,181	2,541	2,035	1,664	1,553	1,415	1,331	1,186
California,	1,328	1,208	1,042	1,013	925	702	468	382	308	214	147	53	23	23	23	23	23	23	23	8										
Oregon,	251	251	241	159	159	60	19	19	19	19	19	19	4																	
Nevada,	650	629	611	593	593	402	402	30																						
Washington Territory,	110	105	65	25																										
Pacific States,	2,339	2,193	1,959	1,790	1,677	1,164	889	431	337	233	166	73	27	23	23	23	23	23	23	8										

RECAPITULATION.

STATES.	1874	1873	1872	1871	1870	1869	1868	1867	1866	1865	1864	1863	1862	1861	1860	1859	1858	1857	1856	1855	1854	1853	1852	1851	1850	1849	1848	1847	1846	1845
New England States,	5,509	5,314	5,053	4,898	4,494	4,301	4,019	3,938	3,868	3,834	3,793	3,793	3,751	3,697	3,660	3,652	3,616	3,599	3,577	3,469	3,250	3,153	2,973	2,800	2,508	2,073	1,276	1,225	1,032	973
Middle States,	14,291	14,019	13,499	12,380	10,991	10,752	9,765	9,555	9,144	8,539	7,941	7,615	7,263	6,963	6,706	6,413	6,348	6,068	5,586	5,473	5,058	4,745	4,328	3,795	3,202	2,901	2,518	2,350	2,148	2,100
Western States,	34,882	33,804	32,112	28,269	23,540	19,884	16,889	15,226	13,621	12,847	12,497	12,221	11,657	11,320	11,064	10,427	9,495	8,186	7,024	4,567	4,001	3,708	2,426	1,846	1,276	727	679	608	419	374
Southern States,	15,602	15,353	14,112	13,246	12,196	11,107	10,683	10,126	9,867	9,632	9,511	9,468	9,422	9,283	9,182	8,274	7,386	6,627	5,707	4,857	4,411	3,754	3,181	2,541	2,035	1,664	1,523	1,415	1,331	1,186
Pacific States,	2,339	2,193	1,959	1,765	1,677	1,164	889	431	327	233	166	73	27	23	23	23	23	23	23	8										
Grand total,	72,623	70,683	66,735	60,558	52,898	47,208	42,255	39,276	36,827	35,085	33,908	33,170	32,120	31,286	30,635	28,789	26,968	24,503	22,016	18,374	16,720	15,360	12,908	10,982	9,021	7,965	5,986	5,598	4,930	4,633

RECAPITULATION OF RAILROADS,

Built and Building, with Cost of Roads and Equipment, by States, to Jan. 1, 1870.

States, &c.	Miles of Road. Total.	Miles of Road. Open.	Cost of Road and Equipment.
Maine,	940.79	672.07	$21,183,110
New Hampshire,	785.32	685 32	22,642,630
Vermont,	653.09	613.09	28,787,926
Massachusetts,	1,569.75	1,483.70	74,699,443
Rhode Island,	121.47	121.47	5,132,672
Connecticut,	806.94	698.57	27,359,017
New York,	4,735.91	3,636.22	209,001,671
New Jersey,	1,023.65	989.65	74,602,735
Pennsylvania,	6,878.36	5,014.45	300,556,508
Delaware and E. Maryland,	455.50	292.50	8,773,637
Maryland, other than above,	730.02	493.52	31,814,659
West Virginia,	723.75	364.75	27,869,315
Virginia,	2,049.11	1,482.94	49,886,481
North Carolina,	1,552.97	1,129.67	29,505,425
South Carolina,	1,439.17	1,089.97	27,348,817
Georgia,	2,095.41	1,694.70	36,875,552
Florida,	613.20	440.20	9,883,981
Alabama,	2,039.80	1,036.00	36,421,163
Mississippi,	920.00	920.00	24,919,504
Louisiana,	928.30	414.50	17,385,223
Texas,	2,529.25	572.25	17,006,000
Arkansas,	897.00	86.00	4,310,000
Tennessee,	1,876.53	1,435.53	46,918,448
Kentucky,	1,402.85	849.55	33,511,746
Ohio,	4,613.96	3,723.89	190,424,507
Michigan,	2.293.26	1,198.76	48,793,418
Indiana,	5,331.10	2,977.10	121,162,301
Illinois,	7,186.45	4,707.95	217,559,542
Wisconsin,	2,779.60	1,490.60	60,358,723
Minnesota,	1,800.00	823.00	27,860,000
Iowa,	3,219.28	2,140.83	85,762,943
Nebraska,	449.00	449.00	26,450,000
Wyoming Terr'y,	560.00	560.00	43,300,000
Missouri,	3,261.79	1,827.00	88,372,121
Kansas,	1,601.50	930.50	39,623,500
Colorado,	350.00	150.00	6,000,000
Utah Territory,	365.00	365.00	18,000,000
Nevada,	390.00	390.00	19,500,000
California,	2,397.60	810.60	46,650,000
Oregon,	2,019 50	119.50	5,700,000
Av. to each State,	5,522.10	1,835.10	$95,850,000

Recapitulation by Sections.

North East,	4,877.36	4,274.22	$179,804,798
Middle East,	14,547.19	10,791.09	652,618,525
South East,	7,749.86	5,837.48	154,000,257
Gulf and S. West,	10,573.93	5,294.03	180,472,084
North Interior,	33,095.94	20,828.63	949,667,055
Pacific and West,	5,522.10	1,835.10	95,850,000
Total, Jan. 1, '70,	76,366.38	48,860.55	2,212,412,719

In the following statement is shown the increase in railroad development in the several sections during the year 1869:

Sections.	Miles of Road. Projected.	Miles of Road. Opened.	Cost of Road and Equipment.
North East,	64 37	254.11	$17,275,764
Middle East,	3,538.54	1,026.59	85,129,307
South East,	293.22	185.57	14,978,130
Gulf & S. West,	1,527.45	223.45	22,659,653
N. Interior,	8,656.60	3,976.55	189, 00,824
Pacific and West,	366.10	922.10	29,664 000
Av. to each sec'n,	13,446.28	6,588.37	$358,707,678

The annual progress of railroad building since, in 1827, the commencement was made in the construction of the Granite Railroad at Quincy, Mass., to the present time, is shown in the following table:

Year.	Miles.	Year.	Miles.
1828,	3	1849,	6,350
1829,	28	1850,	7,475
1830,	41	1851,	8,589
1831,	54	1852,	11,027
1832,	131	1853,	13,497
1833,	576	1854,	15,672
1834,	762	1855,	17,398
1835,	918	1856,	19,251
1836,	1,102	1857,	22,625
1837,	1,431	1858,	25,090
1838,	1,843	1859,	26,755
1839,	1,920	1860,	28.771
1840,	2,197	1861,	30,593
1841,	3,319	1862,	31,769
1842,	3,877	1863,	32,471
1843,	4,174	1864,	33,860
1844,	4,311	1865,	34 442
1845,	4,522	1866,	35,351
1846,	4.870	1867,	36,896
1847,	5,336	1868,	38.822
1848,	5,682	1869,	42,272
1870	48,860		

STEAM.

The first steam engine constructed in this country, was built in 1772. In 1787, John Fitch, of Connecticut, built in Philadelphia, the first condensing engine, and independently of any aid from the experiments of James Watt, whose name stands so conspicuously in connection with the history of the steam engine. He also brought the engine into practical use for purposes of navigation. The first boat that carried passengers, built by Fitch, in 1789, was moved by paddles at the stern, moved as the Indians use them.

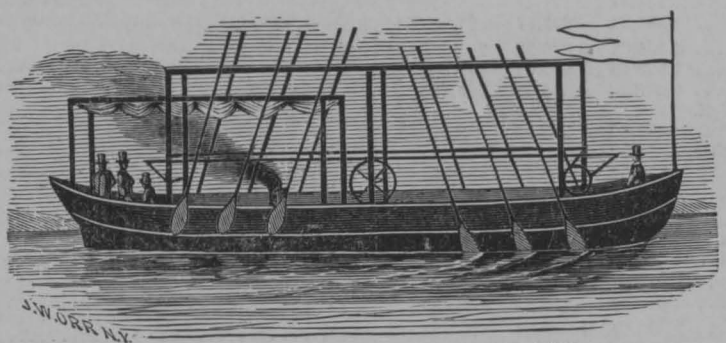
Fulton followed closely after Fitch. His first passenger boat was furnished with side-wheels and went up the Hudson River in 1807, at the rate of four miles an hour. Improvements were rapidly made in the art of steam navigation, and in 1815 a speed of fifteen miles an hour was attained. Since then boats have run 22 and even 25 miles an hour. The extent to which steam has come into use in our country, may be gathered from the fact, which has been stated, that one-third of the patents issued at the United States Patent Office, during the last thirty years,

There were, by official reports for 1874, in the United States 15,088 locomotives, 9.574 passenger cars, 3.841 baggage and mail cars, 296,372 freight cars of all kinds. These, in a continuous line, would make 1.611 miles, allowing 32 feet for engines, passenger, baggage, and mail cars, and 25 feet for freight cars. The locomotives and tenders, allowing 38 feet, would make 109 miles.

settlement of
the construct
bridges in a c
time, while th
our disposal h
cheapest mat
the purpose, a
economical a
have been in
bridges of sto
suming years
tion. Buildin
of thousands o
streams must
or months at t
expense possib
has been the
which have co
lightness and
Our Pacific
given origin to
of engineering.
and Sierra Ne
wide ravines, m
depth and a th
presented them
bridges have be
ance almost as t
sufficient to be
world's commer

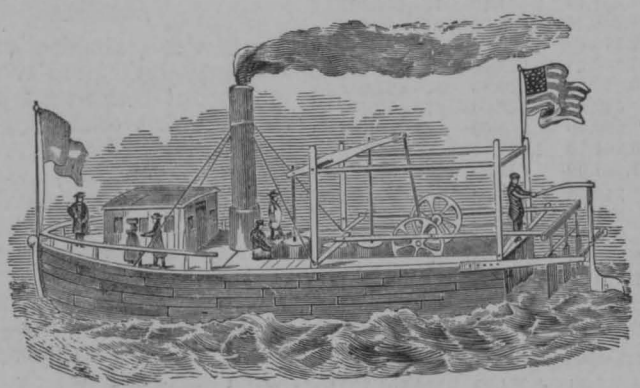
Over our lar
constructed brid
sidered remarka
ing skill. Acro
at Havre de Gra
bridge has bee
3,271 feet in l
twelve spans re
This bridge com
strength.

In recent yea
strong to the ad
the construction
wood, and alread
ble specimens o
materials. One
the country, and
the suspension b
river, just below
structed by Mr. I
for the passage
ordinary vehicles,
one above the oth
feet, stretching at
above the seethi
teen thousand five
are employed in



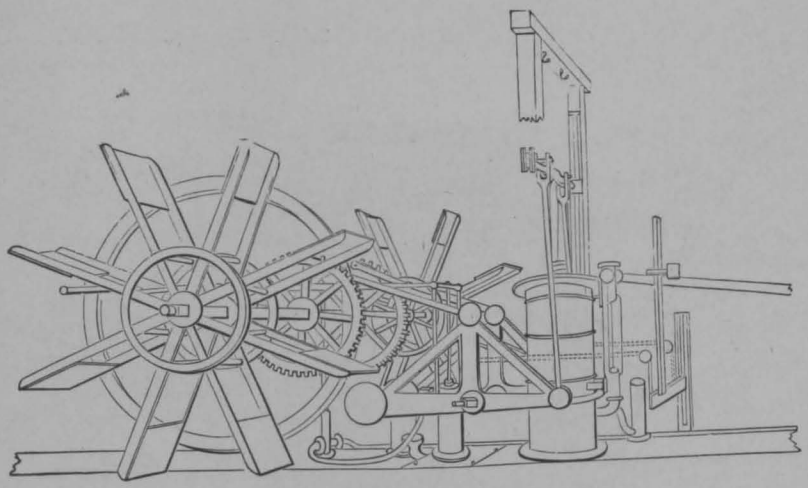
THE SECOND EXPERIMENTAL BOAT OF JOHN FITCH.

Finished in May, 1787, and run at the rate of four miles per hour on the Delaware. Cylinder twelve inches in diameter, stroke three feet.



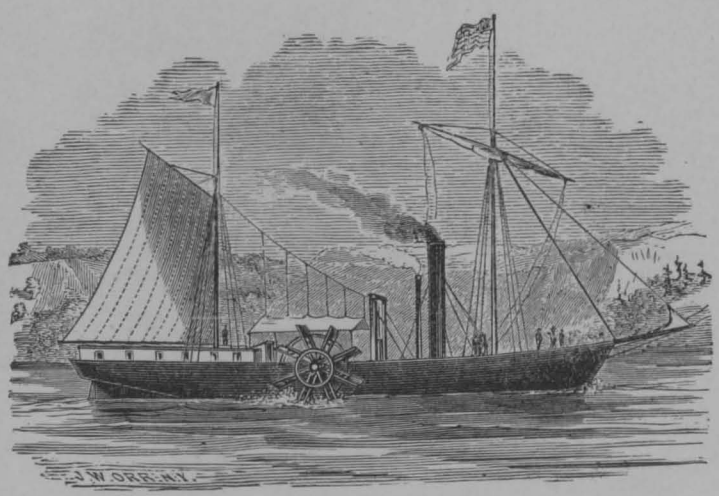
THE FIRST STEAMBOAT EVER BUILT TO CARRY PASSENGERS.

Constructed by John Fitch, and finished April 16th, 1789. Cylinder eighteen inches in diameter, speed eight miles per hour in smooth water. The following year this boat was run to Burlington regularly as a passenger boat.



THE MACHINERY OF FULTON'S FIRST STEAMBOAT.

Imported from England where it was constructed in 1805. Wheels fifteen feet in diameter, cylinder twenty-four inches in diameter, four feet stroke.



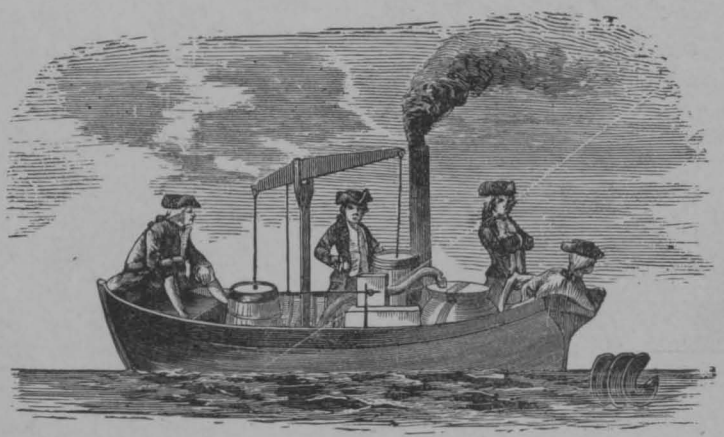
THE NORTH RIVER, OF CLERMONT.

Robert Fulton's first steamboat as she appeared after being lengthened in 1808. She was launched in 1807, and was run as a regular packet between New York and Albany. Speed four miles per hour, length 133 feet, beam 18 feet, depth 8 feet, tonnage 160.

settlement of
the constructi
bridges in a c
time, while th
our disposal h
cheapest mat
the purpose, a
economical a
have been in
bridges of st
suming years
tion. Buildin
of thousands
streams must
or months at
expense possi
has been the
which have c
lightness and
Our Pacific
given origin t
of engineerin
and Sierra N
wide ravines,
depth and a t
presented th
bridges have
ance almost a
sufficient to
world's comm

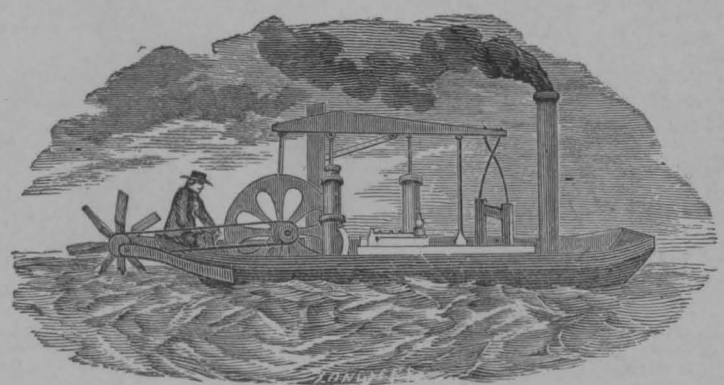
Over our
constructed b
sidered remar
ing skill. A
at Havre de
bridge has
3,271 feet i
twelve spans
This bridge c
strength.

In recent
strong to the
the construc
wood, and al
ble specimen
materials. C
the country,
the suspensi
river, just b
structed by
for the passa
ordinary veh
one above th
feet, stretchi
above the s
teen thousan
are employed



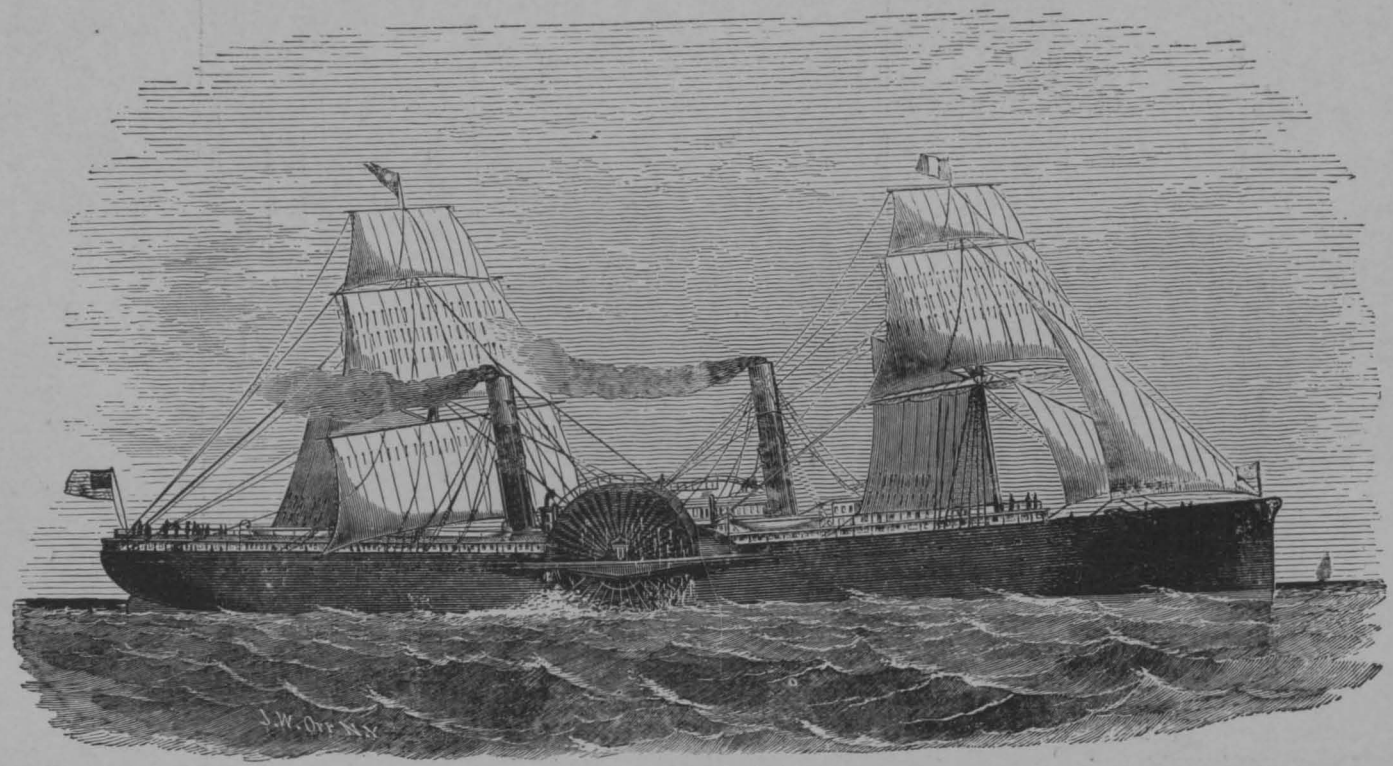
THE FIRST PROPELLER EVER BUILT.

Constructed by John Fitch, and experimented with by him on the Collect pond, New York city The boiler was a twelve gallon pot, with a bit of truck-plank fastened by an iron bar placed transversely This was in the year 1796.



OLIVER EVANS' ORUKTER AMPHIBOLOS.

Thirty feet long and twelve broad. Cylinder five inches in diameter with a nineteen inch stroke Constructed by Oliver Evans about the year 1804.



STEAMER ADRIATIC.

have related to steam engines, or machines designed to be driven by steam. The words of John Fitch, when making his experiments with steamboats, were prophetic: "This will be the mode of crossing the Atlantic in time, whether I shall bring it to perfection or not; steamboats will be preferred to all other conveyances, and they will be particularly useful in the navigation of the Ohio and the Mississippi." In 1856, there were over one thousand steamboats and propellers on the western waters, with a carrying capacity of 443,000 tons. Of the number of stationary steam engines used for various purposes we have no accurate reports. They have come into use with very great rapidity, and are used for almost every kind of work. They have been so simplified also in construction, that any one almost can manage them after only a little instruction. They have become, therefore, like the farm tools and household instruments, the implements of our every day life.

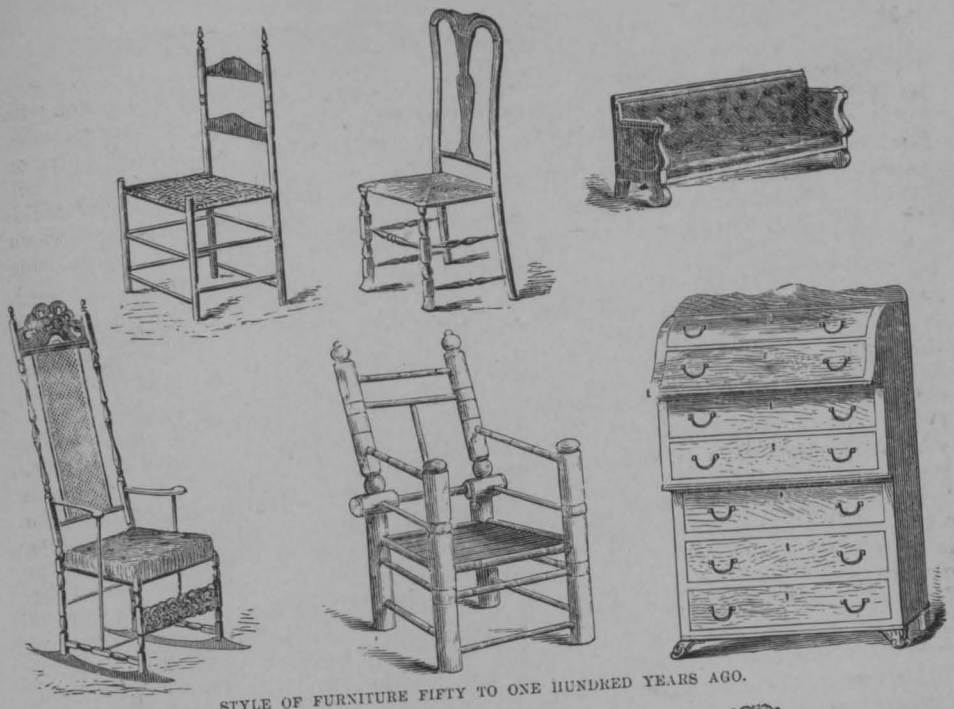
The first locomotive engine used in this country, was used by the Delaware and Hudson Canal Company, in 1828. It was imported from England. Oliver Evans, of Philadelphia, had previously experimented with the steam engine with a view to make its use practicable on common roads, and in the year 1804 constructed a flat-bottomed boat, thirty feet long and twelve feet broad, fitted with a chain of buckets designed to dredge the river bottoms, and remove mud and stones. This boat or car was designed to move on land as well as in the water, and did actually go through the streets of Philadelphia, propelled by its own engine. And Evans says, in giving an account of his invention, that the engine "was able to rise any ascent allowed by law on turnpike roads, which is not more than four degrees." Thus, Evans holds an important place, by the side of Fulton and Fitch, in the history of the steam engine. The introduction of the railroad probably prevented further attention to the use of steam locomotives on common roads. But in the future, not far off, when we shall have our steam carriages, for pleasure and for heavy transportation running on all our roads as commonly as horse carriages now do, Oliver Evans will be remembered as the inventor of this mode of locomotion.

The first railroad locomotive was a small and imperfect machine, in comparison with the engines now used on our railways. The great demand for these engines, on account of the rapid extension of the railway system, and the competition of builders, have produced a style of engines which have given our machinists an enviable reputation in all parts of the world. They have been able to compete with the long established workshops of England and the Continent. Our locomotives have been exported to England, France, Russia, Germany, Egypt, and Chili.

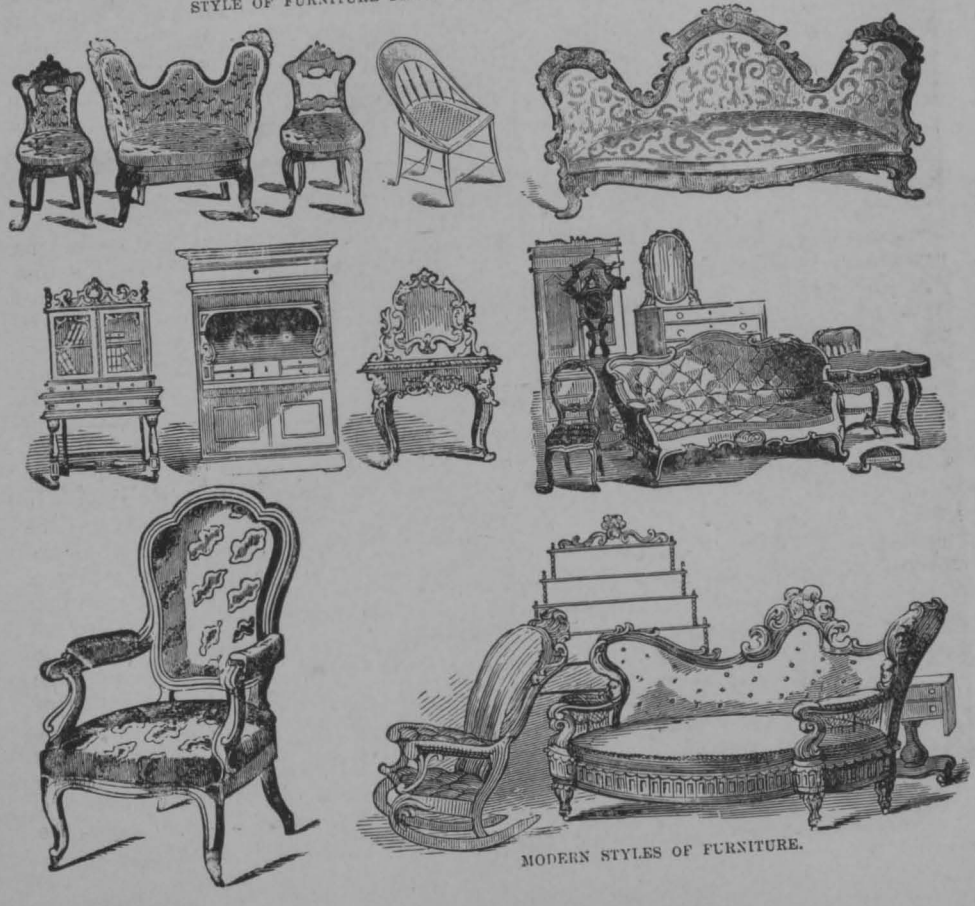
To speak in detail of the many applications and uses of steam would be impossible, within our limits. Aside from its use in engines and machines, its use for heating buildings, for drying and cooking and for many other purposes, is familiar to all. It has become our commonest servant. It enters into the manufacture of almost everything with which we have to do. Our household furniture is made by steam, if our houses are not built by it. Steam warms our houses and prepares our food; it makes the paper we write upon; it transports us by sea and by land; it tunnels mountains; it forges our massive machines and it does our most delicate work; it enters, in fact, into every place and into every industry of life.

MISCELLANEOUS PRODUCTIONS.

Sketching the general features of the history of the country during the first century of its existence, as we have done, there are some particular forms of industry which deserve more particular mention. With the rapid increase of the population during the last hundred years, it would have been expected that the number of dwellings would correspondingly increase. But the increase has been in greater proportion than that of the population. In 1798, the number of dwellings in the country was 276,659, with a free population of 4,412,884. This would give nineteen persons to each house, a crowding of population as it would seem beyond what we are accustomed to see, unless in some of the poorer quarters of our large cities. In 1850, with a free population of 20,059,399, there were 3,362,337 dwellings, or 5.94 persons to each. In 1860, there were 4,969,692 dwellings, with a free population of 28,000,000, or 5.53 persons to a dwelling. The census of 1870 gives the



STYLE OF FURNITURE FIFTY TO ONE HUNDRED YEARS AGO.

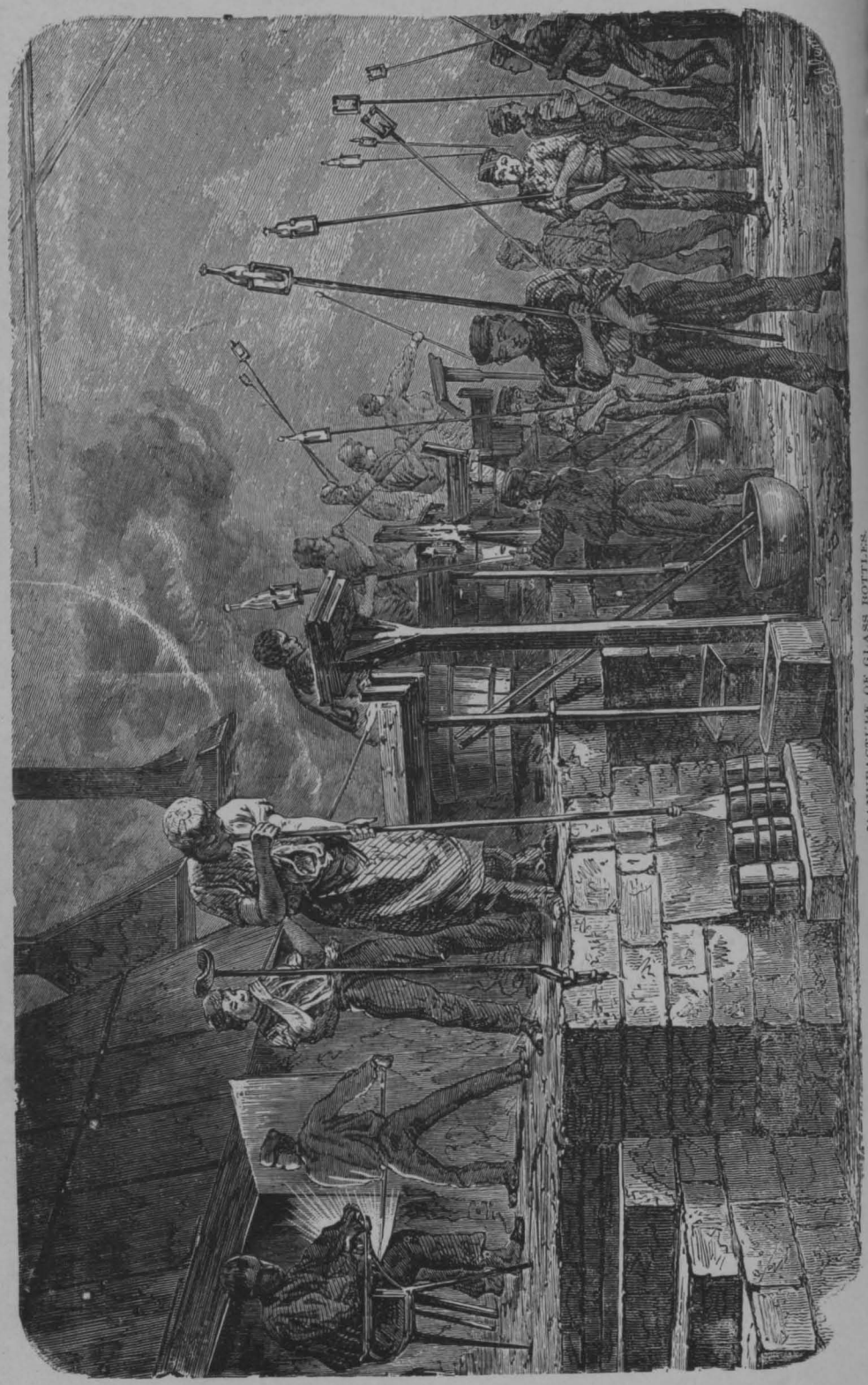


MODERN STYLES OF FURNITURE.

settlement of
the constructi
bridges in a c
time, while th
our disposal h
cheapest mat
the purpose, a
economical a
have been in
bridges of st
suming years
tion. Buildin
of thousands
streams must
or months at
expense possi
has been the
which have c
lightness and
Our Pacific
given origin t
of engineerir
and Sierra N
wide ravines,
depth and a
presented th
bridges have
ance almost a
sufficient to
world's comn

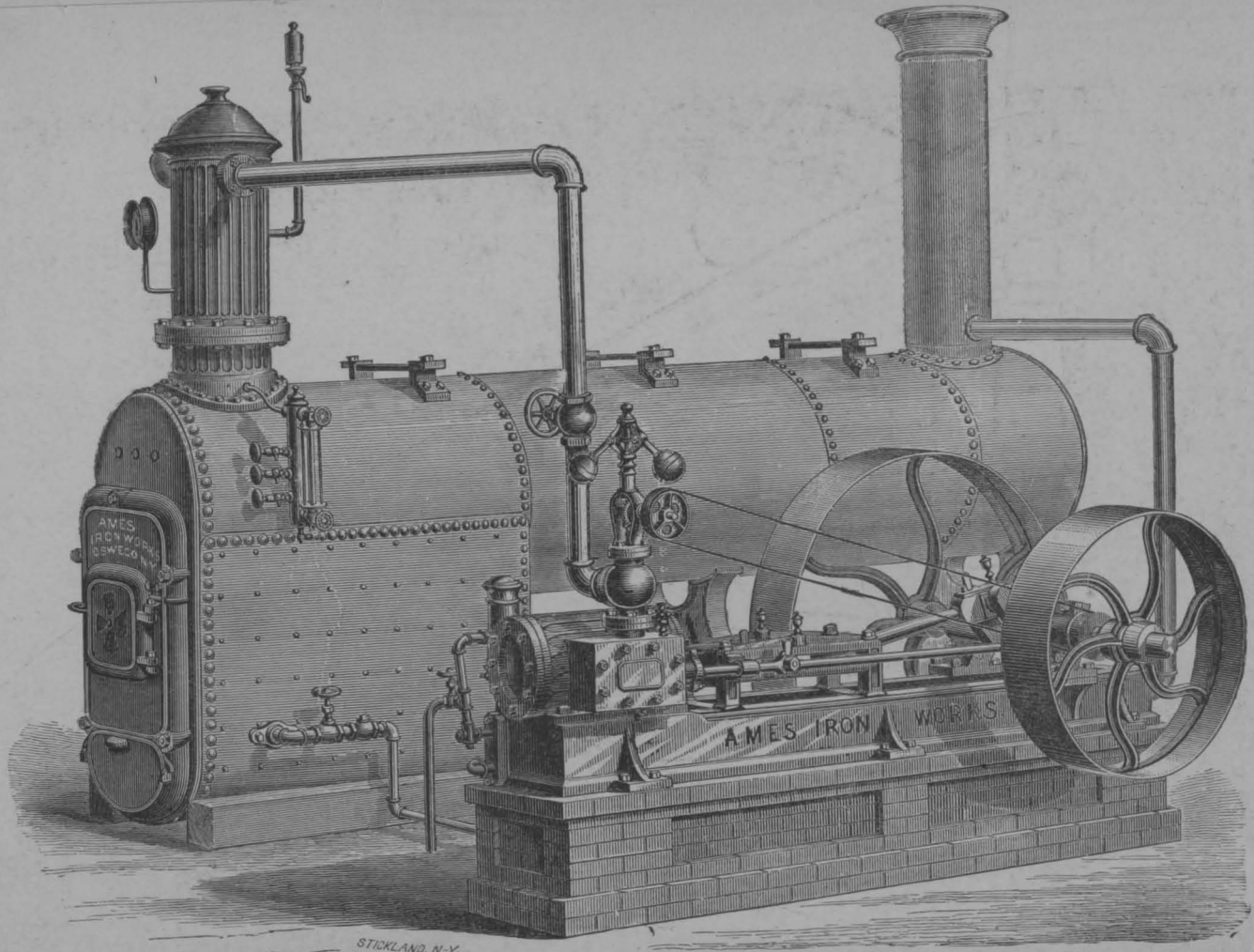
Over our
constructed
sidered rema
ing skill. A
at Havre de
bridge has
3,271 feet
twelve spans
This bridge
strength.

In recent
strong to th
the construc
wood, and a
ble specime
materials.
the country
the suspens
river, just
structed by
for the pas
ordinary ve
one above t
feet, stretch
above the
teen thousa
are employe



MANUFACTURE OF GLASS BOTTLES.

PORTABLE STEAM ENGINE. MANUFACTURED BY



PORTABLE STEAM ENGINE. MANUFACTURED BY AMES IRON WORKS, OSWEGO, N. Y.

MANUFACTURE OF GLASS BOTTLES.

settlement of
the constructi
bridges in a c
time, while th
our disposal h
cheapest mat
the purpose, a
economical a
have been ir
bridges of st
suming years
tion. Buildi
of thousands
streams must
or months at
expense poss
has been th
which have
lightness an
Our Pacific
given origin
of engineeri
and Sierra
wide ravines
depth and a
presented t
bridges hav
ance almost
sufficient to
world's com

Over our
constructed
sidered rem
ing skill.
at Havre d
bridge has
3,271 feet
twelve spa
This bridge
strength.

In recen
strong to t
the constr
wood, and
ble specim
materials.
the countr
the suspen
river, just
structed b
for the pa
ordinary v
one above
feet, stret
above the
teen thous
are emplo

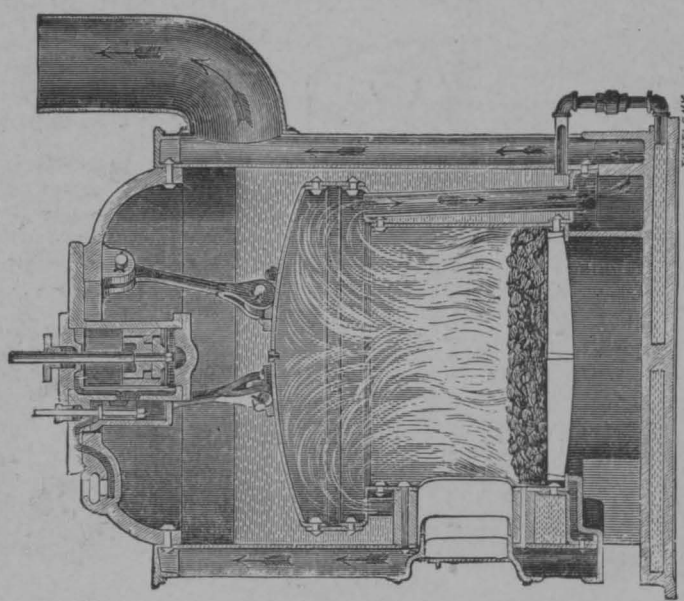
Motive Power, before the invention of the Steam Engine.

The Corliss Engine being 1,100 horse power, would equal a line of horses, two and eight-tenths of a mile in close working order;—if they were distributed through the Building to move the Machines in Machinery Hall, it would become more of a horse show, than an exhibit of Machinery.

settlement of
the constructi
bridges in a c
time, while th
our disposal h
cheapest mat
the purpose, a
economical a
have been ir
bridges of st
suming years
tion. Buildir
of thousands
streams must
or months at
expense poss
has been th
which have
lightness an
Our Pacific
given origin
of engineeri
and Sierra
wide ravines
depth and a
presented t
bridges hav
ance almost
sufficient to
world's com

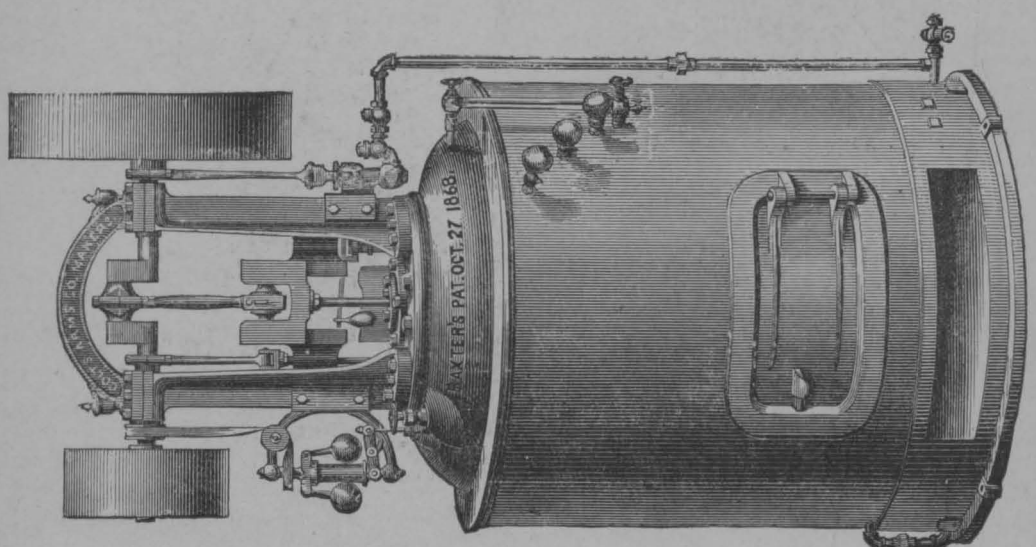
Over our
constructed
sidered rem
ing skill.
at Havre d
bridge has
3,271 feet
twelve spar
This bridge
strength.

In recen
strong to t
the constr
wood, and
ble specim
materials.
the countr
the suspen
river, just
structed b
for the pa
ordinary v
one above
feet, stret
above the
teen thous
are emplo



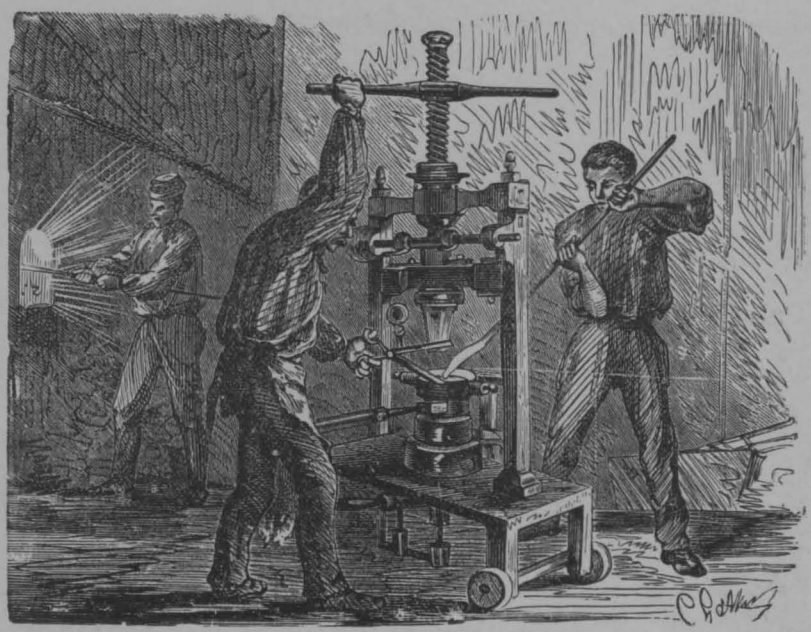
Sectional View,
Showing the interior of Boiler, Furnace, Cylinder, Valves, Water Bottom, &c.

This style of Boiler is used with the 3, 5, 8 and 10 Horse Power Engines.



THE BAXTER STEAM-ENGINE.—Front view.—Ready for use.

GOBLET MAKERS.

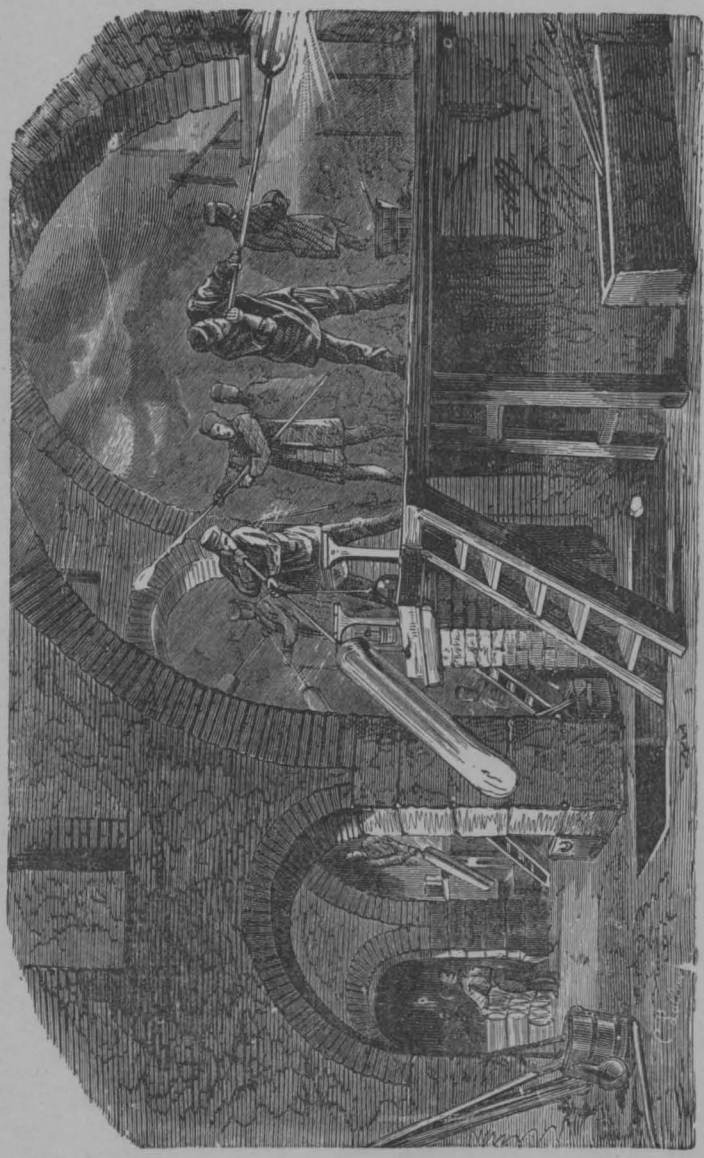


PRESS FOR MOLDING GOBLETS.

settlement of
the constructi
bridges in a c
time, while th
our disposal h
cheapest mat
the purpose, a
economical a
have been ir
bridges of st
suming years
tion. Buildir
of thousands
streams must
or months at
expense poss
has been th
which have c
lightness an
Our Pacific
given origin
of engineeri
and Sierra
wide ravines
depth and a
presented t
bridges hav
ance almost
sufficient to
world's com

Over our
constructed
sidered rem
ing skill.
at Havre d
bridge has
3,271 feet
twelve spar
This bridge
strength.

In recen
strong to t
the constr
wood, and
ble specim
materials.
the countr
the suspen
river, just
structed b
for the pa
ordinary v
one above
feet, stretc
above the
teen thous
are emplo



MANUFACTURE OF WINDOW GLASS.

number of dwellings as 7,042,833, with a population of 38,925,598.

But not only has there been this large increase of dwellings in proportion to the population, indicating the increase of wealth in the nation. There has also been a great advancement made in the mode and style of construction, indicating more decisively the progress in wealth. A hundred years ago, the dwellings of the people were, for the most part, plain and inexpensive. They were almost entirely built of wood. A brick or stone house was a rarity. There was little if any consideration of architectural style in their design. There was little of art or of taste manifested in their construction. A few buildings of a century ago have some impression of dignity given them by their large size, indicating that they were built by the more wealthy people of the time. But the generality of buildings were of moderate dimensions and without any pretention to style. The furniture within them was equally plain and simple. Now the character of our buildings is very different in these respects from what it was a century or half a century ago. Buildings, both stores, factories, and dwellings, are now very commonly built of brick or stone. Not unfrequently they are very elaborate in design. Stones and bricks of various colors, and woods of many different kinds, and gathered from many and distant parts of the world, are combined in their construction. Often they are built in the most substantial manner, though it is true of many of our buildings, those especially which are intended to be rented rather than to be occupied by the owners, that they are very frail. During the decade 1860-70, at least $2,400,000,000 were expended in building. Of course, in connection with such an expenditure, there must be a large trade in lumber, aside from the demands for it from different sources. A great amount of lumber is needed, not only for the erection of buildings, but for the repairs of those already built. A great deal is consumed, also, in the manufacture of furniture, of cars and carriages, of tools and implements of various kinds, and in boxes for containing or transporting a thousand articles of manufacture. The value of the lumber product of the country in 1870, was $252,339,029, more than double that of ten years before. The value of building materials of all kinds, except iron, is set down for 1870, at $356,140,945.

With the growth of the country, and the improvement of its roads, the use of carriages of all sorts has naturally increased; until now the manufacture of these vehicles has come to be one of the prominent manufactures of the land. There were in 1870, 11,847 establishments for the manufacture of carriages and wagons, employing 54,928 persons, and yielding products to the value of $65,362,837. The great railroad system of the country has given origin to no less than 170 establishments for the manufacture and repair of cars. These employ 15,931 persons, and turn out products to the value of $31,070,734.

A special trade has grown up in our country, and in recent years, in clothing made up in great establishments in advance of orders, and sold thus ready-made. The census reports nearly 8,000 establishments of this kind, producing goods annually to the value of $147,650,378.

Of cutlery, we manufacture goods that compete with the best made in the long established workshops of the Old World, and produce articles, a large portion of which are axes and edge-tools, to the value of more than $10,000,000 a year.

Our manufacture of glass reaches more than $14,000,000 a year in value.

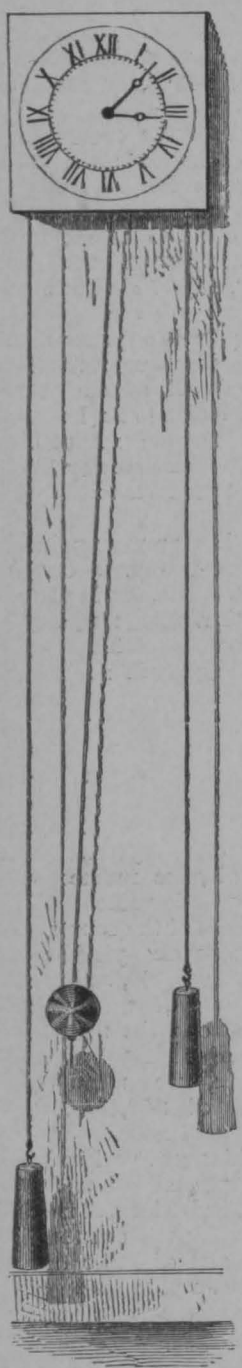
The nail manufacture of the country has attained large dimensions, yielding an annual product of $25,000,000, and in contrast with this product of what will be deemed to belong among the necessities, we find that, in addition to all that we import from Europe, we manufacture jewelry to the value of $22,104,032, or nearly as much as that of nails.

The value of machinery of various kinds which we manufacture, amounts to $150,000,000 annually. The business of making patterns and models for the construction of this machinery, and of other things, amounts to $1,211,191 a year.

The making of photographs, a business which has come into existence within a few years, is already so extensive as to amount to $3,613,887, according to the census of 1370.

Another industry, that of the manufacture of plated ware, which is a business that has grown up almost entirely within

settle
the c
bridg
time,
our di
cheap
the pr
econo
have
bridg
sumin
tion.
of th
strean
or mo
expen
has b
which
lightn
Our
given
of en
and S
wide
depth
presen
bridg
ance a
suffici
world
Ove
constr
sidere
ing sl
at Ha
bridg
3,271
twelve
This
streng
In
strong
the c
wood,
ble sp
mater
the co
the su
river,
struct
for th
ordina
one a
feet, s
above
teen t
are en

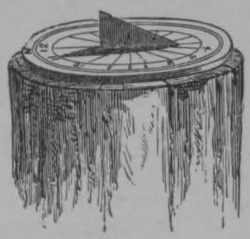


FIRST CLOCKS USED BY COUNTRY PEOPLE.

Without case, they were fastened to the wall, the weights running nearly to the floor. They kept good time when the children did not play with the pendulum.

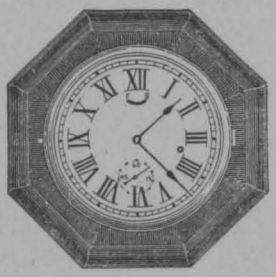
HOUR-GLASS.

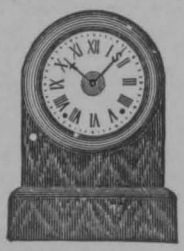
Shaped like wine-glasses, minus the stand part, one inverted, connected together by a small tube, by which the sand passed from one to the other in one hour; it was then reversed and the sand ran back again. Whether our ancestors sat up nights to turn it over we can not tell.

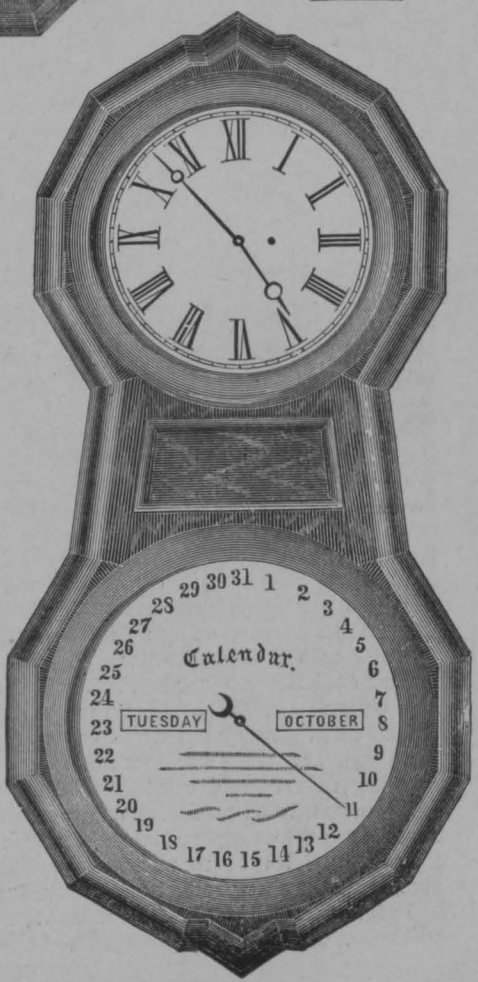


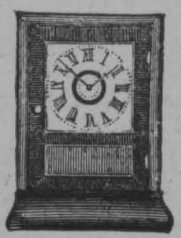
THE SUN-DIAL,

By which our forefathers could tell when it was noon in fair weather. When cloudy they judged by the indications of the stomach.

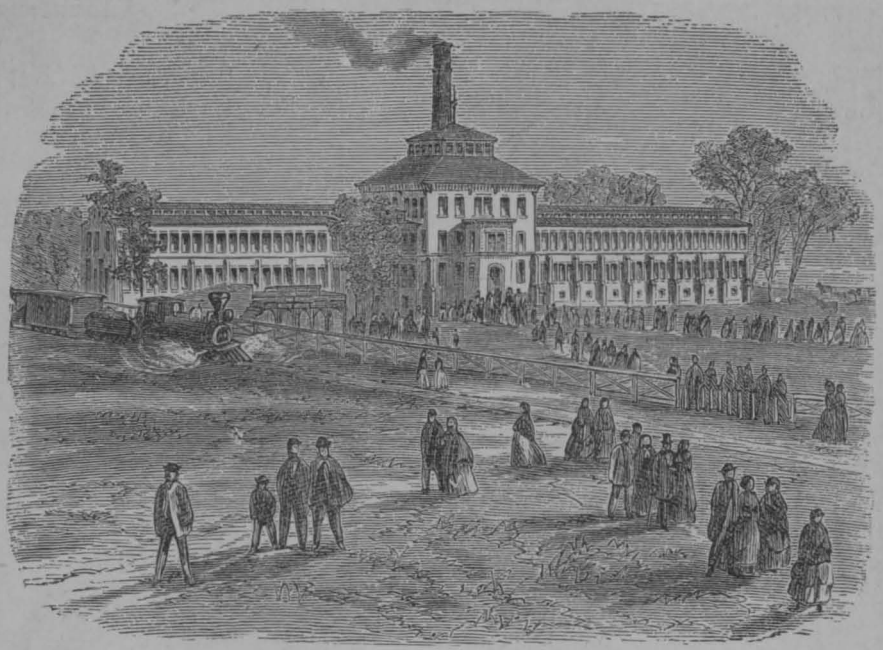








MAKING WATCHES BY MACHINERY.



VIEW OF THE ELGIN WATCH FACTORY.

THE TRAIN ROOM.

ELGIN MACHINE SHOP.

SETTING UP THE WATCHES.

the memory of very many, has reached such importance already, that its products are reported as $8,142,150.

So the matter of plumbing and gas fitting, two employments which have grown out of the introduction of gas for purposes of illumination, and the construction of aqueducts for the supply of water in our dwellings and other buildings, requires an expenditure of more than $10,000,000 a year. We spend $1,108,380 in manufacturing pocket-books, with which to preserve our money. We print and publish books, newspapers, and miscellaneous things to the amount of $66,862,447. In saddles and harnesses for our teams, we produce no less than $32,709,981 worth of goods. The simple supply of our buildings with sash, doors, and blinds, creates a business amounting to the almost incredible sum of $36,625,806, and we expend on scales and balances, with which to weigh our goods, $2,823,816. The manufacture of tin, copper, and sheet-iron ware is represented in the census tables of 1870, by the impressive figures $40,636,811. That we are a traveling people is shown by the fact which doubtless will surprise many, that the making of trunks, satchels, and valises, is a business, the annual products of which have a value of $7,725,488, while umbrellas and canes figure so high as $4,098,032. In the manufacture of watches, our annual products amount to more than $5,000,000. This includes the manufacture of watch cases for watch "movements," as they are called, imported from Europe. It is but a few years since all our watches were brought from abroad, chiefly from England and Switzerland. About twenty-five years ago, one of our watch-makers conceived the idea of competing with the cheap labor of Europe, by making watches by machinery instead of doing it as it had previously been done by the slow and tedious process of hand labor.

To make the delicate parts of a watch, required very nice and delicate machinery. But the requisite machinery was made and a watch factory was established, which has proved entirely successful. It employs seven hundred hands, and produces eighty thousand watches annually. In 1870, it had produced half a million watches since it began its work. The success of this factory led to the establishment of others of a similar character. The watches thus made have stood the severest tests, and are rapidly coming into favor as instruments which do well the great work demanded of time-keepers—that is, to keep time. They have been adopted extensively on railroads, for the use of conductors and engineers, who, more than almost any other class of persons, need to have some accurate measure of time.

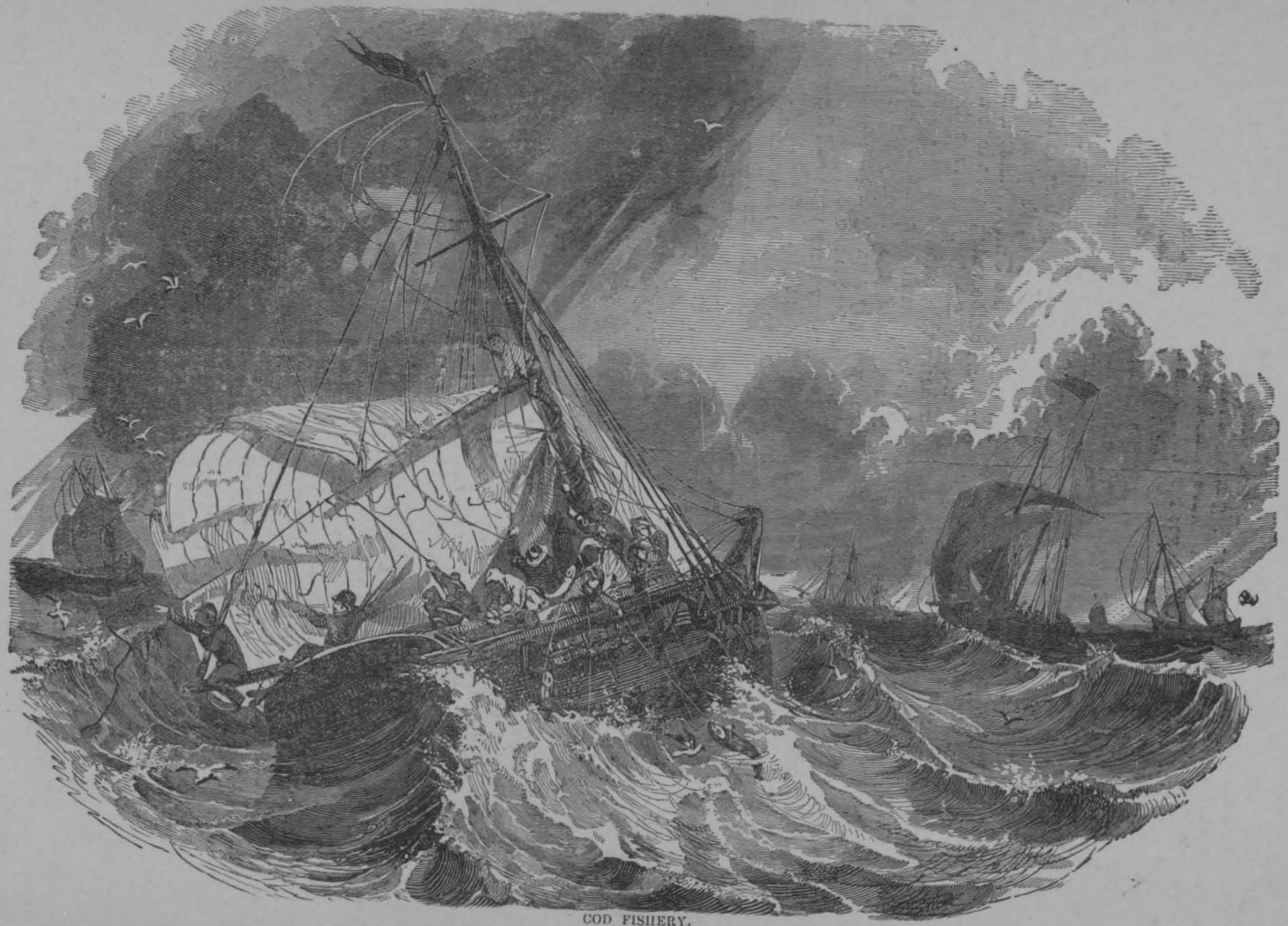
In these watch-factories, the principle is adopted, which has long been in use in the construction of the Colt's pistol, and the guns made at the United States armories. Every part of the watch is made to a scale. The parts of different watches are therefore interchangeable, and if any part is broken, or fails to do its duty, a similar part can be procured from the factory to take its place by simply naming the style of watch and the part that is needed.

These cursory statements and figures as to some particular industries, may serve to give some adequate impression of the flow of life and business in our country, and to show the advancement which has been made, in some directions at least, during the first century of our history.

Another way of gaining a proper impression of the activity and the productive industry of our people, is by summing up the industries of a single State, and judging from that the productive industry of the whole country. Taking then the State of Connecticut, which is probably a fair specimen of the States generally, we have the following summary:

Whole number of manufactories	5,128
Number of steam engines	711
Horse-power	25,979
Number of water-wheels	1,988
Horse-power of these	54,395
Hands employed	89,523
Capital	$95,281,278
Wages	38,987,187
Materials	86,419,579
Products	161,065,474

We have still left out of the account one of the important pursuits of the country, one too, that is commonly lost sight of, except by those immediately interested in it. It is the Fisheries. From the earliest colonial days the Fisheries held an important and prominent place among the industries of our people. In New England especially, has fishing been an important and productive employment. The first development of the commerce of the



COD FISHERY.

WHALE FISHERY.

country was closely connected with the fishing interest. The colonial trading vessels made up their freights largely of the fish taken along the New England coast, and as far north as Newfoundland. These they carried to the Southern Colonies, to the West Indies and to Europe, exchanging them for rice, sugar, and molasses, in Southern American waters, and various manufactured goods in the European markets.

The government of the United States, regarding the fisheries not only as an important national industry, but as a nursery of seamen for the navy, has offered a bounty for their encouragement. The bounty paid out from 1846 to 1858, amounted to $4,046,929, or an average of $337,244 per annum. The whole amount paid since the formation of the government has been $12,944,998, and to different States as follows:

Maine	$4,175,050
New Hampshire	563,134
Massachusetts	7,926,273
Connecticut	182,853
Rhode Island	78,895
New York	18,319
Virginia	479
	$12,944,998

It will be noticed that the New England States principally are engaged in the fisheries now, as they were in the colonial times. As they then supplemented the scanty products of their rough and somewhat sterile soil, by plowing the waters, and gathering their finny products, this they have continued to do.

The cod fishery is the most important branch of the fishery business, as it was the first to be developed. As early as 1795, there were 39,000 tons of shipping engaged in this business. Now there are more than 100,000. About the time of the Declaration of Independence, the trade of the cod fishery gave the northern colonies nearly half they needed in payment to the mother country for goods imported thence.

The mackerel fishery was also engaged in at an early period. There are about 30,000 tons of shipping employed in it, and from 130,000 to 360,000 barrels of mackerel are caught annually. The business is confined mostly to Massachusetts. More than a thousand vessels are engaged in the mackerel fishery, and 10,000 men. The value is given by the inspector general of Massachusetts, as follows:

Value of vessels and outfits in Massachusetts	$6,032,000
Average value of catch	4,400,000

The town of Gloucester alone sends out annually about four hundred vessels to engage in this fishery, and the value of the shipping is $1,600,000.

The oyster trade has gained dimensions and importance such as few are aware of. In 1858, about 16,000,000 bushels, worth nearly $8,000,000, were taken from the oyster beds of Virginia. Baltimore is the chief market for the oyster trade, and in 1862, three oyster firms packed 1,500,000 bushels of oysters. In 1869, the business is said to have reached over $15,000,000. The number of hands employed was about 16,000. In Fair Haven, Connecticut, about 1,000,000 bushels of oysters were sold in 1860, in the shell, and 1,000,000 gallons opened and put up for exportation.

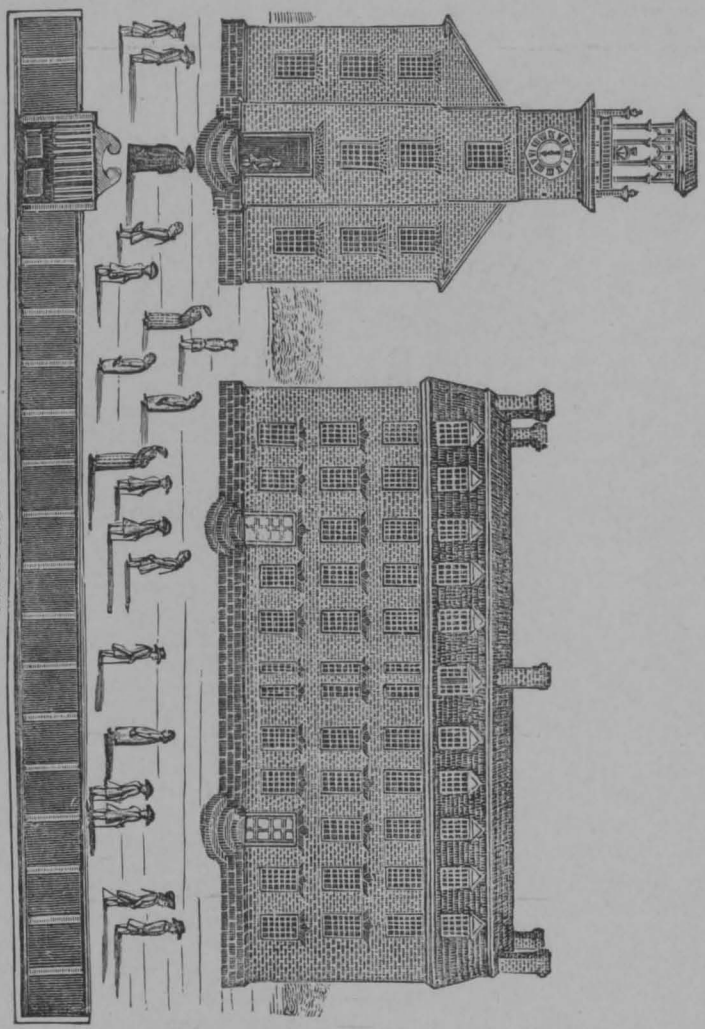
Extensive fisheries have been developed on the great Lakes of the West, and on the northwestern coast in Oregon and Alaska. The value of fish taken and packed on the Lakes is estimated at about $825,000, and with those taken on the rivers flowing into them, we have an aggregate value of $1,045,000. The salmon fisheries of Oregon and California are reported as yielding 22,000 barrels.

The value of oil produced by the fisheries is estimated at about $4,000,000, and the census of 1870 gives the value of all the fisheries in the United States as $11,096,522, and this is probably quite an underestimate.

There are many other indications and illustrations of our national progress, of a similar character to those which have now been mentioned; but our limits oblige us to pass them by, and we turn from these physical and material indications of growth, these triumphs in the world of matter, to those which are immaterial and appertain to the world of mind.

EDUCATION.

We have seen, in our review of the colonial period of our history, that careful provision was early made for the education of the people, especially by the New England colonies. The settlers of these colonies were a choice class of people. They



YALE COLLEGE IN 1794.

were not a miscellaneous company flocking promiscuously to these shores in quest of gold or gain, like so many of the adventurers who, at about the same period, or in the century previous, had been pushing out as fortune-hunters in the hope of enriching themselves by the wealth of the Indies. They were a sober and intelligent people, possessed of deep moral and religious convictions, and seeking a new home where they might be free from ecclesiastical and political oppression. They were intelligent enough to know and appreciate their rights, and they meant that their children should understand and appreciate theirs also. So, from their first planting themselves on these shores, they were careful to provide for the general education. They had read chiefly their bibles, and there learned of the liberty which God bestows as the birthright of His children. So they taught their children to read the precepts of liberty from the same sacred book, and the Bible became at the same time the instrument of teaching the art of reading, and of inculcating the principles of religion and of liberty. The Bible in the school is our natural inheritance. It was the natural outgrowth of the character and the peculiar circumstances of our forefathers, and if now, after the lapse of two centuries and a half, it has become a grave question whether the Bible shall be retained as a text-book in our schools, it is because, and only because, in the progress of events, the circumstances of the people have become greatly changed from what they were at the beginning. It is not because the Bible is not still the book of books, or that it has been superseded by any other instrument of knowledge.

The provision for education that was made at first by the colonies, was not made in their colonial capacity and in a systematic manner, but by the little individual precincts and settlements. The earliest records of most of the New England towns are either lost or so defaced as to make it difficult to read them. But in those that remain, and among the oldest entries to be found, the school is spoken of as one of the established interests of society, to be provided for as much as roads and bridges. In the first book of records of the town of Boston, under date of April 13th, 1634, we find this, "it was then generally agreed upon that our brother, Philemon Purmont shall be entreated to become schoolmaster for the teaching and nurturing of children with us." Within seven years after the first log house was erected at Hartford, thirty pounds were appropriated to the schools. The records of Windsor and Wethersfield show that similar action was taken in those towns. The records of the town of New Haven show great solicitude on the part of the leading men of the colony, in behalf of schools of different grades and for the education of all ranks and conditions of the people from the highest to the lowest. There is evidence of the existence of a school within a year of the first settlement, and in the third year from the settlement the town orders "that a free school be set up," and the famous Ezekiel Cheever was appointed "for the better training up of youth in this town, that, through God's blessing, they may be fitted for public service hereafter, in church or commonwealth." In 1647, only seven years after the first settlement, in the distribution of home lots, it was ordered in town meeting that the magistrates, "consider and reserve what lot they shall see meet, and most commodious for a college, which they desire may be set up so soon as their ability will reach thereunto." Thus early was New Haven moving for a college, for the actual establishment of which she had to wait more than fifty years. But this vote and similar votes in other towns show the interest which the New England colonists felt in education, and in that of the highest sort, as well as of that which was within the attainment of the people generally. It was only in accordance with the feeling and action previously manifested by the towns separately that, six years after the settlement of Boston, the General Court of the colony of Massachusetts Bay passed an act appropriating £400 towards the establishment of a college. This small sum, as it looks to us, was more than the whole annual tax of the Colony at that time. The population of the colony was then not more than five thousand. In 1638, John Harvard left by will the sum of £779 in money, and books to the number of three hundred. In 1640 the General Court granted to the college the income of the Charlestown ferry, and in 1650 the college received the charter under which it now exists. In 1642 we find the General Court

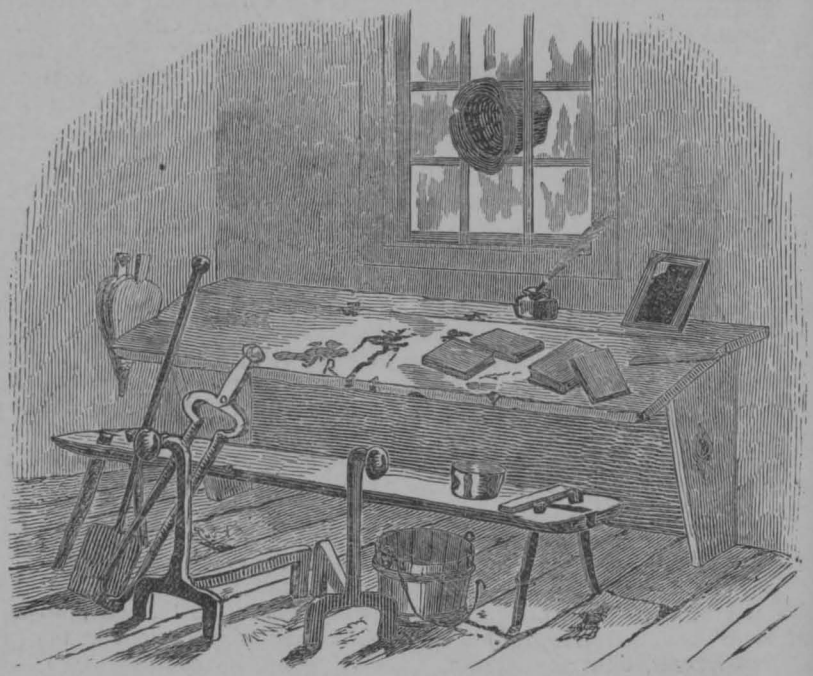
looking to the matter of family instruction and making this enactment in regard to it. "Forasmuch as the good education of children is of singular behoof and benefit to any commonwealth : and whereas many parents and masters are too indulgent and negligent of their duty in this kind :

It is therefore ordered by this court and the authority thereof, that the selectmen of every town, in the several precincts and quarters where they dwell, shall have a vigilant eye over their brethren and neighbors, to see, first, that none of them shall suffer so much barbarism in any of their families, as not to endeavor to teach, by themselves or others, their children and apprentices so much learning as may enable them perfectly to read the English tongue, and knowledge of the capital laws, upon penalty of twenty shillings for each neglect therein; also, that all masters of families do, once a week, at least, catechise their children and servants in the grounds and principles of religion, and if any be unable to do so much, that then, at the least, they procure such children and apprentices to learn some short orthodox catechism, *** and further, that all parents and masters do breed and bring up their children and apprentices in some honest lawful calling, labor or employment, either in husbandry, or some other trade profitable for themselves and the commonwealth, if they will not nor can not train them up in learning to fit them for higher employments." The selectmen, after admonition to parents or masters of their neglect of this home duty, were empowered, upon the continuance of the neglect, to take the children and put them in charge of such as would teach them. In the same year it was also enacted that every town, as soon as it numbered fifty house-holders, should appoint a teacher, who should teach reading and writing to all who should come to him, the teacher's wages to be paid either by the parents or by the inhabitants in general, as the majority should decide, provided that those sending their children should not be oppressed by being obliged to pay much more than they could have their children taught for in other towns. It was llkewise enacted that when any town should increase to the number of one hundred families, they should set up a grammar school, the teachers of which should be able to prepare their pupils for college.

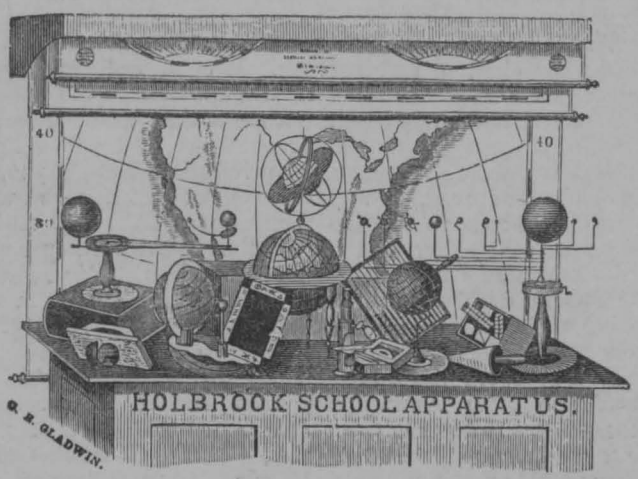
Such was the comprehensive system of education early established in the colonies of Massachusetts and Connecticut. It looked to the employment of every child in some useful industry, and its instruction at home so far as to learn to read. Then this work was supplemented by the public school-teacher, who gave more complete and thorough instruction in reading and writing, and then came the grammar or higher school, and this was crowned by the college. This system, at first originated in the two colonies named, in the progress of years has been adopted generally by the States, and may now be regarded as the school system of the country. It was most honorable to the founders of the Connecticut and Massachusetts colonies, that they had such a sense of the use and value of education, and that their conception of a proper scheme of education was so broad and comprehensive. They believed in the education of the whole people, and this because it was for the highest good of the individual and for the benefit of the State.

But if they devised a scheme of education, theoretically so complete that we are content with it at this day, we have yet made great advancement in the practical carrying out of the scheme. The schools even of New England at the close of the colonial period would now be considered as of a very inferior order. They would be looked upon as very poor schools. The influence of the Revolutionary War was, in some respects, unfavorable to education. It distracted attention from it in some measure. It occasionally broke up the schools. It so impoverished the country that many felt for a time unable to bear the burdens of education, and were obliged to forego its privileges. But the people, when they came out of that war and were laying the foundations of the new nation, felt more fully than before the importance of resting the foundations of a free government upon a broad intelligence in the citizens. Washington said: "In proportion as the structure of a government gives force to public opinion, it is essential that public opinion should be enlightened." Said Jefferson: "A system of general instruction, which shall reach every description of our citizens, from the richest to the poorest, as it was the earliest, so shall it be the latest of all the public concerns in

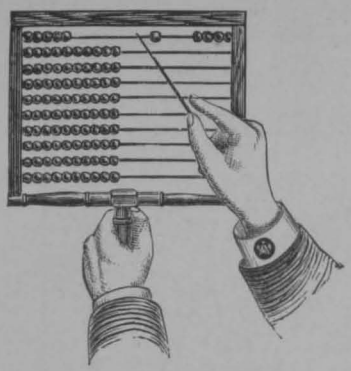
SCHOOL APPARATUS.



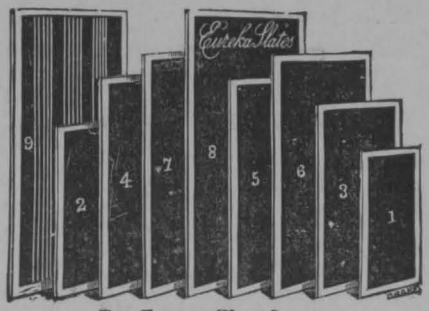
APPARATUS AND EQUIPMENT OF THE DISTRICT SCHOOL AS IT WAS.



SPECIMENS OF APPARATUS OF THE SCHOOL AS IT IS.



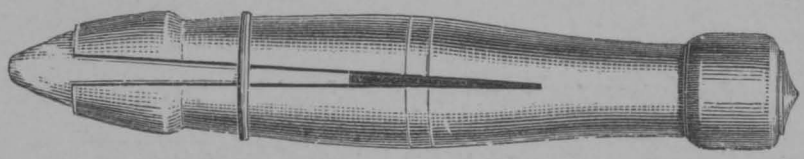
THE ABACUS, OR NUMERAL FRAME



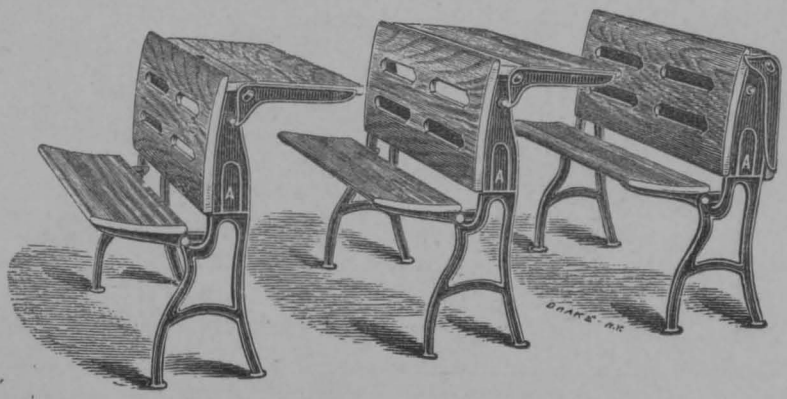
THE EUREKA WALL-SLATES.

THE NEW SCHOOL GLOBE.

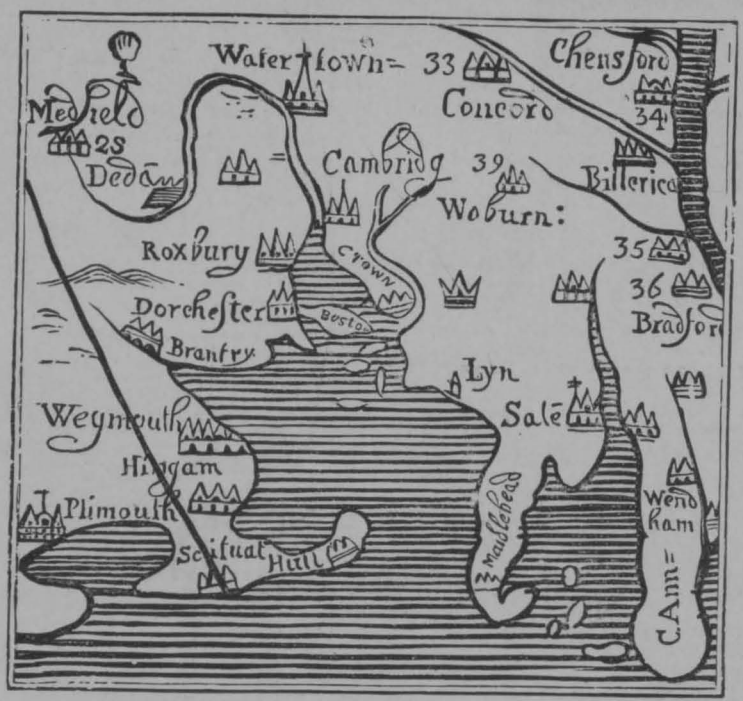
HAMMOND BLACKBOARD SUPPORT.



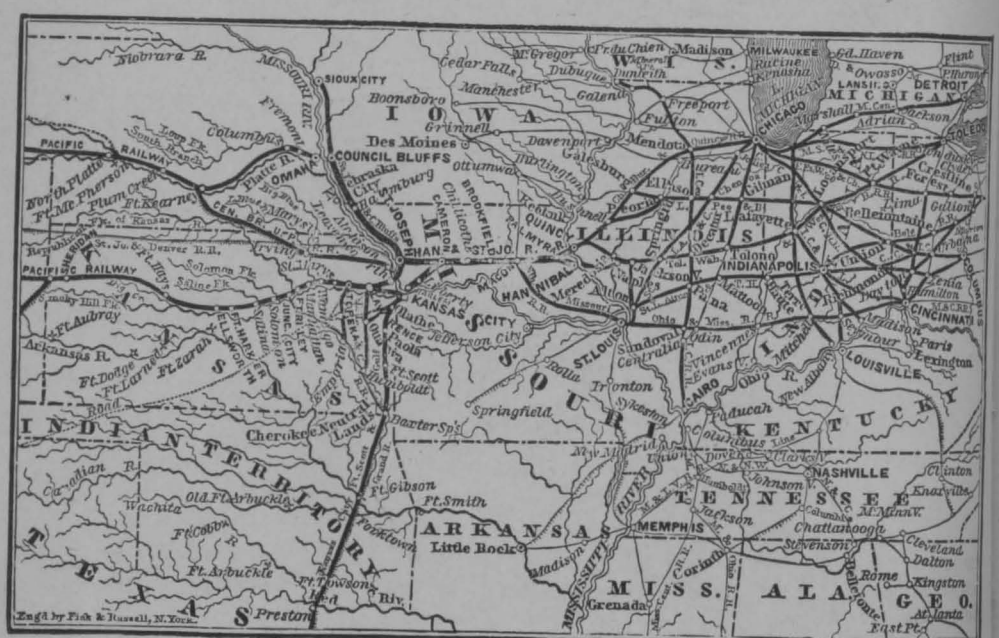
THE NEW CRAYON-HOLDER. (FULL SIZE.)



THE "ASSEMBLY" SCHOOL DESKS AND SETTEES.



FIRST MAP ENGRAVED IN THE UNITED STATES IN RAISED LETTERS.



MAP OF THE PRESENT TIME IN RAISED LETTERS.

SCHOOL-BOOKS.

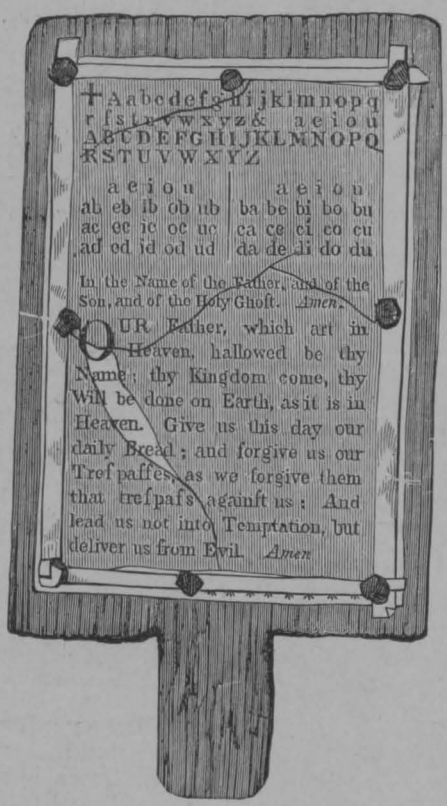
The improvement in the authorship and manufacture of text-books, from the Primer to the Manuals of our colleges and scientific schools, within the last half century is immense. We will refresh the memory of some of our readers by reproducing a few of the tough subjects and illustrations with which they or their fathers were painfully familiar.

The Horn-book.

Few of us have had the satisfaction of learning our letters after the manner described by Prior:—

> "To master John the English maid
> A Horn-book gives of gingerbread;
> And that the child may learn the better,
> As he can name, he eats the letter."

To many, even a picture of the old-fashioned Horn-book—the Primer of our ancestors, consisting of a single leaf pasted on a board, and covered in some instances with thin



HORN-BOOK OF THE EIGHTEENTH CENTURY.

transparent horn to preserve it from being torn or soiled—will be new. The following description and the accompanying cut we copy from Barnard's *American Journal of Education*, for March, 1860:—

Shenstone, who was taught to read at a dame school near Halesowen, in Shropshire, in

his delightfully quaint poem of the *Schoolmistress*, commemorating his venerable preceptress, thus records the use of the Horn-book:—

"Lo! now with state she utters her command;
Eftsoons the urchins to their tasks repair;
Their books of stature small they take in hand,
Which with pellucid horn secured are
To save from finger wet the letters fair."

Cowper thus describes the Horn-book of his time:—

"Neatly secured from being soiled or torn
Beneath a pane of thin translucent horn,
A book (to please us at a tender age
'Tis called a book, though but a single page),
Presents the prayer the Saviour deigned to teach,
Which children use, and parsons—when they preach."
Tirocinium, or a Review of Schools, 1784.

In "*Specimens of West Country Dialect*," the use of the Horn-book is thus shown:—

"Commether *Billy Chubb*, an breng the hornen book. Gee ma the vester in tha windor, yor *Pal came!*—What! be a sleepid—I'll wâke ye. Now, *Billy*, there's a good bway! Ston still there, and mind what I da zâ to ye, an whaur I da point. Now; crisscross, girt â, little a—b—c—d. That's right, *Billy;* you'll zoon lorn the criss-crosslain; you'll zoon auvergit Bobby Jiffry—you'll zoon be a *scholard*. A's a pirty chubby bway—Lord lov'n!"

New England Primer.

Of the New England Primer we can give no earlier specimen than the edition of 1777, embellished with a portrait of John Hancock, Esq., who was at that time President of the Continental Congress.

The Honorable JOHN HANCOCK, Esq; Preſident of the *American* CONGRESS.

We must not omit the painfully interesting group of John Rogers in the burning faggots, with his wife and nine or ten children—including the one at the breast—a problem which has puzzled many a schoolboy's brain:

MR. JOHN ROGERS, miniſter of the goſpel in *London*, was the firſt martyr in Queen MARY'S reign, and was burnt at *Smithfield*, *February* 14, 1554.—His wife with nine ſmall children, and one at her breast following him to the ſtake; with which ſorrowful ſight he was not in the leaſt daunted, but with wonderful patience died courageouſly for the goſpel of JESUS CHRIST.

We are fortunate in being able to present our readers with an exact transcript of the four pages of the first illustrated alphabet printed in this country. Some of our readers may recognize their old friends of the later editions of the Primer, in which "Young Timothy" and "Zaccheus he" were drawn to nature less severely true. The whole belongs to that department of literature which "he who runs may read, and he who reads will run."

A In ADAM's Fall
We ſinned all.

B Heaven to find,
The Bible Mind.

C Chriſt crucify'd
For ſinners dy'd.

D The Deluge drown'd
The Earth around.

E ELIJAH hid
By Ravens fed.

F The judgment made
FELIX afraid.

N NOAH did view
The old world & new

O Young OBADIAS,
DAVID, JOSIAS
All were pious.

P PETER deny'd
His Lord and cry'd.

Q Queen ESTHER ſues
And ſaves the *Jews*.

R Young pious RUTH.
Left all for Truth.

S Young SAM'L dear
The Lord did fear.

G As runs the Glass,
Our Life doth paſs.

H My Book and Heart
Muſt never part.

I JOB feels the Rod,—
Yet bleſſes GOD.

K Proud Korah's troop
Was ſwallowed up

L LOT fled to *Zoar*,
Saw fiery Shower
On *Sodom* pour.

M MOSES was he
Who *Israel's* Hoſt
Led thro' the Sea.

T Young TIMOTHY
Learnt ſin to fly.

U VASTHI for Pride,
Was ſet aſide.

W Whales in the Sea,
GOD's Voice obey.

X XERXES did die,
And ſo muſt I.

Y Whilſt youth do chear
Death may be near.

Z ZACCHEUS he
Did climb the Tree
Our Lord to ſee.

WEBSTER'S SPELLING BOOK.

Few books have done more to give uniformity to the orthography of the language or to fill the memory of successive generations with wholesome truths than Webster's Spelling Book. Who can forget his first introduction to those four-and-twenty characters, standing in stiff upright columns, in their roman and italic dress, beginning with little *a*, and ending with that nondescript "*and per se*;" or his first lesson in combining letters,

ba be bi bo bu by

Or his joy in reaching words of two syllables,

ba ker bri er ci der

Or his exultation in learning to "know his duty" in those "Lessons of Easy Words" beginning,

No man may put off the law of God:

Or the more advanced steps, both in length of words and stubborn morality, in pursuit of

The wick-ed flee

And closing his spelling career with

Om pom pa noo suc
Mich il li mack a nack

And

Ail to be troubled
Ale malt liquor

In this hasty glance at this famous text book, we have designedly passed over the fables commencing with the Rude Boy and ending with Poor Tray, that we might introduce them all unabridged with their unique illustrations.

Of the Boy that ſtole Apples.

AN old man found a rude boy upon one of his trees ſtealing Apples, and deſired him to come down; but the young Sauce-box told him plainly he would not. Won't you? ſaid the old Man, then I will fetch you down; ſo he pulled up ſome tufts of Graſs, and threw at him; but this only made the Youngſter laugh, to think the old Man ſhould pretend to beat him down from the tree with graſs only.

Well, well, ſaid the old Man, if neither words nor graſs will do, I muſt try what virtue there is in Stones; ſo the old Man pelted him heartily with ſtones; which ſoon made the young Chap haſten down from the tree and beg the old Man's pardon.

MORAL.

If good words and gentle means will not reclaim the wicked, they muſt be dealt with in a more ſevere manner.

The Fox and the Swallow.

ARISTOTLE informs us, that the following Fable was spoken by Eſop to the Samians, on a debate upon changing their miniſters, who were accuſed of plundering the commonwealth.

A Fox ſwimming acroſs a river, happened to be entangled in ſome weeds that grew near the bank, from which he was unable to extricate himſelf. As he lay thus expoſed to whole ſwarms of flies, which were galling him and ſucking his blood, a ſwallow, obſerving his diſtreſs, kindly offered to drive them away. By no means, ſaid the Fox; for if theſe ſhould be chaſed away, which are already ſufficiently gorged, another more hungry ſwarm would ſucceed, and I ſhould be robbed of every remaining drop of blood in my veins.

The Fox and the Bramble.

A FOX, cloſely purſued by a pack of Dogs, took ſhelter under the covert of a Bramble. He rejoiced in this aſylum; and for a while, was very happy; but ſoon found that if he attempted to ſtir, he was wounded by thorns and prickles on every ſide. However, making a virtue of neceſſity, he forbore to complain; and comforted himſelf with reflecting that no bliſs is perfect; that good and evil are mixed, and flow from the ſame fountain. Theſe Briers, indeed, ſaid he, will tear my ſkin a little, yet they keep off the dogs. For the ſake of the good then let me bear the evil with patience; each bitter has its ſweet; and theſe Brambles, though they wound my fleſh, preſerve my life from danger.

The Partial Judge.

A FARMER came to a neighbouring Lawyer, expreſſing great concern for an accident which he ſaid had juſt happened. One of your Oxen, continued he, has been gored by an unlucky Bull of mine, and I ſhould be glad to know how I am to make you reparation. Thou art a very honeſt fellow, replied the lawyer, and wilt not think it unreaſonable that I expect one of thy Oxen in return. It is no more than juſtice, quoth the Farmer, to be ſure; but what did I ſay? —I miſtake—It is *your* Bull that has killed one of *my* Oxen. Indeed! ſays the Lawyer, that alters the caſe; I

muſt inquire into the affair; and if—And *if!* ſaid the Farmer—the buſineſs I find would have been concluded without an *if*, had you been as ready to do juſtice to others, as to exact it from them.

The Bear and the two Friends.

TWO Friends, ſetting out together upon a journey, which led through a dangerous foreſt, mutually promiſed to aſſiſt each other if they ſhould happen to be aſſaulted. They had not proceeded far, before they perceived a Bear making towards them with great rage.

There were no hopes in flight; but one of them, being very active, ſprung up into a tree; upon which the other, throwing himſelf flat on the ground, held his breath and pretended to be dead; remembering to have heard it aſſerted, that this creature will not prey upon a dead carcaſs. The bear came up, and after ſmelling to him ſome time, left him and went on. When he was fairly out of ſight and hearing, the hero from the tree called out—Well, my friend, what ſaid the bear? he ſeemed to whiſper you very cloſely. He did ſo, replied the other, and gave me this good piece of advice, never to aſſociate with a wretch, who in the hour of danger, will deſert his friend.

The Two Dogs.

HASTY and inconſiderate connections are generally attended with great diſadvantages; and much of every man's good or ill fortune, depends upon the choice he makes of his friends.

A good-natured Spaniel overtook a ſurly Maſtiff, as he was travelling upon the high road. Tray, although an entire ſtranger to Tiger, very civilly accoſted him; and if it would be no interruption, he ſaid, he ſhould be glad to bear him company on his way. Tiger, who happened not to be altogether in ſo growling a mood as uſual, accepted the propoſal; and they very amicably purſued their journey together. In the midſt of their converſation, they arrived at the next village, where Tiger began to diſplay his malignant diſpoſition, by an unprovoked attack upon every dog he met. The villagers immediately ſallied forth with great indignation, to reſcue their reſpective favourites; and falling upon our two friends, without diſtinction or mercy, poor Tray was moſt cruelly treated, for no other reaſon, but his being found in bad company.

The Country Maid and her Milk Pail.

WHEN men ſuffer their imagination to amuſe them, with the proſpect of diſtant and uncertain improvements of their condition, they frequently ſuſtain real loſſes, by their inattention to thoſe affairs in which they are immediately concerned.

A country Maid was walking very deliberately with a pail of milk upon her head, when ſhe fell into the following train of reflections: The money for which I ſhall ſell this milk will enable me to increaſe my ſtock of eggs to three hundred. Theſe eggs, allowing for what may prove addle, and what may be deſtroyed by vermin, will produce at leaſt two hundred and fifty chickens. The chickens will be fit to carry to market about Chriſtmas, when poultry always bears a good price; ſo that by May Day I cannot fail of having money enough to purchaſe a new Gown. Green—let me conſider—yes, green becomes my complexion beſt, and green it ſhall be. In this dreſs I will go to the fair, where all the young fellows will ſtrive to have me for a partner; but I ſhall perhaps refuſe every one of them, and with an air of diſdain, toſs from them. Tranſported with this triumphant thought, ſhe could not forbear acting with her head what thus paſſed in her imagination, when down came the pail of milk, and with it all her imaginary happineſs.

The Cat and the Rat.

A CERTAIN Cat had made ſuch unmerciful havoc among the vermin of her neighbourhood, that not a ſingle Rat or Mouſe ventured to appear abroad. Puſs was ſoon convinced, that if affairs remained in their preſent ſituation, ſhe muſt be totally unſupplied with proviſions. After mature deliberation, therefore, ſhe reſolved to have recourſe to ſtratagem. For this purpoſe ſhe ſuſpended herſelf to a hook with her head downwards, pretending to be dead. The Rats and Mice, as they peeped from their holes, obſerving her in this dangling attitude, concluded ſhe was hanging for ſome miſdemeanour; and with great joy immediately ſallied forth in queſt of their prey. Puſs, as ſoon as a ſufficient number were collected together, quitting her hold, dropped into the midſt of them; and very few had the fortune to make good their retreat. This artifice having ſucceeded ſo well, ſhe was encouraged to try the event of a ſecond. Accordingly ſhe whitened her coat all over, by rolling herſelf in a heap of flour, and in this diſguiſe lay concealed in the bottom of a meal tub. This ſtratagem was executed in general with the same effect as the former. But an old experienced Rat, altogether as cunning as his adverſary, was not ſo eaſily enſnared. I don't much like, ſaid he, that white heap yonder: Something whiſpers me there is miſchief concealed under it. 'Tis true it may be meal; but it may likewiſe be ſomething that I ſhould not reliſh quite ſo well. There can be no harm at leaſt in keeping at a proper diſtance; for caution, I am ſure, is the parent of ſafety.

which I shall permit myself to take an interest."

In 1785, Congress passed an ordinance for the disposition of the public lands. By one provision of this ordinance, the sixteenth section of every township was reserved "for the maintenance of public schools." In other words, one thirty-sixth part of all the public lands were devoted to educational purposes. The celebrated ordinance of 1787, further provides that "Religion, Morality, and Knowledge being necessary to good government and the happiness of mankind, schools and the means of education shall be for ever encouraged." Under these ordinances, fifty millions of acres of the public lands have already been devoted in aid of education. Early in the last century, there was much interest manifested in the establishment of libraries, academies, colleges, and scientific institutions of various sorts.

But as we have said, the schools established during the early period, were quite inferior to what are now deemed good. The course of instruction was limited in extent, in comparison with the studies now pursued in our schools, and the teachers, with some striking exceptions, were not as well qualified for their work as teachers now are. From some eminent men who have given us accounts of the schools which they attended fifty or sixty years ago, we gather some facts which will show the advancement which has been made since that time. The books then used in the schools were chiefly Dilworth's Spelling Books, the Psalter, Testament, and Bible. No geography was known or studied in schools until the publication of Morse's small geography, about 1787. There was no study of history. For some years after the Revolution, no such things as slates were known. All lessons in writing and operations in Arithmetic were on paper. Rev. Dr. Humphrey, formerly president of Amherst College, giving his recollections of the schools at the date of which we are writing, calls them "juvenile penitentiaries." There were no stoves in the school-houses. The writing desks were long boards extended on two sides of the room, and the seats were all loose and commonly made of the slabs from the nearest saw-mill, supported on sticks thrust through auger-holes bored in the slabs. In the coldest weather it was hard to tell which was the most difficult, to keep from roasting, or freezing. For those nearest the fire, it was sweltering hot, while the ink was freezing in the pens on the back side of the room. But sometimes there was no fire at all, either because the green wood, which was the only wood supplied, could not be made to burn, or the supply had been exhausted in the endeavor to keep warm. Then the school was dismissed until more wood could be cut and brought fresh from the forest. The wood when brought was thrown upon the ground, in the midst of the snow, from which the scholars had to dig it out from day to day, as it was needed. That was the fuel to make fires with on winter mornings, with the thermometer below zero.

The studies taught in the schools, according to Dr. Humphrey, were reading, spelling, and writing, besides the ABC's to children scarcely four years old, who ought to have been at home with their mothers. The school-books were the Bible, Webster's Spelling-book, and "Third Part," mainly. Occasionally two or three other reading books would be found in some schools, but there would never be enough of any book to supply a class. Grammar was hardly taught at all. There were a few lessons in geography; arithmetic was hardly taught at all in the day schools. As a substitute, there were evening schools in some districts. Spelling was the leading and principal occupation in the schools.

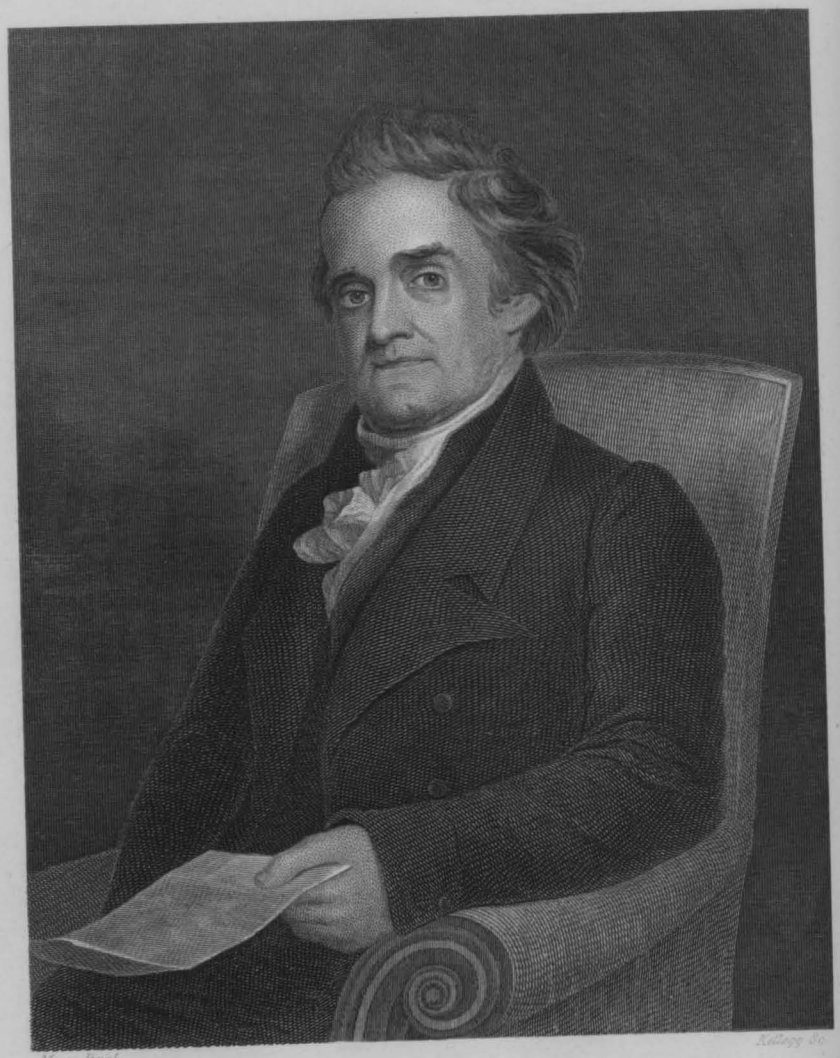
The Hon. S. G. Goodrich, better known as "Peter Parley," and whose books are in our schools and houses, in giving his recollections, says: "By the time I was ten years old, I had learned to write, and had made a little progress in arithmetic; there was not a grammar, a geography, or a history of any kind in the school; reading, writing, and arithmetic, were the only things taught, and these very indifferently."

Such were the schools, even in the best portions of the country, seventy or eighty years ago—the "universities of homespun," as Dr. Bushnell called them. Robert Coram, in 1791, published in Wilmington, Delaware, a "Plan for the general establishment of schools throughout the United States." In this he sums up the state of education thus: "The country schools, through most of the United States,

which I sh
interest."

In 1785,
for the dispo
one provisio
teenth secti
reserved "fo
schools." In
part of all t
to education
ordinance of
"Religion, M
necessary to
happiness of
means of e
encouraged."
fifty millions
have already
tion. Early i
much interes
ment of libra
scientific insti

But as we
lished during
inferior to w
The course
in extent, in
now pursued
teachers, with
were not as w
as teachers no
men who have
schools which
years ago, we
show the adva
made since th
used in the sch
Spelling Book
and Bible. N
studied in scho
Morse's small
There was no s
years after the
as slates were
writing and ope
on paper. Rev
president of A
recollections of
which we are w
penitentiaries."
the school-house
long boards ext
room, and the
commonly mad
nearest saw-mill
through auger-h
the coldest wea



Morse Pinxt

Kellogg Sc

N Webster

...nsider the buildings, the ... regulations, are in every ... despicable, wretched ...

... Noah Webster's ... in 1783, marks an era in ... education, and in the his... country. It was a spelling ... reading book combined, as well ... dictionary, the germ in ... "Unabridged." Small ... was packed full of most ... used in schools. Its ... of which we give ... in that day, when the ... had made so little progress ... covered the question and ... the interests of the readers. Its ... series of stories, inculcated ... lessons of wisdom. The ... spelling-book came rapidly into use, displacing ... the old-fashioned horn-book, which was a single leaf pasted on a board and covered with thin transparent horn to keep it from being soiled, and competing in interest with the famous New England primer with its wonderful pictures of Cain and Abel, David and Jonah, and other illustrious worthies. By its extensive adoption throughout the country it has done more than any other cause to secure a uniformity of spelling and pronunciation among us which is unknown in England itself. Notwithstanding the fact that we are a collection of separate and independent States, each regulating its schools and almost all other matters according to its own pleasure, we speak and write the English language with a uniformity and accuracy unknown in England itself, where the common people of adjoining districts can hardly understand one another without an interpreter.

The little spelling book, with crumpled leaves and covers often torn off, has continued to circulate, and as generation after generation has come forward, edition after edition has been published to meet the ever-returning want. It has kept presses running night and day to supply the demand, and even now, with other and in many respects superior books for reading and spelling in the field, it is said that a million copies of Webster's spelling book are annually sold.

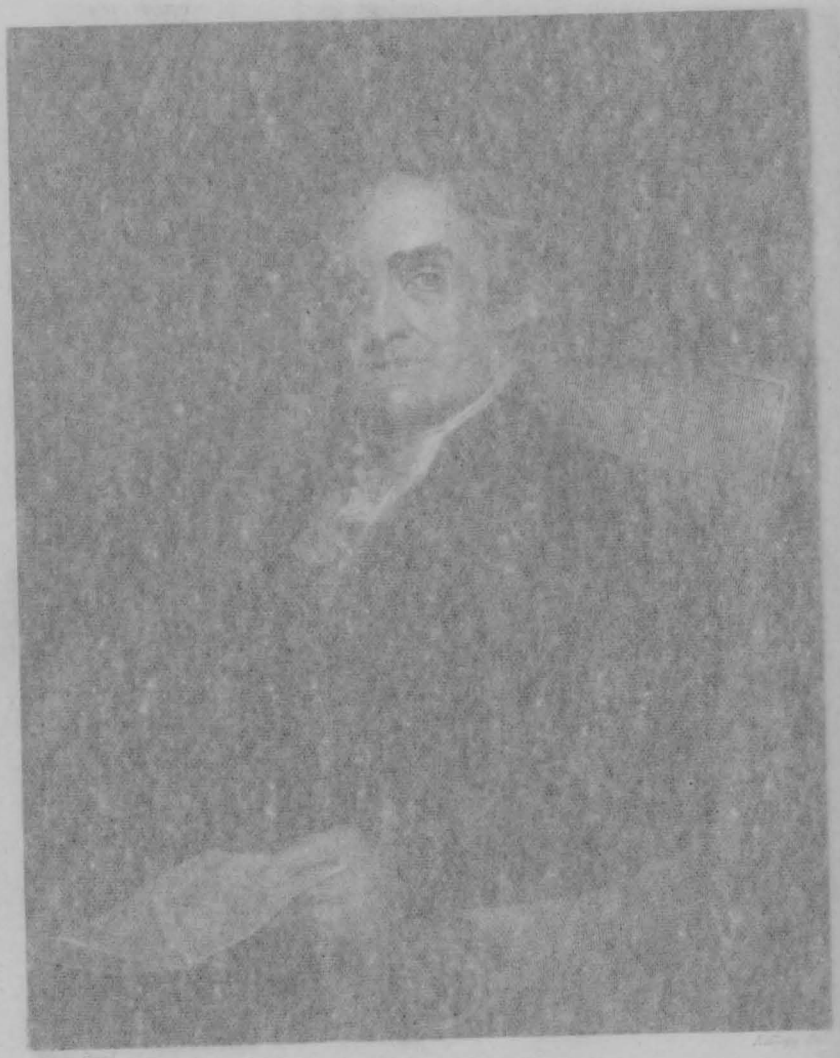
It may be asked how it was, if the schools at the beginning of the century were so poor as they have been described, so ill-furnished with books, and with teachers generally so incompetent, that the people grew up as intelligent as they were, and that so many became eminent and distinguished. It was not the result of any one cause; it was not on account of any considerable merit in the schools; but there was, first of all, the necessity of struggle for a livelihood with the hard soil and harsh climate of New England especially, and in general the struggle incident to settlement in a new country. This gave a certain robustness of body and spirit, also resolution, perseverance, and fertility of resources. These qualities brought instruction, not from books alone, but from all the objects and incidents of daily life. These qualities also made the most of such books and teachers as were to be had. And then there was the family training, which supplemented the training of the school-room, and was often by far the more efficacious of the two. This was constantly enforcing the lessons of obedience, industry, and self-reliance. And then, over all, came the training of religion, both in the family and in the church. Other books were few, and the Bible, the one book, as it was then more emphatically than now, was made to be a great power in the way of education. To be able to read it was held out in prospect as a most desirable attainment, and then a certain proficiency in the art of reading was described as being able "to read in the New Testament." To say this of a boy or girl, was to fix their relative positions in the school. The New Testament was the great reading book of the schools until within fifty years, and although it may not have been read as devoutly as it should have been, though much of its flavor and spirit were often lost by its being made a drill-book in reading, yet in the reading of it was the sowing of much good seed which came up, if not at once, after many days. There is an intellectual power in the Bible, apart from its peculiar spiritual power, that is incomparable.

Superadded to these educational influences were those arising from our very government. Where all were or were to be sovereigns, where each man was, by his vote, to have as large a share as any other in determining what should be the policy of the town, the state, and finally the nation,

which I s
interest."

In 1785,
for the disp
one provisi
teenth sect
reserved "f
schools." I
part of all
to educatio
ordinance o
"Religion, M
necessary to
happiness o
means of
encouraged."
fifty millions
have already
tion. Early
much intere
ment of libra
scientific inst

But as we
lished during
inferior to w
The course
in extent, in
now pursued
teachers, wit
were not as w
as teachers n
men who hav
schools which
years ago, we
show the adv
made since t
used in the sc
Spelling Boo
and Bible. N
studied in sch
Morse's small
There was no
years after the
as slates wer
writing and op
on paper. Re
president of A
recollections of
which we are w
penitentiaries."
the school-hous
long boards ex
room, and the
commonly ma
nearest saw-mil
through auger-
the coldest we



N Webster

whether we consider the buildings, the teachers, or the regulations, are in every respect completely despicable, wretched and contemptible.

The publication of Noah Webster's Spelling Book, in 1783, marks an era in the history of education, and in the history of the country. It was a spelling book and reading book combined, as well as a small defining dictionary, the germ in fact of the "Great Unabridged." Small though it was, it was packed full of most valuable materials for use in schools. Its homely illustrations, of which we give some specimens, in that day, when the engraver's art had made so little progress in our country, attracted the attention and fixed the interest of the readers. Its fables, under the guise of stories, inculcated admirable lessons of wisdom. The spelling book came rapidly into use, displacing entirely the old-fashioned horn-book, which was a single leaf pasted on a board and covered with thin transparent horn to keep it from being soiled, and competing in interest with the famous New England primer, with its wonderful pictures of Cain and Abel, David and Josiah, and other illustrious worthies. By its extensive adoption throughout the country it has done more than any other cause to secure a uniformity of spelling and pronunciation among us which is unknown elsewhere. Notwithstanding the fact that we are a collection of separate and independent States, each regulating its schools and almost all other matters according to its own pleasure, we speak and write the English language with a uniformity and propriety unknown in England itself, where the common people of adjoining districts often can hardly understand one another without an interpreter.

The little spelling book, with crumpled leaves, and covers often torn off, has continued to circulate, and as generation after generation has come forward, edition after edition has been published to meet the ever accruing want. It has kept presses running night and day to supply the demand, and even now, with other and in some respects superior books for reading and spelling in the field, it is said that a million copies of Webster's spelling book are annually sold.

It may be asked how it was, if the schools at the beginning of the century were so poor as they have been described, so ill-furnished with books, and with teachers generally so incompetent, that the people grew up so intelligent as they were, and that so many became eminent and distinguished. It was not the result of any one cause; it was not on account of any considerable merit in the schools; but there was, first of all, the necessity of struggle for a livelihood with the hard soil and harsh climate of New England, especially, and in general the struggle incident to settlement in a new country. This gave a certain robustness of body and spirit, also resolution, perseverance, and fertility of resources. These qualities brought instruction, not from books alone, but from all the objects and incidents of daily life. These qualities also made the most of such books and teachers as were to be had. And then there was the family training, which supplemented the training of the school-room, and was often by far the more efficacious of the two. This was constantly enforcing the lessons of obedience, industry, and self-reliance. And then, over all, came the training of religion, both in the family and in the church. Other books were few, and the Bible, the one book, as it was then more emphatically than now, was made to be a great power in the way of education. To be able to read it was held out in prospect as a most desirable attainment, and then a certain proficiency in the art of reading was described as being able "to read in the New Testament." To say this of a boy or girl, was to fix their relative positions in the school. The New Testament was the great reading book of the schools until within fifty years, and although it may not have been read as devoutly as it should have been, though much of its flavor and spirit were often lost by its being made a drill-book in reading. yet in the reading of it was the sowing of much good seed which came up, if not at once, after many days. There is an intellectual power in the Bible, apart from its peculiar spiritual power, that is incomparable.

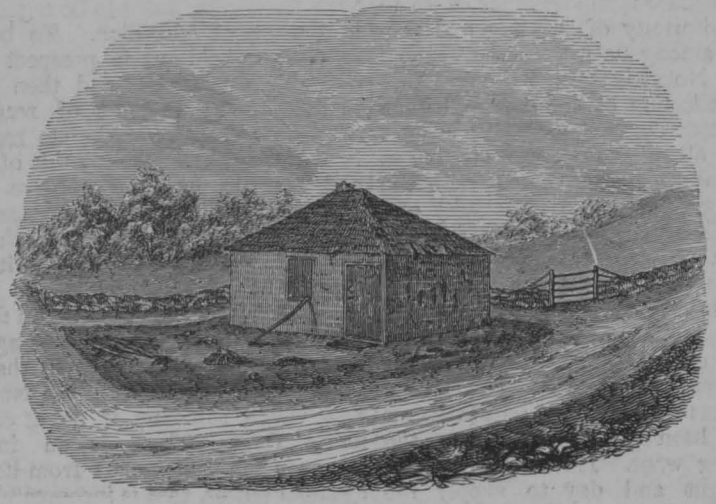
Superadded to these educational influences were those arising from our very government. Where all were or were to be sovereigns, where each man was, by his vote, to have as large a share as any other in determining what should be the policy of the town, the state, and finally the nation,

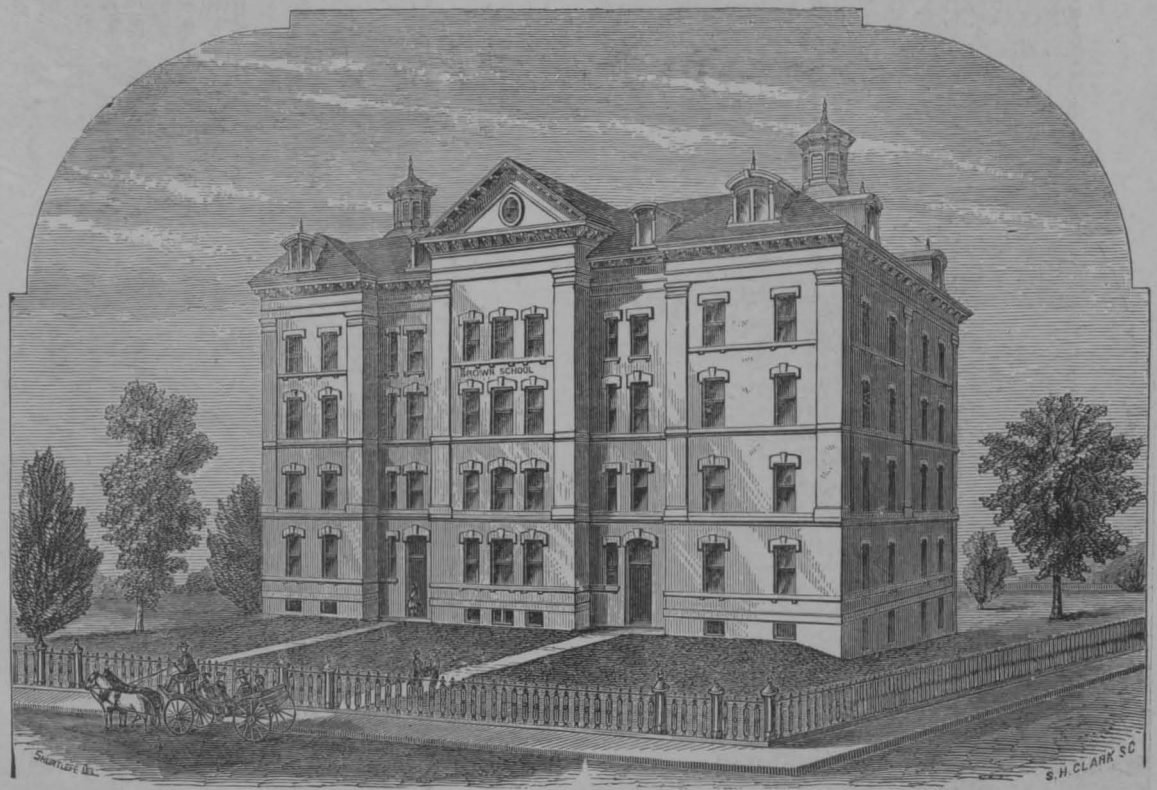
which I sh
interest."

In 1785,
for the dispo
one provisio
teenth secti
reserved "f
schools." I
part of all
to education
ordinance of
"Religion, M
necessary to
happiness of
means of e
encouraged."
fifty millions
have already
tion. Early
much intere
ment of libra
scientific inst

But as we
lished during
inferior to w
The course
in extent, in
now pursued
teachers, wit
were not as
as teachers n
men who ha
schools whic
years ago, we
show the ad
made since t
used in the sc
Spelling Boo
and Bible.
studied in sc
Morse's sma
There was no
years after th
as slates we
writing and o
on paper. R
president of
recollections o
which we are
penitentiaries.
the school-hou
long boards e
room, and th
commonly m
nearest saw-m
through auger
the coldest w

SCHOOL-HOUSES AS THEY WERE





VIEW OF A SPECIMEN SCHOOL HOUSE OF THE PRESENT DAY.

which I sh
interest."

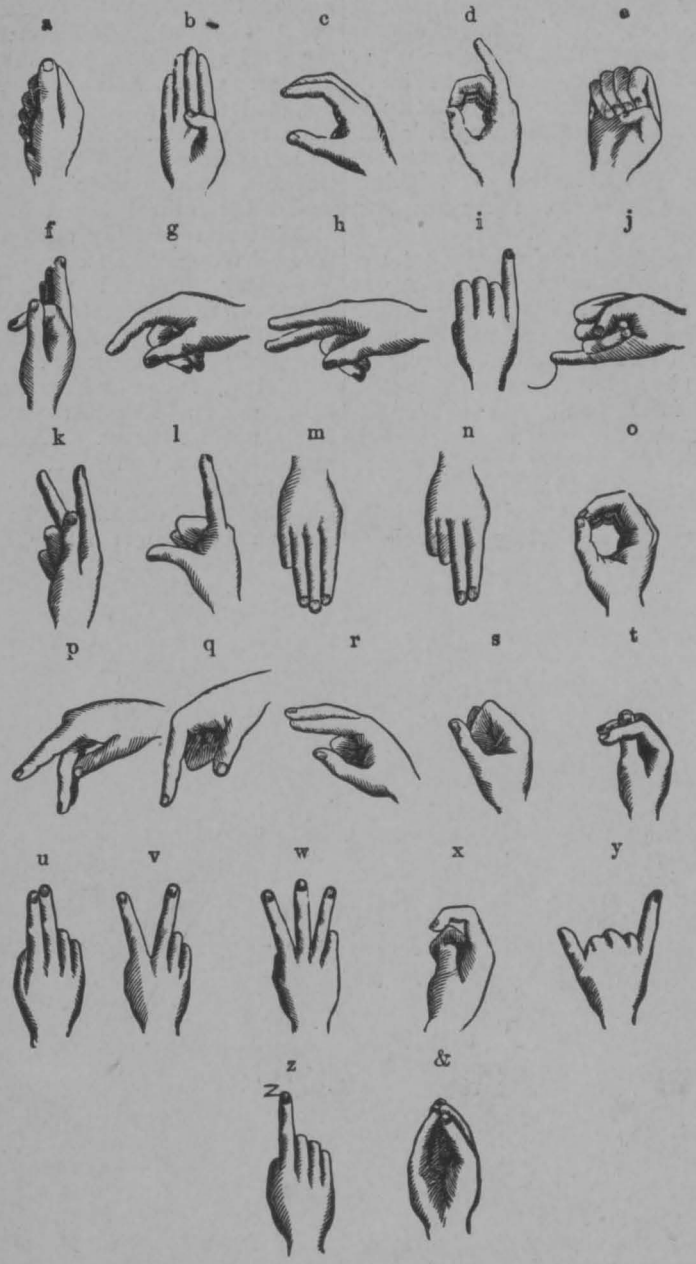
In 1785,
for the dispo
one provisio
teenth secti
reserved "f
schools." I
part of all
to education
ordinance of
"Religion, M
necessary to
happiness of
means of e
encouraged."
fifty millions
have already
tion. Early
much interes
ment of libra
scientific insti

But as we
lished during
inferior to w
The course
in extent, in
now pursued
teachers, with
were not as w
as teachers no
men who hav
schools which
years ago, we
show the adv
made since th
used in the sch
Spelling Book
and Bible. N
studied in sch
Morse's small
There was no
years after the
as slates wer
writing and op
on paper. Re
president of A
recollections of
which we are v
penitentiaries."
the school-hous
long boards ex
room, and the
commonly ma
nearest saw-mi
through auger-
the coldest w

INTERIOR VIEW OF A SCHOOL-HOUSE IN 1770.

INTERIOR VIEW OF A SCHOOL-HOUSE IN 1870.

ALPHABET OF THE DEAF AND DUMB.



it was inevitable, almost, that there should be debates and questionings, arguings and disputings in public and in private, about nearly every subject which could interest men in society. The result was a habit of inquiry and independent thinking which was calculated to make intelligent citizens.

By all these influences the children of the earlier times were trained up in intelligence, and virtue, and knowledge, notwithstanding the fact that the established schools of that time were, in many respects, quite defective.

Since the beginning of the present century there has been a great advance in respect to education. The whole subject has been discussed in its several bearings. What may be called the Philosophy of Education has been studied. Better methods of instruction have been adopted. Better text books have been compiled. Better school-houses have been built and have been furnished with books and apparatus. Higher qualifications have been required in those filling the teacher's office. There has been a growing liberality on the part of the States in making appropriations for the support of schools. Normal schools, or schools for the special education of teachers, have arisen and have done much to secure better general instruction. In addition to the support of common schools, much has been done for the supply of schools of a higher grade. Special schools have arisen also for the education of particular classes, such as the deaf and dumb, the blind, the feeble-minded. Commercial colleges, or schools designed to prepare pupils for business, have been established. Scientific schools, or schools specially designed to teach the Sciences, both in their theory and their application to the affairs of life, have been founded and liberally endowed. Astronomical observatories have been built and generously furnished with all needful apparatus for observation and discovery. Schools and colleges for the special training of females have more recently come into being. Libraries have been increased in numbers and made accessible on the freest possible terms. Newspapers and periodicals, as well as books, have also been greatly multiplied. All these are so many means of education. In most of the States also, there is a Superintendent of Schools, an officer ranking with the Treasurer and Secretary of State.

The following table gives important statistics in regard to education, as well as other facts of interest.

TABLE.—*Population, Taxable Property, Schools, Illiteracy, &c.*

States.	National Census of 1870.									State Statistics of 1872.			
	Area in Square Miles.	Population in 1870.	Taxable Property in 1870.	Schools of all kinds.				Number of Persons over 10 years of age, who		Persons between 5 and 18.	No. of Public Schools.	Permanent School Fund.	School-houses, ground, and equipments.	Cost of Public Schools in 1872.
				Number.	Teachers.	Pupils.	Cost.	Can not read.	Can not write.					
Alabama	50,722	996,992	$156,770,387	2,969	3,364	75,866	$976,351	349,771	383,012	342,976	2,500	$2,000,000	$500,000	$700,000
Arkansas	52,198	484,471	94,168,847	1,978	2,297	81,526	681,962	111,799	133,339	165,492	1,900	500,000	400,000	600,000
California	188,981	560,247	269,644,068	1,548	2,444	85,507	2,946,308	24,877	31,716	137,129	1,400	3,000,000	2,000,000	2,000,000
Connecticut	4,750	537,454	322,553,483	1,917	2,926	98,621	1,856,279	19,680	29,616	138,962	1,600	2,800,000	3,000,000	1,503,617
Delaware	2,120	125,015	64,787,221	375	510	19,577	212,712	19,350	23,100	39,807	330	300,000	200,000	200,000
Florida	59,268	187,748	32,480,843	377	482	14,670	154,569	66,238	71,803	63,897	400	300,000	200,000	80,000
Georgia	58,000	1,184,109	227,219,519	1,880	2,432	66,150	1,253,299	418,553	468,593	407,516	300	300,000	200,000	700,000
Illinois	55,410	2,539,891	482,899,575	11,835	24,956	767,775	9,970,009	86,368	133,584	818,766	11,156	6,382,248	18,373,880	7,000,000
Indiana	33,809	1,680,637	663,455,044	9,073	11,652	464,477	2,490,511	86,634	127,124	567,175	8,759	7,282,639	8,000,000	4,000,000
Iowa	55,045	1,194,792	302,515,418	7,496	9,319	217,654	3,570,093	24,115	45,671	394,696	7,716	3,174,578	6,764,551	3,265,000
Kansas	81,318	364,399	92,125,861	1,689	1,955	59,882	787,226	16,369	24,550	108,710	3,400	1,000,000	2,845,226	1,760,950
Kentucky	37,680	1,321,011	407,544,294	5,149	6,346	245,139	2,538,429	249,567	332,176	454,539	5,068	2,500,000	500,000	1,000,000
Louisiana	41,346	726,915	254,371,830	502	1,902	60,171	1,199,184	257,184	276,158	226,114	600	1,340,000	500,000	800,000
Maine	35,000	626,915	204,253,780	4,723	6,986	162,636	1,106,203	13,486	19,052	175,588	4,000	317,902	2,644,264	1,112,373
Maryland	11,124	780,894	423,844,918	1,779	3,287	107,384	1,998,215	114,100	135,499	244,454	1,500	1,000,000	2,000,000	1,200,000
Massachusetts	7,800	1,457,351	1,417,127,376	5,726	7,561	269,337	4,817,939	74,935	97,742	371,820	5,076	2,182,419	17,559,718	3,594,086
Michigan	56,451	1,184,059	272,242,917	5,595	9,559	266,627	2,550,018	34,613	53,127	358,530	5,500	2,700,000	6,234,797	4,000,000
Minnesota	83,531	439,706	84,135,332	2,479	2,886	107,266	1,011,769	12,747	24,413	142,665	2,700	2,831,000	1,700,000	4,000,000
Mississippi	47,156	827,922	177,288,892	1,564	1,728	43,451	780,339	291,718	313,310	278,999	3,450	1,000,000	200,000	500,000
Missouri	65,350	1,721,295	566,129,969	6,750	9,028	370,337	4,340,805	146,771	222,411	577,801	7,547	3,271,581	4,000,000	2,000,000
Nebraska	75,995	122,993	56,584,656	796	840	17,614	270,560	2,365	4,861	34,523	1,050	1,000,000	500,000	363,100
Nevada	104,125	42,491	25,740,973	53	84	2,373	110,493	727	872	5,337	53	500,000	200,000	100,000
New Hampshire	9,280	318,300	149,065,200	2,542	3,355	64,677	574,898	7,618	9,926	78,766	2,452	300,000	1,870,000	468,600
New Jersey	8,320	906,096	624,868,971	1,843	3,889	129,800	2,982,250	37,057	54,687	262,862	2,597	1,556,860	500,000	2,003,000
New York	47,000	4,382,759	1,964,001,185	13,020	28,918	862,022	15,936,783	163,501	239,271	1,230,988	12,500	7,000,000	23,468,266	9,000,000
North Carolina	50,704	1,071,361	130,378,622	2,161	2,692	64,958	635,892	339,789	397,690	359,930	1,398	1,632,000	200,000	800,000
Ohio	39,964	2,665,260	1,167,731,097	11,952	23,589	790,795	10,244,648	92,720	173,172	845,971	14,201	4,000,000	17,168,196	5,293,221
Oregon	95,274	90,923	31,798,510	637	826	32,593	248,022	2,609	4,427	29,400	600	1,000,000	100,000	150,000
Pennsylvania	46,000	3,521,951	1,243,367,852	14,872	19,522	811,863	9,628,119	131,728	222,356	1,076,040	16,000	.....	18,689,624	8,345,072
Rhode Island	1,306	217,353	213,570,353	501	951	32,596	565,012	15,416	21,921	55,775	720	250,000	1,000,000	465,263
South Carolina	34,000	705,606	183,913,337	750	1,103	38,249	577,953	265,892	290,379	233,915	700	.....	200,000	500,000
Tennessee	45,600	1,258,520	257,673,792	2,794	3,587	125,831	1,650,692	290,549	364,697	429,592	2,000	2,400,000	500,000	800,000
Texas	274,356	818,579	149,734,792	548	706	23,076	414,880	189,423	221,703	284,851	500	2,267,971	100,000	300,000
Vermont	10,212	330,551	102,548,528	3,084	5,160	32,913	707,292	15,185	17,706	89,831	3,000	.....	1,265,387	526,000
Virginia	38,348	1,225,163	365,439,917	2,024	2,697	60,019	1,155,585	390,913	445,893	396,812	3,695	1,595,069	387,672	993,318
West Virginia	23,000	442,014	140,538,273	2,445	2,878	104,949	698,061	48,802	81,490	150,844	2,303	250,000	2,527,744	600,000
Wisconsin	53,924	1,054,670	333,447,568	4,943	7,955	344,014	2,600,310	35,031	55,441	354,016	5,300	2,482,771	3,295,268	2,174,771
Total	1,984,467	38,115,332	13,646,948,450	141,629	220,022	7,178,737	95,153,370	4,438,206	5,552,488	12,045,443	144,971	70,417,038	150,194,573	72,938,271

In the higher education provided by the college system, there has been an advancement corresponding to that made in the schools. The number of colleges in the country has been increased from seven, at the close of the colonial period, to more than four hundred. Many of these, indeed, are little more than High schools or Academies. But what is equally important as the numerical increase of colleges, is the fact that the system of instruction in the colleges has been improved. The range of studies has been much enlarged and all the equipment for study, in books, teachers, and apparatus, has been made much more complete than formerly. Some of our colleges have, in fact, become universities, and begin to take rank with the universities of Europe. Most of our colleges have been established for a distinct religious purpose, and are under the direction of some religious denomination. A few State institutions are under no such supervision. The instruction of the oldest colleges, as late as the beginning of the present century, was given by the president and not more than two professors with their assistants, and the course of study consisted in reading only a little Latin and Greek, and the teaching of geography to a small extent, together with arithmetic, geometry, and logic. There was at that time no instruction in the natural sciences. But within the present century there has been a great change in the collegiate course of instruction. The elementary studies have been dropped. Students are expected to come from the common and high schools already proficient in these studies, and they spend the time of their college course in more extended study of the languages, together with the arts and sciences.

In addition to the colleges should be mentioned, as showing the advancement made in education, the theological seminaries, the law and medical schools, the agricultural colleges, and the naval and military schools, together with those scientific and other special schools to which we have made allusion.

More distinct mention should also be made, in order to complete the survey of the present subject, of the increase of books and periodicals. At the close of the Revolution books were scarce in this country. As we have seen, school books were so rare that only one or two of a class, perhaps, would be found in a school-room. There were few books in the dwellings of the people. Libraries, public or private, were rare. A few of the colleges had small collections of books. Harvard had the largest library, which numbered about 10,000 volumes. The others had, hardly any of them, more than two thousand. Since 1818, about 340 collegiate institutions, and one hundred and thirty schools of superior instruction for girls, fifty-six agricultural and scientific schools, one hundred theological institutions, forty law schools, and about ninety medical schools, have been established. Most of these have libraries connected with them which contain an aggregate of over 2,500,000 volumes. More than thirty State libraries have been founded, containing four hundred thousand volumes. The library of Congress, collected since the first library was burnt by the British, in the war of 1812, now numbers 250,000 volumes, and 45,000 pamphlets. The Astor library in New York, and the Boston city library, and that of the Atheneum, number together nearly half a million of volumes. The numerous historical societies have libraries varying in extent. There are also libraries in connection with the public schools, which are supposed to contain in the aggregate no fewer than five millions of books. The total number of volumes in all these libraries can not be less than 12,000,000. There are said to be in the city of New York alone no fewer than fifty private libraries containing as many as ten thousand volumes each. In Boston, there are as many. There are others in considerable numbers in Philadelphia, Baltimore, Washington, Chicago, and other cities. Even in our smaller towns and villages, there are now to be found many public libraries of respectable size, and occasionally private collections of a valuable character. Books have become cheap and abundant, and in this aid to education the advance which has been made during the century is very remarkable. We are a reading people, to an extent equalled perhaps by no other nation. We have more people in proportion to our whole population, who are able to read than are elsewhere to be found, with two or three exceptions. It appears, for example, by the census of 1870, that we had then a popula-

tion of 33,586,989 white persons, of whom 16,000,000 were over twenty years of age. Of these 1,035,000 could neither read nor write: 425,000 of these were foreign born. In France, at the same time, there were 19,000,000 of persons over twenty years of age, and of these 13,300,000 could not read nor write. That is, there were in the United States 14,650,000 readers of books, against 5,700,000 in France. And if we take into account the number under twenty years of age, and who are in school, reading and studying books, we shall see that there are three times as many able to read among us as in France. But we are not only able to read, we are fond of reading. This has been characteristic of our people from the beginning. Books were imported in considerable numbers before we began to publish them here, and they have continued to be imported and sold, although the book publishing business has become so large among us. Whole editions of valuable works published abroad are not unfrequently imported and sold here, and on the shelves of the bookstores of Chicago and other cities of the West may be found large collections of the most valuable books published by American and Foreign dealers, ready to be distributed throughout the newer portions of our country.

Of course successful school books may be expected to have a very large sale in order to supply the demand of successive generations of boys and girls, who are not very tender either in their treatment of books. But it may surprise some to learn that 54,000,000 copies of Webster's spelling-book have been sold, and that it is still in great demand. The spelling-book grew into a dictionary, and as such has been published in various sizes and in various degrees of completeness. Of the quarto, unabridged, 350,000 copies have been sold, and a much greater number of the smaller dictionaries. The American Bible Society now issues more than 1,000,000 Bibles and Testaments annually, and during the period of fifty-six years from its establishment it has published 28,601,489 volumes of the Bible. But other books have had a large sale. It is not very uncommon that 100,000 copies of a book are sold in our country. The sale of some has gone far beyond that. More than $40,000,000 worth of books are now issued in a single year.

The following table given by Mr. S. G. Goodrich, in his "Recollections of a life-time," will show at a glance the increase of books among us during the last fifty years. We append to his table an estimate for the year 1870.

	1820.	1830.	1840.	1850.	1856.	1860.	1870.
School Books	$750,000	1,100,000	2,000,000	5,500,000	7,500,000	10,100,000	20,300,000
Classical Text Books	250,000	350,000	550,000	1,000,000	1,600,000	2,000,000	3,400,000
Theological and Religious	150,000	250,000	300,000	500,000	650,000	1,000,000	4,150,000
Law	200,000	300,000	400,000	700,000	800,000	900,000	1,200,000
Medical	150,000	200,000	250,000	400,000	550,000	700,000	950,000
All others	1,000,000	1,300,000	2,000,000	4,000,000	4,900,000	6,500,000	10,700,000
	2,500,000	3,500,000	5,500,000	12,500,000	16,000,000	21,200,000	40,700,000

The rapid increase for 1870, is to be accounted for in part by the fact that more than two millions of Freedmen have learned to read since their emancipation in 1863.

Newspapers and periodicals are only books in another form, and the publication and circulation of these among us is enormous. We are beyond comparison almost, with any other nation in this respect. It would seem that the rapid and cheap diffusion of knowledge could go no farther than it has in this form. One of our leading daily papers contains reading matter equal to one hundred octavo pages, and by the great improvements which have been made in printing-presses within the last twenty-five years, as well as in the manufacture of paper, it has become possible to furnish this amount of reading every day at a cost of only three or four cents. No laboring man, therefore, is too poor to supply himself daily with the news from all parts of the world, and with the best thinking and writing in all departments of knowledge. The circulation of the daily papers published in New York alone, now amounts to 500,000 copies. More than 375,000,000 newspapers are printed in New York city yearly. Such is the demand for this species of reading that as much as $5,000 a year is paid on some of our leading railroad routes for the privilege of selling newspapers, books, and magazines, to their passengers.

The following statistics of American Journalism, drawn from the census of 1870, will interest all our readers. The

whole number of of newspapers and periodicals in the United States is 5,845, to which are to be added 73 for the Territories; 353 more are printed in the Dominion of Canada, and 29 in the other British Colonies, making a total for the United States and British America of 6,300 periodicals. Of those published in the United States, there are:

Daily	574	Semi-monthly	96
Tri-weekly	17	Monthly	621
Semi-weekly	115	Bi-monthly	13
Weekly	4,270	Quarterly	49
Total			5,845

Of this immense aggregate, 79 papers, ranging from weekly to quarterly, are published only for advertising purposes. Subtracting these as not fairly to be counted among the publications which illustrate the journalistic enterprise of the nation, we have 5,766 newspapers and periodicals in the country—an average of one to about 6,500 of the population. The whole number is distributed among various interests as follows:

Political	4,328
Agriculture and Horticulture	93
Benevolent and Secret Societies	81
Commercial and Financial	122
Illustrated, Literary, and Miscellaneous	502
Specially devoted to Nationality	30
Technical and Professional	207
Religious	407
Sporting	6

The political papers are divided into 3,560 weekly, 552 daily, 101 tri-weekly, 100 semi-weekly, 8 semi-monthly, and 6 monthly. The religious papers are divided as follows: weekly, 208; semi-monthly, 40; monthly, 141; bi-monthly, 1; quarterly, 17. There are three daily scientific or professional newspapers; the remainder, 204, range from weekly to quarterly, there being 130 monthly. The literary and illustrated papers run the entire gamut, from 8 daily to 6 quarterly, with 303 weekly and 157 monthly. There are 8 daily commercial or financial papers, 3 weekly and 40 monthly. Agricultural papers: weekly, 35; semi-monthly, 1; monthly, 56. Of the "sporting" papers, 3 are weekly and 1 monthly.

Turning to the vital question of circulation, we find the facts of special interest and can best exhibit them, perhaps, by the following table, in which we give the number of each class with the aggregate and average circulation:

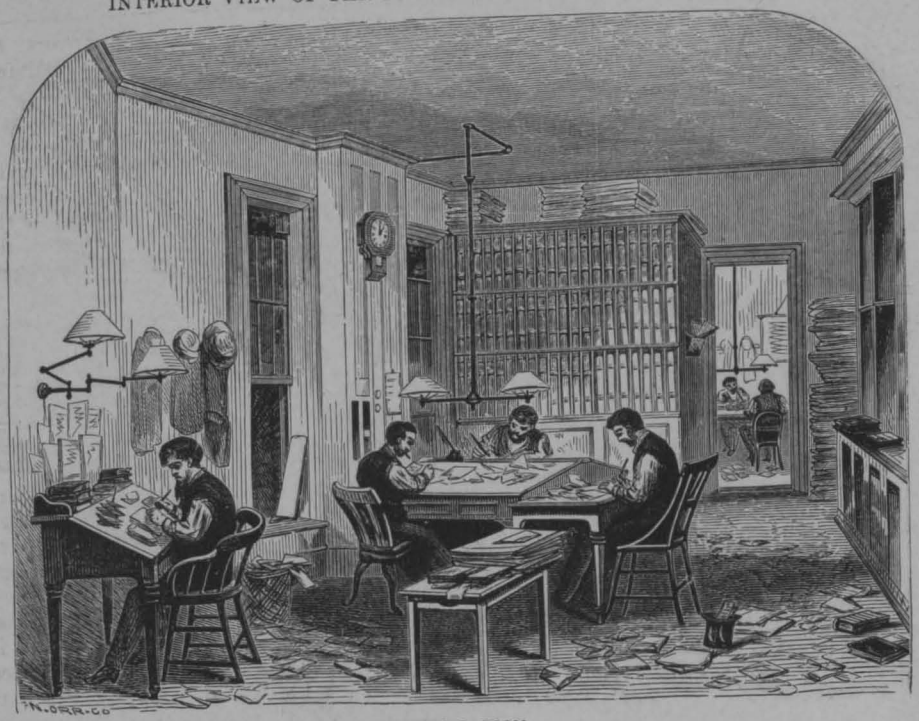
	No.	Circulation.	Average
Political	4,328	8,778,320	2,0
Agricultural	93	710,752	8,0
Societies	81	257,080	3,1
Financial	122	690,200	5,6
Literary	502	4,421,935	8,8
National	20	45,150	2,2
Scientific or Professional	207	744,531	3,6
Religious	407	4,764,358	11,7
Sporting	6	78,500	12,0

The aggregate circulation of daily papers in the United States is 2,606,547; average circulation, 4,541. The weekly papers circulate 10,591,743 copies, with an average of 2,480.

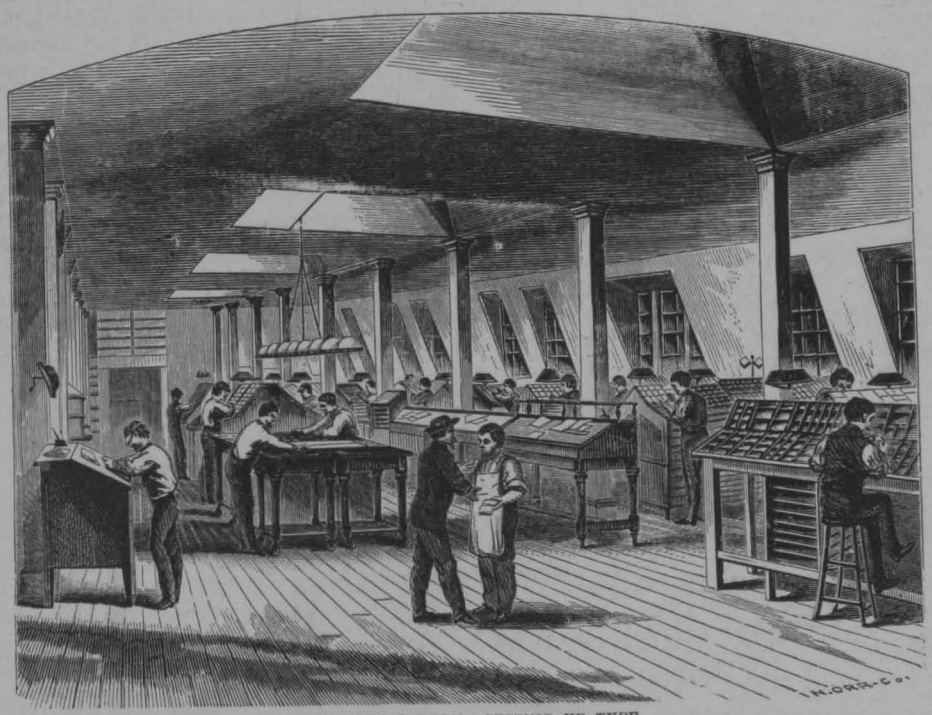
The total annual circulation of newspapers printed in the State of New York, is 492,770,868 copies, being more than twice the number issued in any other State. The next greatest number of issues is in Pennsylvania, where 233,380,532 copies are annually printed. Massachusetts prints 107,601,952 copies, Illinois 102,686,204, Ohio, 93,592,448. Next comes California, with 45,869,408 newspaper sheets per annum.

The following table shows the average circulation of newspapers and periodicals in each State and Territory and the Colonies of British America; the total annual circulation, and the average number of copies printed yearly for each inhabitant. This is not a sure indication of the relative number of readers in each State, as the leading papers in large cities are largely circulated outside the State where printed.

INTERIOR VIEW OF THE N. Y. SUN PRINTING ESTABLISHMENT.



EDITORIAL ROOM.

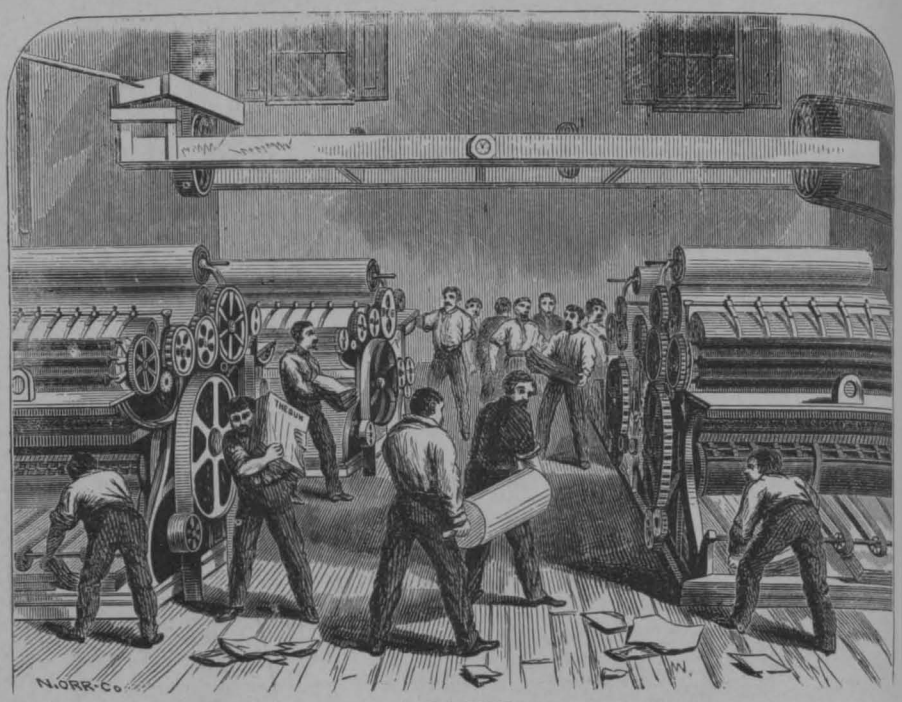


COMPOSING ROOM—SETTING UP TYPE.

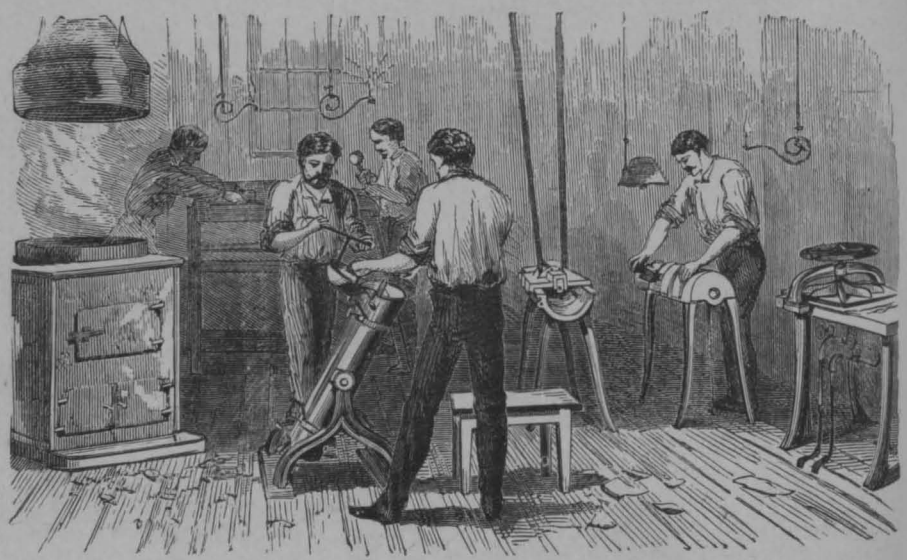
In t
colleg
ment
school
countr
the cl
than fo
are litt
emies.
the nu
fact th
college
studies
the equ
and ap
comple
college
and bo
ties of
been c
purpose
some
State in
vision.
colleges
present
and no
their as
consiste
and Gre
to a sma
geometr
time no
But wil
has bee
course
studies
are exp
and hig
these st
their col
of the la
sciences.

In ad
mention
made in
naries, t
agricultu
military
scientific
we have

More
made, in
the pres
books an
Revolutio
country.



PRESS ROOM.



STEREOTYPING ROOM.

Sam.l F. B. Morse.

Inventer of the Telegraph

States, Territories, &c.	Average Circulation.	Total Annual Circulation.	Average No. of Papers printed yearly to each Inhabitant.
[illegible]	[illegible]	6,393,432	2
[illegible]	[illegible]	2,436,[illegible]	5
[illegible]	[illegible]	45,365,409	[illegible]
[illegible]	[illegible]	15,957,220	29
[illegible]	[illegible]	1,596,[illegible]	12
[illegible] Columbia,	[illegible]	11,637,496	[illegible]
[illegible]	[illegible]	541,840	3
[illegible]	[illegible]	14,447,288	12
[illegible]	[illegible]	102,6[illegible],204	41
[illegible]	[illegible]	28,315,862	17
[illegible]	[illegible]	19,344,[illegible]	16
[illegible]	[illegible]	12,465,763	35
[illegible]	1,508	17,[illegible],044	13
[illegible]	1,239	34,028,028	[illegible]
[illegible]	[illegible]	8,452,596	[illegible]
[illegible]	2,077	13,461,660	25
[illegible]etts,	5,709	[illegible]	74
[illegible]	1,534	[illegible]	15
[illegible]	1,121	[illegible]	7
[illegible]	753	[illegible]	3
[illegible]	2,10[illegible]	[illegible]	[illegible]
[illegible]	913	[illegible]	[illegible]
[illegible]	918	[illegible]	[illegible]
[illegible]pshire,	2,194	[illegible]	[illegible]
[illegible]	1,479	[illegible]	[illegible]
[illegible]	[illegible],411	492,77[illegible]	[illegible]
[illegible]rolina,	814	[illegible]	[illegible]
[illegible]	3,13[illegible]	93,[illegible]	35
[illegible]	[illegible]	[illegible]	40
[illegible]	3,704	[illegible]	67
[illegible]and,	2,489	13,046,[illegible]	46
[illegible]rolina,	1,354	[illegible]	9
[illegible]	1,747	15,[illegible]	[illegible]
[illegible]	701	[illegible]	[illegible]
[illegible]	2,528	[illegible]	[illegible]
[illegible]	1,107	10,799,75[illegible]	13
[illegible]inia,	842	[illegible],563	8
[illegible]	1,317	[illegible]	[illegible]
[illegible]	858	[illegible],121	[illegible]
[illegible]swick, Dominion of Canada,	1,750	[illegible],808	12
[illegible], Dominion of Canada,	1,334	3,8[illegible],784	10
[illegible] Dominion of Canada,	1,807	33,757,528	[illegible]
[illegible] Dominion of Canada,	1,469	21,812,560	15
[illegible]nies,	640	......	
[illegible]al Average,	[illegible]	1,499,922,219	[illegible]

[illegible] newspaper [illegible] so largely fed [illegible] electric [illegible] that this most [illegible] of its [illegible] with it, and [illegible] of the [illegible] century would be [illegible] without [illegible] mention of this wonderful [illegible] that invention [illegible]nic arrangement [illegible] part, that [illegible]gements [illegible] sending intel[illegible] rapidly between distant points [illegible] in use [illegible] Signal flags [illegible] for [illegible] and [illegible] these have [illegible] immer[illegible] electric telegraph [illegible]-indicat[illegible] [illegible]ces and [illegible] [illegible]ality of [illegible] an instru[illegible]

[illegible] The honor of inventing the telegraph as it is used to-day belongs to Prof. S. F. B. Morse, of our own country. Improved in various respects from what it was as invented by him about the year 1840 it still remains in principle as he made it, and his name will ever be gratefully connected with an invention so beneficial to mankind. In importance it ranks with the invention of the art of printing and [illegible] associated with it in daily life. More and more, as the telegraphic system of communication is extended, does the newspaper press employ it to supply its columns with news. From the brief items of intelligence, with which we were content a few years ago, the employment of the telegraph has increased until now column after column of telegraphic information is

Sam. F. B. Morse

Inventor of the Telegraph

States, Territories, &c.	Average Circulation.	Total Annual Circulation.	Average No of copies printed yearly for each Inhabitant.
Alabama,	1,070	8,891,432	9
Arkansas,	650	2,438,716	5
California,	1,846	45,869,408	82
Connecticut,	3,000	15,697,320	29
Delaware,	1,247	1,596 480	13
District of Columbia,	4,323	11,637,400	89
Florida,	616	841,880	5
Georgia,	1,270	14,447,388	12
Illinois,	2,907	102,686,204	41
Indiana,	1,490	28,515,862	17
Iowa,	1,013	19,344,636	16
Kansas,	1,828	12,465,768	35
Kentucky,	1,968	17,392,044	13
Louisiana,	1,220	14,628,028	20
Maine,	2,257	9,082,596	14
Maryland,	2,077	19,461,660	25
Massachusetts,	5,709	107,691,952	74
Michigan,	1,654	17 513,120	15
Minnesota,	1,121	2,811,120	7
Mississippi,	753	4,403,460	5
Missouri,	2,104	37,737,564	22
Nebraska,	913	3,147,120	27
Nevada,	516	1,714,960	40
New Hampshire,	2,104	5,711,720	18
New Jersey,	1,475	19,766,104	22
New York,	7,411	492,770,863	113
North Carolina,	814	4,220,676	1
Ohio,	3,154	93,592,448	35
Oregon,	1,352	3,658,304	40
Pennsylvania,	3,704	233,380,532	67
Rhode Island,	2,489	10,048,048	46
South Carolina,	1,354	5,804,136	8
Tennessee,	1,747	15,712,236	13
Texas,	701	5,813,432	7
Vermont,	2,528	4,486,9 4	14
Virginia,	1,107	13,790,788	12
West Virginia,	842	3,372,668	8
Wisconsin,	1,317	20,577,396	20
Territories,	858	3,829,121	13
New Brunswick, Dominion of Canada,	1,750	3,961,808	12
Nova Scotia, Dominion of Canada,	1,334	3,838,784	10
Ontario, Dominion of Canada,	1,897	33,757,528	17
Quebec, Dominion of Canada,	1,409	21,812,560	16
British Colonies,	640	....	...
Total Average,	1 842	1,499,922,219	35

The newspaper press is so largely fed by the Electric Telegraph that this must be spoken of in connection with it. And no account of the last century would be complete without some mention of this most wonderful and important invention. Telegraphic arrangements of some sort, that is, arrangements for communicating intelligence rapidly between distant points, have been in use for a long time. Signal fires and flags have been used for this purpose and various other contrivances. But all these have been limited at the best and very imperfect. It was reserved for the electric telegraph, by the rapidity with which its indications are made at the greatest distances and the clearness and perfect intelligibility of its communications, to furnish an instrument adequate to all our wants. The honor of inventing the telegraph as it is used to-day, belongs to Prof. S. F. B. Morse, of our own country. Improved in various respects from what it was as invented by him about the year 1840, it still remains in principle as he made it, and his name will ever be gratefully connected with an invention so beneficial to mankind. In importance it ranks with the invention of the art of printing and is fitly associated with it in daily life. More and more, as the telegraphic system of communication is extended, does the newspaper press employ it to supply its columns with news. From a few brief items of intelligence, with which we were content a few years ago, the employment of the telegraph has increased until now column after column of telegraphic information is

published daily by our newspapers. As we are now writing, we are having a grand demonstration of the capabilities and value of the electric telegraph in the fact that it gives us all but completely, before midnight of the day of our presidential election, the results of the balloting in every State and almost every town and precinct of our vast country from the Bay of Fundy to the Bay of San Francisco, and from the St. Johns of Florida to the Oregon.

Like many other important inventions, that of the telegraph was slowly welcomed by the public. Wise men distrusted its practicability, and the aid of the government was necessary in order to secure it a fair trial. The first line of telegraph was constructed from Baltimore to Washington, in the year 1844. With the success of that line and the demonstrated possibility of conveying messages distinctly and rapidly by means of electricity, the telegraph came into use quite rapidly. In 1848 the length of telegraph wire in operation in the United States was about 3,000 miles. Now it is not less than 150,000. So well patronized is the telegraph, that the receipts of the various companies in this country are upwards of $9,000,000 a year.

The uses to which the telegraph is put are very many already. At first it was chiefly used in transmitting messages of business between the great commercial centers of the country, and in aiding the railroads in the running of their trains. Then it came to be used for messages of friendship and general news. Then it was used as a means of sounding fire alarms and for astronomical purposes. Of late years it has been made much of in connection with the police system and the signal service. By means of reports transmitted to Washington three times a day from more than fifty stations scattered over the territory of the United States, the meteorological condition of this wide region is made known throughout the country, and the probable character of the weather is daily announced with an accuracy which makes it of important benefit to mariners and agriculturists as well as to many other classes of people.

Already the telegraph wires have been stretched between the remotest parts of the world, so that no important event occurs without being known in a few hours in every place of any considerable size. The seas and oceans are underlaid by magnetic cables and the continents are spanned with the electric net-work. Europe has now 450,000 miles of telegraphic wire in use, with 13,000 stations. There are more than 6000 telegraphic stations in our own country. There are 10,000 miles of wire, and nearly 300 stations in Australia, and the extension of the system throughout the world is at the rate of 100,000 miles every year. The telegraph is now not only indispensable to certain great enterprises of business and an important instrument for the uses of government, but it is fast becoming one of the common adjuncts and aids of individual and family life. In our cities the merchant's store and the various offices of business are very frequently connected with some central telegraph station, and our houses are being fitted with telegraphic apparatus by means of which alarms can be sent in case of danger or aid can be summoned at once in time of need. The telegraph thus becomes every where the instrument of peace, security, and happiness to mankind.

THE ARTS OF DESIGN.

The arts, the fine arts especially, are not looked for in a new country. They come as the development of time, of accumulated wealth, leisure, and taste, and of long and patient practice. In a new country attention and effort are concentrated upon the necessities rather than the embellishments of life. We should not expect therefore to find our country as yet distinguished in art. Nevertheless our history in this respect is one not to be contemplated otherwise than with pleasure. American art may be said to have had its birth with the birth of the nation as such. While our revolutionary war was in progress, Benjamin West, a native of Pennsylvania, was receiving the highest honors in England and, as president of the Royal Academy, was occupying the chair just vacated by Sir Joshua Reynolds. Trumbull and Allston and Gilbert Stuart, at home, were rivals of the best painters abroad. They were succeeded by others worthy to follow them. Landscape painting was developed later than historical or than portraiture. But during the latter part of the first century of our national history landscape art became, in the hands of Durand, worthy to compete with that of the

MEN ENGAGED IN THE FINE ARTS.

WOMEN ENGAGED IN THE FINE ARTS.

1776.

EVENING DRESS. 1780.

1780.

1785.

EVENING DRESS. 1795.

EVENING DRESS. 1797.

1800.

1805.

1805.

1812.

1812.

1812.

1815.

1818.

1820.

1825.

1828.

WINTER DRESS. 1833.

1833.

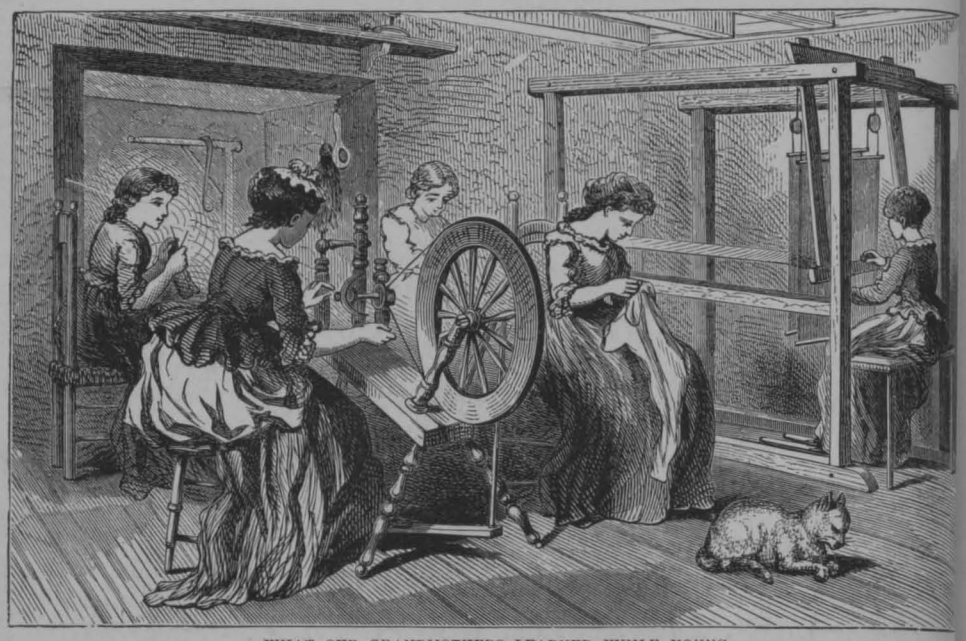
1833.

1833.

1840.

1844.

1850.



WHAT OUR GRANDMOTHERS LEARNED WHILE YOUNG.

WHAT OUR SISTERS AND DAUGHTERS NOW LEARN.

NO. 7.—COMBINATION ICE WATER SET.—MERIDEN BRITANNIA CO.,

THE "CENTENNIAL" ORGAN. Built by E. & G. G. Hook & Hastings, Boston, Mass.
82 feet wide; 40 feet high; 4 Manuals, 32-feet Pedals.

CABINET ORGAN. MASON & HAMLIN, BOSTON, MASS.

old world. In fact landscape art has reached a conspicuous excellence among us. If we were to name the list of worthy landscape painters, beginning with Cole, who have adorned our art history, we should have a long catalogue, and to do less than that might seem invidious.

In sculpture too, and engraving, we have not been lacking. Indeed in sculpture the genius of our people seems to show itself naturally. The names of Powers and Greenough and Crawford and Rogers and Bartholomew and Palmer are names of which any country might be proud.

As an engraver, Cheney's portrait heads early ranked him with the best, while in engraving upon wood, Adams gained a deserved reputation nearly fifty years ago, and our many finely illustrated books show that his successors have carried his art to high perfection.

SOCIAL AND DOMESTIC LIFE.

The century just closed has been marked by noteworthy changes in the social and domestic life of our people, whether those changes have been an improvement or not. With the growth of our population from three millions to more than forty millions, there has been a growing concentration of the people in cities and towns. The population is not distributed over the country as evenly as in earlier days. One-fifth of our people are now residents of cities.

The style of architecture has much changed during the century, if indeed we could be said to have had any architectural style a hundred years ago. Occasionally there was to be found a house in the city, and in the country also, of some pretension, spacious and somewhat dignified in its simplicity. But the mass of the houses were low and generally ill-shaped, built evidently with no reference to appearance. In New England, the "lean-to" style prevailed, a square house with a long roof behind, reaching nearly to the ground. If painted at all, it was likely to be painted of a brick-red color. Barns and sheds were congregated around it at convenience, one after another, without any reference to taste in their disposition. The interior was as plain as the exterior. The low ceilings were crossed by beams projecting below them. The floors were often quite rough and uneven and almost never were covered with any carpet unless one of sand, which was skillfully brushed over daily by the broom of the good housewife. The great chimney in the middle of the house offered a common vent for all the surrounding fire-places. The kitchen was the living room of the house and the largest. Here the family gathered by the huge fire-place, surrounded by culinary utensils and festoons of dried fruits and herbs suspended from the beams above their heads. The spinning-wheel was likely to be a conspicuous object in one corner and the tall clock, if the family were able to possess one, ticked solemnly in another. The lights were dim, being furnished by the home-made dipped candles or the pine knots stored up for the purpose, though the ample pile of wood in the capacious fire-place spread a ruddy and cheerful glow over the whole room and upon every face.

In such houses grew up a sturdy and intelligent race of people who have subdued the earth and replenished it, who have sent forth sons and daughters to occupy the high places of the land and to give it a name which is spoken with respect in all other lands. Plain living and high thinking was the rule in the olden time. It may be feared that, in not a few cases, with our progress in wealth and culture we have fallen from this high and healthful standard of living. We certainly have made advancement in the tasteful and convenient arrangement of our houses as well as in their external appearance. By means of our stoves and furnaces our dwellings have been made much more comfortable, especially in the northern portion of the country, than they were a century ago. The use of gas has also made them more cheerful, and the frequent supply of water by means of aqueducts has added much to the comfort of living.

The furniture of our dwellings has changed as much as the dwellings themselves. It is much more abundant and of much better design than what we had a hundred years since, though much of that made now is of poorer material and of poorer workmanship than that which our fathers used. That, if plain in design, was usually made of solid wood and wrought by hand, while much of that of the present day is of poor stock, hastily made by machinery, and covered with a thin veneering only of better material.

Silver and plated table-ware, except in a few families of large wealth, was brought into use not more than forty years ago.

The food consumed in our houses a century since was not materially different from what we now use, though the people depended upon their salted beef and bacon, stored up in the cellar, rather than upon the fresh meats of the market. A larger variety of vegetables however is now in use than formerly, and the labor of preparing much of our food for the table has been lessened by the partial preparation of it beforehand in establishments designed for this purpose. Our coffee we get roasted and ground ready for use at once. A large variety of fruits, vegetables, and meats, come to us in air-tight cans preserved from decay or injury and ready for use whenever we desire.

In dress we have had periods of change more or less frequent, and while the fashions of garments, both for men and women, have often been absurd and extravagant, the tendency has been on the whole in the direction of comfort and good taste.

The advancement in the arts has added much to the comfort and happiness of social and domestic life in our country. The invention of Daguerre, by which pictures are made almost instantaneously by the unerring pencil of the sun, has, with its various modifications, the photograph, the ambrotype, and the talbotype—filled our portfolios and our houses almost with the portraits of those whom we love or respect, and with accurate representations of the most interesting objects in all parts of the world. The culture of our people in music has made great progress during the century. Musical instruments abound and the works of the great masters of harmony and melody are reproduced in the concert-room and in the parlor. The engraver's art and the process of chromo-lithography, to say nothing of our artists in oil, in water-colors, and in crayons, have adorned our walls with pictures which delight the eye, and shed a tone of refinement and taste over our domestic life.

In whatever direction, therefore, we look, into whatever department or occupation of life, we see gratifying signs of progress and improvement during the first completed century of our national existence. With our marvelous growth in population there has been a corresponding advance in wealth, in intelligence, in the arts and sciences, in education, in the means of travel and intercourse, in philanthropic and moral enterprises, in reforms; in short, in all that tends to national greatness and permanence. The history of the century just closed encourages our highest hopes for the century, shall we not say for the centuries before us.

TABLE OF PRINCIPAL CITIES OF THE UNITED STATES,

SHOWING POPULATION IN 1850, 1860, AND 1870, CAPITAL INVESTED IN MANUFACTURES, AND AMOUNT OF ANNUAL PRODUCT IN OR NEAR 1870.

CITIES.	State.	Population in 1850.	Population in 1860.	Population in 1870.	Capital invested in manufactures in or near 1870.	Annual product.
Portland	Maine	20,815	26,341	30,877	$6,500,000	$13,300,000
Bangor	"	14,432	16,407	18,293	5,800,000	12,000,000
Lewiston	"	8,584	.....	13,900	6,3 0,000	11,500,000
Biddeford	"	6,095	.....	10,285	3,000,000	7,000 000
Augusta	"	8,225	7,699	7,811	5,000,000	10,500,000
Manchester	N. H.	13,932	20,109	23,535	9,640,000	19,970,000
Nashua	"	5,820	10,065	10,543	6,1 0,000	12,350,000
Portsmouth	"	9,738	9,33	9,305	1,500,000	3,.00,000
Concord	"	8,576	10,896	12,241	6,.00.000	10,500,000
Dover	"	8,196	8,3?2	9,294	3,200,000	5,800,000
Burlington	Vt.	6,110	7,713	14,387	1,725 000	4,869,000
Boston	Mass.	136,881	177,812	250,52	42,000,000	105,000,000
Lowell	"	33,383	35,827	40,928	30,000,000	89,000,000
Worcester	"	17,049	24,960	41,105	8,800,000	26,000,000
Salem	"	20,264	22,252	24 117	3,500,000	9,875,000
Cambridge	"	15,215	26,060	39,634	5,000,000	14,000,000
New Bedford	"	16,443	22,300	21,320	24,000 000	37,000,000
Fall River	"	11,524	14,026	26,783	13,400,000	29,500,000
Springfield	"	11,766	15,199	26,703	8,350,000	17,284,000
Charlestown	"	17,216	25,063	28,323	7,100,000	15,250,000
Newburyport	"	9,572	13,401	13,595	2,750,000	6,000,000
Taunton	"	10,441	15,376	18,629	8,950,000	19,675,000
Lynn	"	14,257	19,083	28,233	10,250,000	15,187,350
Gloucester	"	7,786	10,904	15,389	1,750,000	4,225,000

TABLE OF PRINCIPAL CITIES OF THE UNITED STATES.—CONTINUED.

CITIES.	State.	Population in 1850.	Population in 1860.	Population in 1870.	Capital invested in manufactures in or near 1870.	Annual product.
Holyoke	Mass.	3,245	.....	11,000	$7,185,000	$13,267,000
Lawrence	"	8,282	.....	28,921	20,000,000	35,000,000
Providence	R. I.	41,513	50,666	68,906	11,837,548	33,690,994
Newport	"	9,563	10,508	12,521	1,500,000	3,275,000
New Haven	Conn.	20,345	39,267	50,840	12,715,000	32,000,000
Hartford	"	13,555	29,154	37,180	13,500,000	31,300,000
Bridgeport	"	7,560	13,555	19,876	5,125,000	17,500,000
Norwich	"	10,265	14,048	16,653	7,675,000	18,250,000
Middletown	"	4,211	.....	11,143	1,775,000	4,000,000
New London	"	8,991	10,115	9,576	2,500,000	4,865,000
Waterbury	"	5,137	.....	10 826	8 125,000	19,385,000
Meriden	"	3,559	.....	10,521	2,784,000	8,500,000
New York	N. Y	515,547	805,651	942,310	179.525,000	486.125,000
Brooklyn	"	93,838	266,661	396,300	65,500,000	140,225,000
Buffalo	"	42,261	81,129	117,715	27,965,000	62,835,000
Albany	"	50,763	62,337	69,422	18,250,000	41,375,000
Rochester	"	36,403	48,204	62,385	15,000,000	28,000 000
Syracuse	"	22,271	28,119	43,058	11,871,500	29,627,000
Troy	"	28,785	39,232	46,471	9,000,000	20,000,000
Yonkers	"	4,160	11,848	18,318	1,250,000	3,100,000
Oswego	"	12,235	16,317	20,910	5,108,000	13,187,000
Hudson	"	6,283	9,288	14,135	1.125,000	2,750,000
Utica	"	17,535	22,529	28,804	6,225,000	14,861,000
Binghamton	"	5,000	8,325	12,862	2,725,000	5,895,000
Morrisania	"	.....	9,245	19,637	3,184,000	7,196,000
Poughkeepsie	"	13,944	14,726	20,080	4,932,000	10,287,000
Cohoes	"	4 229	7,620	15.357	5,550,000	11,250,000
Newburgh	"	11,415	15,196	17,014	3,725,000	7,810,000
Elmira	"	8,165	8,882	15,863	6,817,000	14,271,000
Lockport	"	10,327	13,533	15,458	2,165,000	5,125,000
Schenectady	"	8,921	9,579	11,026	1,125,000	2,789,000
Auburn	"	9,548	10,986	17,225	5,075,000	12,173,000
Ogdensburg	"	6,500	7,409	10,076	3,187,500	7,785,000
Newark	N. J.	38,894	71,914	105,078	25,500.000	53,628,000
Jersey City	"	6,856	29,226	82,102	18,650,000	35,750,000
Elizabeth	"	5,583	10,000	20,883	1,725,000	2,850,000
Paterson	"	11,334	19,588	33,512	17,150,000	38,525,000
Hoboken	"	2,668	9,662	20,284	3,360,000	8,200,000
Rahway	"	3,306	4,785	6,016	550,000	1,650,000
Trenton	"	6,461	17,228	22,115	7,180,000	15.125.000
New Brunswick	"	10,019	12,150	15,059	2.785,000	5,875,000
Camden	"	9,479	11,257	20,045	5,650,000	12,175,000
Hudson City	"	.....	.....	18,000	460,000	1,750,000
Philadelphia	Pa.	340,045	562,529	674,022	178,000,000	495,000,000
Pittsburgh	"	46,601	49 217	86,235	69,250,000	141,500,000
Alleghany City	"	21,261	28,702	53.181	21 300,000	54,380,000
Scranton	"	.....	9,223	35,093	2,917,000	6,285,000
Reading	"	15,743	23,161	33,932	9,755,000	38,124,000
Harrisburg	"	7,834	13,405	23,109	6,125,000	13,250,000
Erie	"	5,858	9,419	20,500	1,500,000	4,600,000
Lancaster	"	12,339	17,603	20,233	3,900,000	9,728,000
Wilmington	Del.	13,979	25,508	30,841	11,500,000	18,000,000
Baltimore	Md.	169,054	212,418	267,354	27,480,000	79,169,000
Cumberland	"	6,073	.....	11,500	400,000	2,500,000
Frederick	"	6,028	8,143	10,180	875,000	2,100,000
Washington	D. C.	40,001	61,122	109,294	3,150,000	10,287,000
Georgetown	"	8,366	8,733	12,412	1,000,000	2,660,000
Richmond	Va.	27,570	37,910	51,038	2,100,000	5,183,000
Alexandria	"	8,734	12,652	13,570	3,125,000	8,749,500
Norfolk	"	14,326	15,611	19,256	2,087,500	5,964,250
Portsmouth	"	8,122	9,502	12,678	1,499,350	3,748,140
Petersburg	"	14,010	18,266	14,128	500,000	1,150,000
Lynchburg	"	8,071	6,853	7,319	350,000	975,500
Wheeling	W. Va.	11,435	14,083	19,282	6,150,280	14,297,340
Wilmington	N. C.	7,264	9,552	13,465	975,000	2,500,000
Raleigh	"	4,518	4,780	10,146	400,000	1,100,000
New-Berne	"	4,681	5,432	4,996	250,000	725,000
Charleston	S. C.	42,985	40,522	48,956	1,850,000	3,950,000
Columbia	"	6,060	8,059	10,139	1,015,250	2,416,980
Savannah	Ga.	15,312	22,292	20,233	500,000	1,100,000
Atlanta	"	2,572	9,554	16,988	1,325,000	3,145,000
Augusta	"	11,753	12,493	14,197	575,000	1,497,500
Key West	Fla.	1,943	2,832	6,510	550,000	1,328,500
Mobile	Ala.	20,515	29,258	32,034	3,618,000	9,145,320
Montgomery	"	4,935	8,843	13,065	500,000	3,000,000
Natchez	Miss.	4,434	6,612	9,128	275,000	785,300
Vicksburg	"	3,678	4,591	8,938	729 000	1,541,870
New Orleans	La.	116,375	168,675	191,322	19,750,000	53,550,000
Galveston	Texas.	4,177	7,307	13,818	850,000	2,100,000
Little Rock	Ark.	2,167	3,727	13,380	300,000	850,000
Memphis	Tenn.	8,839	22,623	40.226	1,639,000	3,741,500
Nashville	"	10,478	16,988	25 872	1,171,450	2,768,521
Knoxville	"	3,690	6,000	9,000	500,000	980,000

TABLE OF PRINCIPAL CITIES OF THE UNITED STATES.—CONTINUED.

CITIES.	State.	Population in 1850.	Population in 1860.	Population in 1870.	Capital invested in manufactures in or near 1870:	Annual product.
Louisville	Ky.	43,194	68,033	100,754	$16,313,000	$40,091,745
Covington	"	9,408	16,471	24,505	4,296,500	10,825,960
Lexington	"	9,130	9,521	10,121	600,000	1,725,000
St. Louis	Mo	77,860	160,773	312,963	48,387,150	109,513,950
Kansas City	"	600	4,418	32,362	3,174,125	8,125,450
St. Joseph	"	5,000	8,932	19 692	1,675,325	4,075,425
Hannibal	"	2,020	6,505	10,120	1,000,000	2,300,000
Leavenworth	Kan.	.....	7,429	17,849	1,800,000	3,270,000
Topeka	"	.....	759	5,790	400,000	900,000
Omaha	Neb.	.....	1,883	16,083	.....	.....
Davenport	Iowa.	1 848	11,267	20,042	1,300,000	3,500,000
Dubuque	"	3,108	13,000	18,084	2,425,000	3,794,000
Des Moines	"	986	3,965	12.379	1 470,000	3,100,000
Keokuk	"	2,478	8,136	12,754	925.000	2,084,000
Muscatine	"	2.540	5,324	10,178	850,000	1,975,000
Council Bluffs	"	2,000	2,011	10.974	1,125,000	2,485,000
Burlington	"	4,082	6,706	12,034	1,050,000	2,355,420
Chicago	Ill.	29.963	109,260	298,983	60,000,000	175,000,000
Peoria	"	5,095	14,045	25,787	4.105,000	11,186,325
Quincy	"	6,902	13,632	24,053	3,072,500	8,740,200
Springfield	"	11,766	15,199	17,365	1,980.300	3,618,500
Alton	"	3,585	7,388	10,353	1,147,618	2,831,450
Galena	"	6.004	8,193	10,030	2,261,419	4,843,288
Pekin	"	1,678	3,467	9,310	1,743.200	3.877,250
Rock Island	"	1,711	5,130	7,896	1,864,325	3.987,420
Cairo	"	242	2,188	8,267	1.400,000	2,963,200
Indianapolis	Ind.	8,034	18.611	41,603	4,150,500	11 265,350
Evansville	"	3.235	11,484	21,830	2,745,200	7,189,150
Terre Haute	"	4,051	8 594	17,105	1,993,550	4,185,240
Fort Wayne	"	4,282	10,338	17 756	1,871.000	4,622,175
New Albany	"	.....	12,647	16,205	2,343,750	4,918,225
Lafayette	"	1,215	9,387	14,312	820,000	2,006,150
Madison	"	8,012	9,068	10,709	1,361,000	3,108,270
Richmond	"	1,443	6,603	9,443	2,628,136	5,815,281
Logansport	"	3.500	2,979	8,950	1,961,822	3,984,186
Cincinnati	Ohio.	115,436	161,044	218,900	58,340,586	159,270,049
Cleveland	"	17,034	43,417	93,918	44,000,000	127,375,500
Toledo	"	3.829	13,796	31,692	5.250.000	14,128,500
Columbus	"	17,882	18,692	31,336	8,325,000	19,875,000
Dayton	"	10,970	20,081	30,867	6,240,325	14,371,225
Sandusky	"	10,000	9,316	14,523	2,116,587	4,962,180
Springfield	"	7,314	7,007	12,655	3,000,000	5,200,000
Hamilton	"	3,210	7,227	11,105	4.128,575	12,006,155
Portsmouth	"	4,011	6,273	10,522	1,817,340	4.361.285
Steubenville	"	6,144	6,157	10,207	2,106,150	5,210,265
Zanesville	"	7,929	9,232	10,013	2,819.325	6,173,124
Akron	"	3,266	3,520	10,010	2,587,640	6,031.240
Detroit	Mich.	21,019	45,619	79,588	18,330,000	52,185,000
Grand Rapids	"	3,147	8,085	16,507	2,725,000	5,918,000
Jackson	"	4,147	4,799	11,448	1,976,500	4,128,000
Kalamazoo	"	3,284	6,070	9,180	1,752,000	3,740,500
East Saginaw	"	500	3.001	11,349	2,568,000	7 061,000
Adrian	"	3,006	6,213	8.448	1,843,500	4,163,000
Milwaukie	Wis.	20,061	45.246	71.499	11.275,000	28,645,000
Madison	"	3,400	6,611	13,000	2,193,780	4,285,000
Oshkosh	"	2,500	6,086	12,675	.....	.....
Superior City	"	.....	534	1.100	650,000	1,384,000
Fond du Lac	"	2,014	5,450	12,771	.....	.....
Green Bay	"	1,928	2,275	4,666	425,000	994,000
Racine	"	5,107	7,822	9,880	.....	.....
Janesville	"	3,451	7,703	8,791	879,000	2,185,000
St. Paul	Minn.	1,338	10,401	20,645	1,312,250	3,180,000
Winona	"	.....	2,464	10.000	250,000	722,000
St. Anthony	"	656	3,258	6,000	575,600	1,807,833
Minneapolis	"	.....	2,564	15,000	1,525,000	3,980,500
Denver	Col.	.....	4,749	9,500	850,000	1,795,000
Cheyenne	Wyoming.	.....	.....	4,500	550,000	1,600,000
Salt Lake City	Utah.	8,000	8,236	24,500	1,600,000	4,280,000
Carson City	Nev.	.....	714	4,875	200,000	450,000
Virginia City	"	.....	2,345	7,008	450,000	860,000
San Francisco	Cal.	34,776	56,802	158,361	28,500,000	71,450,000
Sacramento	"	12,000	13,785	16.484	1,245,000	3,780,000
Stockton	"	3.000	3,679	3,825	250,000	700,000
Oakland	"	.....	1,543	6,740	270,000	800,000
Portland	Oregon.	827	2,874	8,293	1,296,000	2,752,000
Steilacoom	Wash. T.	.....	.....	3,800	121,500	306,000
Olympia	"	.....	.....	1,500	50,000	150,000
Santa Fe	New Mex.	4,846	4.635	5,600	110,000	280,000
Tucson	Arizona T.	.....	1,034	3,000	160,000	470,000
Boise City	Idaho.	.....	.....	4,800	185,000	500,000
Helena	Montana.	.....	.....	8,900	370,000	809.000
Virginia City	"	.....	.....	3,700	925,000	2,500,000
Yanckton	Dakota.	.....	458	5,800	225,000	560,000

COMPARATIVE POPULATION OF THE LARGEST CITIES OF THE UNITED STATES.

Cities.	State.	Settled.	Years.	1790.	1800.	1810.	1820.	1830.	1840.	1845.	1850.	1860.	1870.
Portland	Maine	.....	.....	.....	3,677	7,169	8,581	12,601	15,218	.....	20,815	26,341	30,877
Portsmouth	N. H.	.....	.....	4,720	5,339	6,934	7,327	8,082	7,887	.....	9,738	9,335	9,895
Manchester	N. H.	.....	.....	.....	.....	.....	.....	.....	3,235	.....	13,932	20,109	23,536
Boston	Mass.	.....	1722 10,567 1765 15,520	18,038	24,937	33,250	43,298	61,392	93,383	114,366	136,881	177,812	250,525
Lowell	Mass.	.....	.....	.....	.....	.....	.....	.....	6,474	20,796	28,841	33,383	36,827	40,928
Springfield	Mass.	.....	.....	.....	.....	2,767	3,914	6,784	10,985	.....	11,766	15,199	26,703
Salem	Mass	.....	1637 900 1765 4,427	7,921	9,457	12,613	12,731	13,895	15,082	16,762	20,264	22,252	24,117
Providence	R. I.	1635	.....	6,380	7,614	10,071	11,767	16,832	23,171	.....	41,513	50,666	68,906
New Haven	Conn.	1638	.....	.....	4,049	5,772	7,147	10,180	12,960	.....	20,345	39,267	50,840
Hartford	Conn.	1635	.....	.....	.....	3,955	4,726	7,076	9,468	.....	13,555	29,154	37,180
New York	N. Y.	1612	1656 1,000 1731 8,628 1773 21,876	33,131	60,489	96,373	123,706	202,589	312,710	371,223	515,547	805,657	942,310
Brooklyn	N. Y.	.....	.....	.....	3,298	4,402	7,175	15,396	36,233	59,566	96,838	266,661	396,300
Albany	N. Y.	.....	.....	3,498	5,289	9,356	12,630	24,238	33,721	41,139	50,763	62,367	69,422
Buffalo	N. Y.	.....	.....	.....	.....	1,508	2,095	8,653	18,213	29,773	42,261	81,129	117,715
Rochester	N. Y.	.....	1812 15	.....	.....	.....	1,502	9,269	20,191	25,265	36,403	48,204	62,385
Syracuse	N. Y.	.....	.....	.....	.....	.....	.....	.....	6,500	.....	22,271	25,119	43,058
Troy	N. Y.	.....	.....	.....	.....	3,395	5,264	11,405	19,334	21,709	28,785	39,232	46,471
Utica	N. Y.	.....	.....	.....	.....	.....	2,972	8,323	12,782	.....	17,565	25,529	28,804
Newark	N. J.	.....	.....	.....	.....	.....	.....	6,507	10,953	17,290	31,140	38,894	71,914	105,078
Philadelphia	Penn.	1682	1683 600 1731 12,000	42,520	69,403	91,874	112,772	161,410	220,423	.....	340,045	562,529	674,022
Pittsburg	Penn.	.....	.....	.....	.....	1,565	4,768	7,248	12,568	21,115	.....	46,601	49,217	86,235
Baltimore	Md.	1729	.....	13,503	26,114	35,583	63,738	80,625	102,313	.....	169,054	212,418	267,354
Washington	D. C.	.....	.....	.....	3,210	8,208	13,247	18,827	23,364	.....	40,001	61,122	109,294
Richmond	Va.	1742	.....	3,761	5,737	9,735	12,067	16,060	20,153	.....	27,570	37,910	51,038
Norfolk	Va.	1705	.....	.....	.....	.....	8,478	9,814	10,920	.....	14,326	15,611	19,256
Petersburg	Va.	.....	.....	.....	3,521	5,068	6,690	8,332	11,133	.....	14,010	18,266	14,018
Wilmington	N. C.	.....	.....	.....	.....	.....	.....	3,000	4,744	.....	7,264	9,552	13,446
Charleston	S. C.	1772	.....	16,359	20,473	24,711	24,780	30,289	29,261	.....	42,985	40,578	48,956
Savannah	Ga.	1732	.....	.....	5,166	5,215	7,523	7,776	11,214	.....	15,312	22,292	20,233
Mobile	Ala.	.....	1785 *746 1788 *1,468	.....	.....	.....	1,500	3,194	12,672	.....	20,515	29,258	32,184
Nashville	Tenn.	.....	.....	.....	.....	.....	.....	5,566	6,929	.....	10,478	16,988	25,872
Louisville	Ky.	.....	1788	.....	359	1,357	4,012	10,341	21,210	.....	43,194	68,033	100,754
Cincinnati	Ohio	.....	.....	.....	750	2,540	9,642	24,831	46,338	.....	115,435	161,044	218,900
Columbus	Ohio	1812	.....	.....	.....	.....	.....	.....	6,048	.....	17,882	18,554	32,745
Cleveland	Ohio	1796	.....	.....	.....	.....	.....	.....	6,071	.....	17,034	43,417	92,846
Detroit	Mich.	.....	.....	.....	.....	.....	.....	2,222	9,102	.....	21,019	45,619	79,580
Chicago	Illinois.	1831	.....	.....	.....	.....	.....	.....	4,853	.....	29,963	109,260	298,983
St. Louis	Mo.	1764	1769 *891 1785 *897 1788 *1,97	.....	.....	1,600	4,598	5,852	16,469	.....	77,860	160,773	312,963
New Orleans	La.	1717	1769 3,190 1785 4,980 1788 5,331 1797 8,056	.....	.....	17,242	27,176	46,310	102,193	.....	116,375	168,675	191,322
San Francisco	Cal.	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,700	.....	121,776	56,802	158,26[illegible]
Milwaukie	Wis.	.....	1841 [illegible]	.....	.....	.....	.....	.....	.....	.....	.....	.....	10,701	45,246	71,440

NOTE.—The year 1345 and the periods earlier than 1730 are taken from State enumerations, and from other sources of information.

* Population of the settlement.

† State census of 1852.

‡ Errors were made in Boston and New Orleans in 1840, underestimating the population in the first city, as proved by Mr. Shattuck, to the extent of about 8,000; and overestimating it in New Orleans, as proved by Dr. Barton, by at least 10,500 or 15,000.

DATES OF ADMISSION OF STATES—POPULATION AND VALUATION:—

	Old Thirteen States.	Date of admission.	Area in acres.	1790. Population.	1790. Valuation.	1850. Population.	1850. Valuation.	1860. Population.	1860. Valuation.	1870. Population.	1870. Total Valuation.	
1	Delaware	1787	1,356,800	59,095	$4,053,278	91,532	$15,896,870	112,216	$46,242,181	125,015	$67,180,833	1
2	Pennsylvania	1787	30,680,000	434,373	72,824,252	2,311,786	500,275,851	2,906,215	1,416,501,818	3,521,951	3,868,340,112	2
3	New Jersey	1787	4,784,640	184,139	27,287,981	489,555	153,251,619	672,035	467,918,324	906,096	943,976,064	3
4	Georgia	1788	37,120,000	82,548	10,263,506	906,185	121,619,729	1,057,286	645,805,237	1,184,109	968,169,207	4
5	Connecticut	1788	3,040,000	238,141	40,103,955	370,792	119,038,672	460,147	444,274,114	537,454	774,631,524	5
6	Massachusetts	1788	4,640,000	378,717	59,441,042	994,514	551,100,824	1,231,066	815,237,433	1,457,351	2,132,148,741	6
7	Maryland	1788	7,040,000	319,728	21,034,904	583,034	139,026,601	687,049	376,919,944	780,894	643,748,967	7
8	South Carolina	1788	17,920,000	249,073	12,450,720	668,507	105,737,492	703,708	548,138,754	705,606	208,146,529	8
9	Rhode Island	1788	763,000	69,110	8,682,955	147,545	77,758,974	174,620	135,337,588	217,353	296,965,645	9
10	New Hampshire	1788	5,139,200	141,899	19,058,168	317,976	92,251,596	326,073	156,310,860	318,300	252,024,112	10
11	Virginia	1788	39,275,580	748,308	59,976,860	1,421,661	252,105,824	1,596,318	793,249,681	1,225,163	409,588,133	11
12	New York	1788	29,140,000	340,120	74,885,075	3,097,394	715,369,038	3,880,735	1,843,328,517	4,382,759	6,500,841,264	12
13	North Carolina	1789	29,120,000	393,751	27,909,479	869,039	71,702,740	992,622	358,739,399	1,071,361	260,757,244	13
	Total old States		239,308,950	3,339,003	$438,001,175	12,269,529	$2,915,185,830	14,860,090	$8,048,103,850	16,433,252	17,294,118,835	
14	District of Columbia	1790	32,000	..	..	51,687	14,409,413	75,080	41,084,945	131,700	126,873,618	14
15	Vermont	1791	5,796,000	85,416	15,165,484	314,120	72,980,483	315,098	122,477,170	330,551	235,349,553	15
16	Kentucky	1792	24,115,200	73,677	20,268,325	982,405	177,013,407	1,155,684	666,043,112	1,321,011	604,318,552	16
17	Tennessee	1796	28,160,000	35,791	5,847,662	1,002,717	107,981,793	1,109,801	493,903,892	1,258,520	498,237,724	17
18	Ohio	1802	25,576,960	..	..	1,980,329	433,872,632	2,339,511	1,193,898,422	2,665,260	2,235,430,300	18
19	Louisiana	1812	29,715,840	..	..	517,762	176,623,654	708,002	602,118,568	726,915	324,124,666	19
20	Indiana	1816	21,637,760	..	..	988,416	152,870,399	1,350,428	528,835,371	1,680,637	1,208,180,543	20
21	Mississippi	1817	30,174,080	..	..	606,526	85,901,204	791,305	607,324,911	827,922	239,197,345	21
22	Illinois	1818	35,459,200	..	..	851,470	114,782,645	1,711,951	871,860,282	2,539,891	2,121,083,579	22
23	Alabama	1819	32,462,080	..	..	771,623	98,870,118	964,201	495,237,078	996,992	241,855,841	23
24	Maine	1820	22,400,000	96,540	..	583,169	96,790,513	628,279	190,211,600	626,915	348,155,671	24
25	Missouri	1821	43,123,200	..	..	682,044	83,802,101	1,182,012	501,214,398	1,721,295	1,384,922,897	25
26	Arkansas	1836	33,406,720	..	..	209,897	20,372,101	435,450	219,256,473	484,471	153,391,841	26
27	Michigan	1837	35,995,520	..	..	397,654	30,877,223	749,113	257,163,983	1,184,059	719,268,118	27
28	Florida	1845	37,931,520	..	..	87,445	10,924,107	140,424	73,101,500	187,748	44,163,055	28
29	Texas	1845	152,043,520	..	..	212,592	30,149,671	604,215	365,200,614	818,579	159,052,542	29
30	Iowa	1846	35,155,200	..	..	192,214	23,714,638	674,913	247,338,265	1,191,279	717,644,750	30
31	Wisconsin	1848	34,511,360	..	..	305,391	26,715,525	775,881	273,671,668	1,054,670	702,307,329	31
32	California	1850	120,917,840	..	..	92,597	21,923,173	379,994	207,874,613	560,247	638,767,017	32
33	Minnesota	1857	90,774,960	..	..	6,077	262,088	172,023	52,294,413	439,706	228,969,590	33
34	Oregon	1859	60,695,360	..	..	13,294	5,063,474	52,465	28,930,639	90,923	51,558,932	34
35	Kansas	1861	52,043,520	..	..	..	..	107,206	31,327,895	364,399	188,892,014	35
36	West Virginia	1862	Included in Virginia in census of 1860.							442,014	190,651,491	36
37	Nevada	1864	71,737,600	..	..	..	..	6,857	..	42,491	31,134,012	37
38	Nebraska	1866	48,636,800	..	..	..	..	28,841	9,131,056	122,993	69,277,483	38
39	Colorado	1861	66,880,000	..	..	..	..	34,277	..	39,864	20,243,303	39
40	TERRITORIES:											40
41	Indian Territory		44,154,240	..	..	7,500	..	75,441	..	..	..	41
42	New Mexico	1850	77,568,640	..	..	61,547	5,174,471	93,516	20,813,768	91,874	31,349,793	42
43	Utah	1850	54,065,043	..	..	11,380	986,083	40,273	5,596,118	86,786	16,159,995	43
44	Washington	1853	44,796,160	..	..	..	..	11,594	5,601,466	23,955	13,562,164	44
45	Dakota	1861	96,596,128	..	..	..	..	4,837	..	14,181	5,559,752	45
46	Arizona	1863	72,906,240	..	..	..	..	..	..	9,658	2,440,791	46
47	Idaho	1863	55,228,160	..	..	..	..	..	..	14,999	6,552,681	47
48	Montana	1864	92,016,640	..	..	..	..	..	..	20,595	15,184,522	48
49	Wyoming	1868	62,645,069	..	..	..	..	..	..	9,118	7,016,748	49
50	Alaska	1870	369,529,600	..	..	..	..	..	..	..	..	50
	Total new States and Ter		2,108,888,160	290,824	$41,281,471	1,029,856	$1,795,060,916	16,718,672	$3,111,512,220	22,122,731	$13,575,395,812	
	Grand Total		2,318,197,080	3,929,827	479,282,646	23,199,376	4,713,246,746	31,518,762	13,159,616,070	38,555,983	30,869,514,647	

		Horses.	Neat Cattle.	Sheep.	Swine.	Total value of Live Stock of all kinds.	Cash value of Farms.	Total estimated value of all Farms' productions, including Betterments and addition of Stock.	Bushels of Wheat.	Bushels Indian Corn.	Capital employed in Mining.	Total products of Mining.	Capital employed in manufacture.	Total product of manufacture.	
1	Alabama	92,807	500,206	241,934	719,757	$26,630,095	$67,739,036	$67,522,335	1,055,068	16,979,948	$39,000	$52,500	$5,714,032	$13,040,644	1
2	Arizona	4,432	38,632	863	702	143,996	161,340	277,998	27,052	32,041	6,500	24,500	150,700	185,410	2
3	Arkansas	102,240	379,023	161,077	841,139	17,222,596	40,029,698	40,701,699	741,736	13,382,145	..	..	1,782,913	4,629,234	3
4	California	241,146	669,280	2,768,187	444,617	37,964,752	140,249,028	49,856,024	16,667,702	1,221,222	20,079,975	8,281,633	39,728,202	66,594,556	4
5	Colorado	13,317	150,456	120,928	5,509	2,871,102	3,385,748	2,335,106	258,474	231,903	2,835,835	859,374	2,835,605	2,852,820	5
6	Connecticut	54,139	213,094	83,884	51,933	17,545,038	134,441,282	26,482,150	28,144	1,570,364	1,496,100	1,227,400	95,281,278	160,065,474	6
7	Dakota	3,243	56,724	1,901	2,033	779,952	2,085,265	495,627	170,662	133,140	..	..	79,200	178,570	7
8	Delaware	18,633	53,990	22,714	39,818	4,257,323	46,712,870	8,171,607	835,477	3,010,390	89,210	10,800	10,839,093	16,791,382	8
9	Dist. of Columbia	6,020	1,891	604	577	114,916	3,800,230	319,517	3,782	28,020	..	..	5,021,925	9,292,173	9
10	Florida	14,451	453,451	26,599	158,968	5,212,157	9,947,920	8,909,746	..	2,225,056	..	..	1,679,930	4,685,403	10
11	Georgia	101,237	809,667	419,465	988,566	30,156,317	94,559,468	80,390,228	2,127,017	17,646,459	145,800	49,280	13,930,125	31,196,115	11
12	Idaho	2,775	50,905	1,021	2,316	520,580	492,860	637,797	75,650	5,750	1,088,640	1,989,341	742,300	1,047,624	12
13	Illinois	1,017,646	1,944,573	1,568,286	2,703,343	149,756,638	920,506,346	210,802,585	30,128,405	129,921,395	4,814,123	6,968,202	94,368,057	205,620,672	13
14	Indiana	533,203	1,182,988	1,612,680	1,873,230	83,776,782	634,804,189	122,914,302	27,747,222	51,094,538	610,692	1,137,172	52,052,425	108,617,278	14
15	Iowa	482,786	1,137,045	855,493	1,353,908	82,987,133	392,602,442	114,386,441	29,435,692	68,935,065	756,224	1,063,484	22,420,183	46,534,322	15
16	Kansas	152,900	998,347	109,088	206,587	23,173,185	90,327,040	27,630,651	2,391,239	17,025,525	179,130	174,278	4,319,060	11,775,833	16
17	Kentucky	351,200	812,380	936,765	1,838,227	66,287,343	311,238,916	87,477,374	5,728,704	50,091,606	761,450	509,245	29,277,809	54,625,809	17
18	Louisiana	62,484	383,364	118,602	338,326	15,920,188	68,215,421	52,006,022	9,906	7,596,628	100	1,200	18,313,974	24,161,905	18
19	Maine	79,782	428,826	434,666	45,760	23,357,129	102,961,951	33,470,044	276,793	1,089,888	597,708	621,738	39,796,190	79,497,521	19
20	Maryland	102,216	231,350	120,697	257,893	18,533,698	170,389,684	35,343,927	5,774,503	11,701,817	25,369,730	3,444,183	36,438,729	76,593,613	20
21	Massachusetts	86,266	271,315	78,560	49,178	17,040,228	116,432,784	32,192,378	34,648	1,397,807	944,258	1,493,522	231,677,802	553,912,568	21
22	Michigan	253,670	635,134	1,985,905	417,811	49,809,860	398,240,578	81,580,023	16,965,773	14,086,238	9,962,874	7,199,118	71,712,283	118,294,676	22
23	Minnesota	102,678	365,241	132,343	158,473	20,118,841	97,847,442	33,446,400	18,865,973	4,743,117	18,500	35,350	11,993,729	23,110,700	23
24	Mississippi	104,600	581,247	232,732	814,381	23,940,238	81,716,576	73,137,953	274,479	15,637,316	..	..	4,401,714	8,164,768	24
25	Missouri	547,822	1,260,065	1,352,001	2,306,430	84,285,273	392,938,047	103,035,759	14,315,926	66,034,075	3,483,250	3,472,513	80,257,244	206,213,439	25
26	Montana	6,733	82,380	2,024	2,599	1,818,693	725,193	1,676,660	181,229	320	2,518,613	4,030,435	1,794,300	2,494,511	26
27	Nebraska	33,901	392,716	22,172	59,449	6,551,185	30,242,183	8,004,742	2,125,086	4,736,710	14,850	30,130	2,169,963	5,738,512	27
28	Nevada	14,409	43,969	11,018	3,235	1,445,449	1,485,535	1,659,713	222,966	9,660	32,253,400	11,166,452	5,127,790	15,870,539	28
29	New Hampshire	43,315	236,109	448,760	33,127	15,246,545	80,580,313	22,473,547	193,021	1,277,708	203,450	323,805	36,023,743	71,038,249	29
30	New Jersey	103,663	223,086	120,067	142,563	21,443,463	257,523,373	42,725,158	2,201,433	8,745,384	2,501,700	2,554,475	79,606,719	169,237,732	30
31	New Mexico	23,500	185,301	619,438	11,267	2,380,157	2,260,139	1,905,060	352,822	640,823	2,384,000	343,250	1,459,997	1,489,868	31
32	New York	856,241	2,086,230	2,181,578	518,151	175,832,712	1,272,857,766	253,529,153	12,178,462	16,462,825	4,096,091	4,324,651	366,994,320	785,194,651	32
33	North Carolina	114,406	613,263	463,435	1,075,215	21,903,967	78,207,083	57,845,940	2,859,879	18,454,215	1,853,100	638,302	8,140,473	19,021,327	33
34	Ohio	704,674	1,521,421	4,928,635	1,728,968	129,300,528	1,054,465,226	198,256,907	27,882,159	67,501,144	9,017,197	7,751,554	141,923,964	269,713,610	34
35	Oregon	64,625	153,246	318,123	119,455	6,822,075	22,352,989	7,122,790	2,340,746	72,138	321,520	417,797	4,376,849	6,877,387	35
36	Pennsylvania	611,488	1,505,297	1,791,301	867,548	115,647,075	1,043,481,582	183,946,027	19,672,967	34,702,006	84,660,276	76,208,390	406,821,845	711,834,344	36
37	Rhode Island	11,113	43,105	23,938	14,697	3,135,132	21,574,986	4,761,163	784	311,957	80,000	59,000	66,557,322	111,418,354	37
38	South Carolina	54,052	239,207	124,594	395,999	12,443,510	44,808,763	41,790,402	783,610	7,614,207	132,000	19,888	5,400,418	9,858,981	38
39	Tennessee	273,200	682,318	825,783	1,823,609	55,084,075	218,753,747	86,472,847	6,188,916	41,343,614	944,829	776,292	15,595,295	34,362,636	39
40	Texas	574,641	3,900,158	714,351	1,202,445	37,425,194	60,149,950	49,185,170	415,112	20,554,538	150	900	5,284,110	11,217,262	40
41	Utah	14,281	199,954	53,672	3,150	2,149,814	2,297,923	1,973,142	561,473	95,557	44,800	14,950	1,391,890	2,343,019	41
42	Vermont	60,015	346,501	580,374	46,345	23,888,825	139,367,075	34,647,027	454,703	1,699,882	2,494,700	905,410	20,329,037	32,184,606	42
43	Virginia	168,938	573,152	370,145	674,670	28,187,669	213,020,845	51,774,801	7,398,787	17,649,304	1,113,000	409,914	18,555,400	38,364,392	43
44	Washington	13,923	51,979	44,063	17,491	2,103,343	3,978,341	2,111,902	217,043	21,781	307,200	109,064	1,893,674	2,857,052	44
45	West Virginia	99,302	337,881	553,327	268,031	17,175,429	101,604,381	23,379,692	2,483,543	8,197,865	2,554,499	2,538,531	11,884,520	24,102,201	45
46	Wisconsin	270,083	831,963	1,069,282	512,778	45,310,882	300,414,064	78,627,032	25,606,344	15,033,998	737,728	510,982	41,981,874	77,214,326	46
47	Wyoming	3,753	36,472	6,409	146	441,795	18,187,000	42,760,000	..	..	261,000	850,000	889,400	765,424	47
		8,663,129	28,056,612	28,678,424	25,145,330	1,525,370,438	9,290,194,604	2,489,670,808	287,737,612	760,946,540	222,379,262	152,599,005	2,119,009,065	4,230,941,362	

STATE AND RAILROAD DEBTS

ARE COPIED FROM POOR'S RAILROAD MANUAL,—MADE UP FROM OFFICIAL DOCUMENTS.

STATE, COUNTY, TOWN, CITY, BONDED AND FLOATING DEBTS; ALSO, TAXATION FROM UNITED STATES CENSUS OF 1870.

	States and Territories.	Bonded and Floating Debt, 1874.	County, Town, City, &c., Bonded and Floating Debt.	Bonded and Floating Debts of R. R. per States.	Total.	Total Taxation State, County, Town, City, &c., other than U. S. Gov.	Private Libraries.	No. volumes.	
1	Alabama	$10,452,593	$4,759,136	$43,169447	$53,381,173	$2,983,942	1,132	490,305	1
2	Arizona	..	10,500	..	10,500	31 323	5	1,000	2
3	Arkansas	12 108,274	691,595	7,820,000	20,619 869	2 866,890	888	81,232	3
4	California	3,796,500	14,670,055	21,388,100	39,854,655	7,817,115	873	314,674	4
5	Colorado	..	681,068	7,329,114	8,010,182	362 197	145	27,959	5
6	Connecticut	5,614,500	9,813 006	18,928,550	33,756,056	6,064,843	..	..	6
7	Dakota	..	6,761	1 200,000	1,205,761	13,867	14	6,938	7
8	Delaware	1,231 000	526,125	2,584,901	4,342 026	418 092	221	91,148	8
9	District of Columbia	..	2,596,545	..	2,596,545	1,581,569	569	383,766	9
10	Florida	5,433,767	897,141	3,721,127	10,062,535	469,166	178	87.554	10
11	Georgia	10,986.000	15,209 212	11,815,179	38,011 391	2,227,029	1,190	304,381	11
12	Idaho	..	222,621	..	222,621	174,711	32	7,765	12
13	Illinois	1,730,972	37,291 932	189,421.375	228.444,279	21,825,068	9,865	2,399,369	13
14	Indiana	4,898,813	3,651,203	115,906,862	124,456,878	10.791,421	2,968	497.659	14
15	Iowa	543,056	7,508,635	46,464.768	54,516.459	9,055.614	2,387	295,749	15
16	Kansas	1,341,775	4,875 976	78,954.673	85.172.424	2,672,992	389	126,251	16
17	Kentucky	2 720,710	15,061.004	31.916,057	49,697.771	5,730,118	4 374	1,590,245	17
18	Louisiana	21,872,320	23,065,407	34,721.457	84.659.184	7,060,782	1.852	584.140	18
19	Maine	7,088.400	8,529,768	25.079.694	40.697,862	5,384.645	1.872	450,963	19
20	Maryland	11.095,019	15,715,102	48,838,736	75,648,857	6,632,824	2,037	1,142,538	20
21	Massachusetts	29.465,204	40.940.657	41,383.435	111,789 296	24,922 900	1,625	1.007.204	21
22	Michigan	1,588,135	4,340 203	87,940,132	93.868.470	5,412.957	23,761	1,596,113	22
23	Minnesota	480,000	2,438,797	76,915.823	78,834,620	2.648,372	825	200,020	23
24	Mississippi	7 repudiated	798,185	19.812.206	20.540,391	3,736,432	2,251	400,109	24
25	Missouri	17,839,000	29.043,865	93,816,124	140,198.989	13,908,498	3,903	566,642	25
26	Montana	..	278,719	..	278,719	198,527	128	14.690	26
27	Nebraska	..	1,841.964	20,225,384	22,067.348	1,027,327	219	95,125	27
28	Nevada	660,000	1,343.189	..	1,949,189	820,308	286	116,100	28
29	New Hampshire	4.048,100	8,635,504	5.034,884	17,718,488	3.255,793	856	379,876	29
30	New Jersey	2,596,300	19,858,104	94,964,490	117,418,894	7,416,724	777	359,612	30
31	New Mexico	..	7,560	..	7,560	61.014	83	29,805	31
32	New York	30.199 456	127,399.086	204.959.079	362,557,621	48,550,308	7,156	2,785,483	32
33	North Carolina	38.921,848	2,573.991	14.793,396	56,189.235	2.352,809	1.190	339,264	33
34	Ohio	7,988.265	12,509.907	217,587,924	238,086,036	23,526,548	11,765	2,353,000	34
35	Oregon	290,477	111,903	..	402,380	580,956	2.195	273,427	35
36	Pennsylvania	24.568,635	57,915,469	309,292.315	391,776,419	24.531,397	9,883	3,328,598	36
37	Rhode Island	2,563.500	3.025.142	2,418,864	8,007,406	2.170,152	425	383,691	37
38	South Carolina	9.540,750	5.339.320	15.575,346	30.455.416	2,767,675	922	397.020	38
39	Tennessee	22,908.400	10.287.389	13.453,836	46.649.625	3,381,579	2,732	597,399	39
40	Texas	4,822,072	1,505 226	52.539,274	58.866,572	1.129.577	320	62,093	40
41	Utah	..	..	4,365,000	4,365,000	167,355	59	7.684	41
42	Vermont	226.500	2,592 200	18.421.384	21.240,084	1,547,128	1.056	405.536	42
43	Virginia	47.542,610	8,530,416	61,276,890	117,349.916	4,613,798	2,762	721,243	43
44	Washington	..	88.827	..	88.827	163,992	72	19,810	44
45	West Virginia	..	561.767	..	561,767	1,722,168	1.090	220.562	45
46	Wisconsin	..	3,591,475	57,131,519	60,722.994	5,337,970	1,551	527,131	46
47	Wyoming	..	..	..	..	34,401	20	1,500	47
		353,562,891	516,341,667	2,101,167,845	2,962,368,290	280,150,813	108,903	26,072,333	

WASHINGTON, Aug. 1, 1876.—The following is a recapitulation of the public debt statement issued to-day:—

Debt bearing Interest in Coin.

Bonds at six per cent	$984,999,650.00
Bonds at five per cent	711,685,800 00
Total principal	1,696,685,450.00
Total interest	24,592,865 19

Debt bearing Interest in Lawful Money.

Navy pension fund at three per cent	14,000,000.00
Interest	35,000.00

Debt on which Interest has Ceased since Maturity.

Principal	3,299,760.26
Interest	201,924 13

Debt bearing no Interest.

Old demand and legal-tender notes	369,686,020 50
Certificates of deposit	32,815,000.00
Fractional currency	32,902,880.39
Coin certificates	29,313,000 00
Total principal	464,716,900.89
Total unclaimed int.,	20,444.84

Total Debt.

Principal	2,178,700,111.15
Interest	24,850,234 16
Total	2,203,550,345.31

Cash in the Treasury.

Coin	59,843,684.73
Currency	12,590,349.52
Special deposit held for redemption of certificates of deposit, as provided by law	32,815,000.00
Total	105,249,034.25

Debt less Cash in the Treasury.

Aug. 1, 1876	2,098,301,311.06
July 1, 1876	2,099,439,344.99
Decrease of debt since June 30, 1876	1,138,033.93

Bonds issued to Pacific R. R. Com's., Interest payable in Lawful Money.

Principal outstanding	64,623,512 00
Interest accrued and not yet paid	323,117 56
Interest paid by U. S.	32,080,218.42
Interest repaid by transportation of mails, &c.	6,909,204.91
Bal. of int. paid by U. S.	25,171,013.51

ITEMS OF AGGREGATES OR TOTALS FROM THE CENSUS OF 1870:—

	Total value of Live Stock	Cash value of	Total estimated value of all Farms' productions, includ-	Bushels of	Bushels	Capital employed in	Total products of	Capital employed in	Total product of

ITEMS OF AGGREGATES OR TOTALS FROM THE CENSUS OF 1870.

Total acres in farms	407,735,041
Improved	188,921,099
Unimproved	218,813,942
Value of farming implements	$336,878,429
Pounds of wool	100,102,387
Animals slaughtered	398,956,376
Orchard products	$47,335,189
Bushels of rye	16,918,795
" " oats	289,107,157
" " barley	29,761,305
Bales of cotton	3,011,996
Tons of hay	27,316,048
Pounds of rice	73,635,921
Pounds of tobacco	262,735,341
Hhds. of sugar-cane	87,043
Pounds of maple	28,443,645
Gallons of molasses, cane	6,593,323
Bushels of potatoes (Irish)	143,337,473
" " (sweet)	21,709,824
Pounds of butter	514,092,683
" cheese	53,492,153
Gallons of milk sold	235,500,595
Total man'f'g. establishments	252,148
Steam-engines	40,191
Horse-power	1,215,711
Water wheels	51,018
Horse-power	1,130,431
Hands employed	2,053,996
Capital employed	$2,118,208,769
Wages	$775,584,343
Materials	$2,468,424,242
Total products	$4,232,325,442
Building capital employed	$49,168,863
Wages	$49,741,376
Material	$95,694,685
Total products	$201,573,541
Iron manufacturing establishments	3,726
Capital	$198,356,116
Wages	$73,027,976
Materials	$193,208,218
Products	$322,128,608
Leather establishments	7,569
Capital	$61,124,812
Wages	$14,505,775
Materials	$118,569,634
Products	$157,237,597
Liquors (distilled). Malt & vinous establishments	3,089
Capital	$66,658,945
Wages	$9,009,062
Materials	$49,110,388
Products	$94,123,014
Lumber establishments	26,945
Capital	$161,500,273
Wages	$46,231,238
Materials	$132,071,778
Products	$252,339,029
Paper establishments (all kinds)	684
Capital	$35,780,514
Wages	$7,477,780
Materials	$31,344,169
Products	$50,842,445
Printing and Publishing establishments	2,177
Capital	$40,394,727
Wages	$18,882,918
Materials	$24,729,407
Products	$66,862,477
Textile Fabric establishments	4,709
Capital	$265,684,095
Wages	$75,628,743
Materials	$238,393,905
Products	$380,913,815
Tobacco man'f'g. establishments	5,204
Capital	$24,924,330
Wages	$14,315,342
Materials	$34,656,607
Products	$71,762,044
Wearing articles, all kinds —establishments	34,312
Capital	$125,866,220
Wages	$98,837,559
Materials	$24,854,378
Products	$398,264,118
Flouring & grist mills products; establishm'ts	22,573
Capital	$151,565,376
Wages	$14,577,533
Materials	$367,392,122
Products	$444,985,143
Pig-iron establishments	386
Capital	$56,145,326
Wages	$12,475,250
Materials	$24,743,6
Products	$69,640,0
Sewing Machine establishments	
Capital	$8,750,0
Wages	$5,149,0
Materials	$3,053,2
Products	$14,097,4
Woolen man'f'g. establishments	2,0
Capital	$98,894,0
Wages	$26,877,0
All products	$155,400,0
Number of dwellings	7,042,0
Average persons to each	5,0
Number of families	7,579,0
Average in each	5,0
White population	33,589,0
Colored population	4,880,0
Chinese population	63,0
Japanese population	
Civilized Indians	25,0
Uncivilized Indians	337,0
Engaged in all classes of occupations	12,505,0
Male	10,601,0
Female	1,896,0
Agriculture	5,922,0
Male	5,525,0
Female	396,0
Professional and personal services	2,084,0
Male	1,617,0
Female	1,066,0
Trade and transportation	1,191,0
Male	1,172,0
Female	18,0
Manufacture, mechanical, and mining industries	2,707,0
Male	2,353,0
Female	353,0
Blind	30,0
Deaf and dumb	15,0
Insane	37,0
Idiotic	24,0
No. of paupers supported during the year ending June 1st, 1870	116,0
Cost of support	$10,500,0
Persons convicted of crimes	36,0

NUMBER OF PERSONS EMPLOYED IN GIVEN OCCUPATIONS OVER 10,000 IN NUMBER ACCORDING TO THE CENSUS OF 1870.

Agricultural Laborers	2,885,996
Farmers and Planters	2,977,711
Gardeners and Nurserymen	31,435
Barbers and Hairdressers	23,935
Boarding and Lodging House Keepers	12,785
Clergymen	43,874
Domestic Servants	975,734
Employés of Government	14,470
Employés of Hotels and Restaurants	23,438
Hostlers	17,586
Hotel Keepers	26,394
Laborers (not specified)	1,931,666
Launderers and Laundressers	60,906
Lawyers	40,736
Nurses	10,976
Officials of Government	44,743
Physicians and Surgeons	62,383
Restaurant Keepers	35,185
Soldiers (U. S. Army)	22,081
Teachers (not specified)	126,822
Agents	10,449
Bankers and Brokers	10,631
Bar Keepers	14,362
Boatmen and Watermen	21,332
Book-keepers in Stores	31,177
Clerks in Stores	222,504
Draymen, Hackmen, and Teamsters, &c	120,756
Employés in Ins. Cos., not clerks	11,611
Employé in R. R., not Clerks	154,027
Hucksters	17,362
Pedlers	16,975
Porters in Stores and Warehouses	16,631
Sailors	56,663
Salesmen and Saleswomen	14,203
Traders and Dealers (not specified)	100,406
Drugs and Medicine	17,369
Dry Goods	39,790
Groceries	74,410
Liquors and Wines	11,718
Produce Dealers	11,809
Apprentices, (not specified)	15,362
Bakers	27,680
Blacksmiths	141,774
Boot and Shoemakers	171,127
Brewers and Malt-sters	11,246
Butchers	44,354
Cabinet-makers	42,835
Carpenters and Joiners	344,596
Carpet Makers	15,696
Cigar Makers	28,286
Coopers	41,789
Cotton Mill operators	111,606
Curriers, Tanners, and Finishers of Leather	28,702
Engineers and Firemen	34,233
Fishermen and Oystermen	27,106
Gold and Silver Workers	18,508
Harness and Saddle Makers	32,8
Hat and Cap Makers	19,4
Iron and Steel Workers, and Operatives	22,0
Iron Foundries—Operatives	34,9
Iron and Steel Rolling Mills—Operatives	17,0
Lumbermen and Raftsmen	17,5
Machinists	34,7
Manufacturers	42,6
Marble and Stone-cutters	25,0
Masons—Brick and Stone	89,7
Mill and Factory Operatives	41,0
Millers	41,2
Milliners, Dress, and Mantua Makers	92,0
Miners	132,0
Painters and Varnishers	85,5
Paper Mill Operatives	12,0
Plasterers	23,7
Plumbers and Gas Fitters	11,1
Printers	30,0
Quarrymen	13,9
Saw Mill Operatives	47,9
Ship Carpenters	15,9
Tailors, Tailoresses, and Seamstresses	161,9
Tobacco Factories—Operatives	11,9
Tinners	36,3
Wheelwrights	20,9
Woolen Mills—Operatives	56,0

The Foreign-born Population, Distributed According to Place of Birth, among the Principal Foreign Countries—1870.

Living in—	BORN IN—																						
	All foreign countries.	Austria.	Belgium.	Bohemia.	British America.	China.	Denmark.	France.	Germany.	Great Britain and Ireland.	Holland.	Hungary.	Italy.	Luxemburg.	Mexico.	Norway.	Poland.	Portugal.	Russia.	Spain.	Sweden.	Switzerland.	West Indies.
The United States	5,567,229	30,508	12,553	40,289	493,464	63,042	30,107	116,402	1,690,535	2,626,241	46.802	3,737	17,157	5,802	42,135	114,246	14,436	4,542	4,644	3,764	97,332	75,153	11,570
The States	5,473,029	30,116	12,475	40,071	487,605	55,974	24.574	115.140	1,679,146	2,580,556	46,561	3,649	16,766	5.795	33,920	112,116	14,192	4,510	4,535	2,677	94.447	73,972	11.470
Alabama	9 962	90	10	29	183	1	80	534	2,482	5,453	14	24	118	.....	13	21	38	17	26	98	105	168	69
Arkansas	5,026	41	9	21	342	98	55	237	1,563	2,162	71	2	30	5	14	19	32	1	24	3	125	104	13
California	209,831	1,078	291	90	10,660	48,826	1,837	8,068	29.701	78.661	452	102	4,660	11	9,339	1,000	804	2,508	540	405	1,944	2.927	395
Connecticut	113,639	154	36	95	10,861	11	116	821	12,443	87,157	99	30	117	.....	5	72	83	49	34	27	333	492	191
Delaware	9,136	8	2	1	112	.....	8	127	1,142	7,600	16	3	5	.....	.....	...	4	1	3	3	9	33	27
Florida	4,967	17	8	3	174	1	41	126	597	1,311	7	2	56	.....	41	16	20	18	7	56	30	14	2,856
Georgia	11,127	34	21	23	247	4	42	312	2,761	6,701	42	42	50	.....	9	14	88	13	32	39	35	103	118
Illinois	515,198	2,099	1,071	7,350	32,550	8	3,711	10.911	203.758	192,960	4,180	420	761	753	73	11,880	1,696	76	306	50	29,979	8,980	186
Indiana	141,474	443	462	141	4.765	6	315	6,363	78,060	42,266	873	36	95	93	17	123	5 3	13	61	21	2,180	4.287	41
Iowa	204,692	2,691	650	6,766	17,907	3	2,827	3,130	66,162	65,442	4,513	134	54	1,344	14	17,556	178	3	96	27	10.796	3.937	89
Kansas	48,392	448	199	105	5,324	.....	503	1,274	12,775	19,923	300	38	55	103	63	588	169	4	56	4	4,954	1,328	22
Kentucky	63,398	146	100	40	1,082	8	53	2,057	30,318	27,201	270	107	325	9	31	16	109	3	28	16	112	1,147	39
Louisiana	61,827	435	220	23	714	79	291	12,341	18,963	20,819	232	29	1,889	1	409	76	198	125	165	1,130	358	873	1,742
Maine	48,881	10	11	1	26,788	4	102	137	508	20,672	26	.....	48	.....	4	58	6	72	18	42	91	9	79
Maryland	83,412	266	41	789	644	6	107	649	47,045	31,988	236	46	210	.....	19	18	145	28	50	49	100	297	784
Massachusetts	353,319	255	104	110	70,055	115	267	1,629	13,072	259,878	480	14	454	5	20	302	272	735	154	179	1,386	491	407
Michigan	268,010	795	832	1,179	89,590	4	1,354	3,121	64,143	85,200	12,559	144	110	.....	25	1,516	974	31	194	34	2,506	2,116	128
Minnesota	160,697	2,647	622	2,166	16,698	6	1,910	1,743	41,364	30,592	1,855	209	40	1,173	5	35,940	246	.....	109	5	20.987	2,162	9
Mississippi	11,191	85	10	9	375	16	193	630	2,960	4,906	35	10	147	2	32	78	78	3	21	78	970	266	52
Missouri	222.267	1,493	536	3,517	8,448	4	665	6,293	113 618	74,141	1,167	599	936	.....	90	297	619	21	140	55	2,302	6,597	135
Nebraska	30,748	299	15	1,770	2.635	2	1,129	340	10,954	9,616	180	73	44	.....	11	506	57	.....	27	3	2,352	593	13
Nevada	18.801	157	28	7	2.365	3,146	208	414	2,181	8.525	44	3	199	.....	226	80	50	104	48	15	217	247	25
New Hampshire	29,611	9	.....	4	12,955	5	11	60	436	15,895	5	3	9	.....	1	55	2	12	2	7	42	11	16
New Jersey	188.943	686	191	271	2,474	30	510	3,130	54,001	120,339	2,944	85	257	7	46	90	279	37	90	71	554	2.061	264
New York	1,138,353	3,928	984	2,071	79,042	177	1,701	22,302	316,902	674,106	6,426	709	3,592	286	127	975	4,061	237	1,473	818	5.522	7,916	3,127
North Carolina	3.029	13	6	5	171	4	8	54	904	1.651	13	1	19	.....	2	5	8	12	11	8	38	80	20
Ohio	372,493	3,699	639	1.429	12,988	12	284	12,781	182,897	140,028	2,018	234	564	329	41	64	526	22	181	31	252	12,727	134
Oregon	11.600	53	38	36	1,187	3,327	87	308	1,875	3,771	39	8	31	.....	51	76	65	48	67	5	205	160	36
Pennsylvania	545,309	1,536	399	580	10,922	32	561	8,695	160,146	350,179	819	144	784	72	86	115	777	89	229	146	2.566	5,765	893
Rhode Island	55,396	19	6	19	10,242	.....	24	167	1.201	42,984	45	5	58	.....	2	22	13	146	13	12	106	74	67
South Carolina	8,074	10	10	1	77	6	50	143	2.754	4,206	32	6	63	.....	2	.....	66	8	31	30	61	45	124
Tennessee	19,316	112	19	37	587	4	88	562	4,539	11,008	100	87	483	4	17	37	221	5	74	12	349	802	20
Texas	62,411	1,748	73	781	597	20	159	2,232	23,985	6,762	54	46	186	.....	23,020	403	448	23	62	150	364	599	112
Vermont	47,155	2	1	.....	28,544	1	21	93	370	17,867	20	.....	17	.....	5	34	1	9	1	7	83	19	9
Virginia	13.754	56	6	31	327	8	23	369	4,050	7,955	231	12	162	... ..	13	17	42	28	39	27	30	148	61
West Virginia	17,091	59	21	1	207	.....	21	223	6,232	9,710	174	5	34	.....	.....	1	4	.....	11	1	5	325	4
Wisconsin	364,409	4.486	4,804	10,570	25,666	.....	5,212	2,704	162,314	90,001	5,990	237	104	1,598	47	40.046	1.290	9	102	13	2.799	6,069	63

There are 94,200 foreign population in the Territories.

THE NUMBER OF ALIEN PASSENGERS ARRIVED IN THE UNITED STATES FROM FOREIGN COUNTRIES, FROM THE COMMENCEMENT OF THE GOVERNMENT TO THE 31ST OF DECEMBER, 1870. THE DATES ARE INCLUSIVE.

COUNTIES.	Prior to 1820.	1820 to 1830.	1831 to 1840.	1841 to 1850.	1851 to 1860.	1861 to 1869.	Aggregate.
England	.....	15,037	7,611	32,092	247,125	154,039	456,704
Ireland	.....	27,106	29,188	162,332	748,740	392,685	1,360,051
Scotland	.....	3,180	2,667	3,712	38,331	24,913	72,803
Wales	.....	170	185	1,261	6,319	3,828	11,763
Great Britain, not specified	.....	35,534	243,540	848,366	297,578	389,422	1,806,440
Total from British Isles	.....	81,827	283,191	1,067,763	1,338,093	955,887	3,706,761
Germany	.....	7,583	148,204	422 477	907,780	690 288	2,176,332
Prussia	.....	146	4,250	12,149	43,887	39,949	100,372
Austria	.....	.....	.....	.....	.....	4,114	4,114
Sweden and Norway	.....	94	1,201	13,903	20 931	93,434	129,563
Denmark	.....	189	1,063	539	3.749	14,844	20,384
Holland	.....	1,127	1,112	8,251	10,789	8,509	39,188
France	.....	8,868	45,575	77,262	79,358	34,162	242,225
Switzerland	.....	3,257	4,821	4,644	25,011	21,365	59,098
Belgium	.....	28	22	5,074	4,738	6,377	16,339
Spain	.....	2,616	2,125	2,209	9,298	6,455	22,703
Portugal	.....	180	8 9	550	1,055	1.790	4,404
Italy	.....	389	2,211	1,59	7,012	9,856	21,059
Sardinia	.....	22	7	221	1,790	73	2,103
Sicily	.....	17	35	79	426	115	672
Malta	.....	1	35	78	5	8	127
Greece	.....	20	49	16	31	67	183
Russia	.....	89	277	551	457	1,905	3,279
Poland	.....	21	369	105	1,164	1,955	3,614
Hungary	.....	.....	.....	.....	.....	487	487
Turkey	.....	21	7	59	83	124	294
Europe, not specified	.....	2	.....	51	427	.....	480
China	.....	3	8	35	41,397	56,116	97,559
Japan	.....	.....	.....	.....	.....	185	185
India	.....	9	39	36	43	49	176
Arabia	.....	.....	.....	.....	.....	33	33
Syria	.....	.....	.....	.....	.....	4	4
Persia	.....	.....	.....	7	15	3	25
Asia, not specified	.....	3	1	4	19	.....	27
Cape of Good Hope	.....	2	.....	.....	.....	77	79
Liberia	.....	1	8	5	5	31	50
Egypt	.....	.....	4	.....	.....	8	12
Abyssinia	.....	.....	.....	.....	.....	5	5
Morocco	.....	.....	4	1	.....	.....	5
Africa, not specified	.....	10	33	47	186	179	455
Algiers	.....	.....	.....	2	.....	.....	2
British America	.....	2,486	13,624	41,723	59,309	114,009	231,151
Mexico	.....	4,818	6,.99	3,271	3,078	1,923	19,989
Central America	.....	107	44	368	449	71	1,039
Guiana	.....	.....	.....	.....	.....	43	43
Venezuela	.....	.....	.....	.....	.....	38	38
Peru	.....	.....	.....	.....	.....	36	36
Chili	.....	.....	.....	.....	.....	26	26
Brazil	.....	.....	.....	.....	.....	40	40
Buenos Ayres	.....	.....	.....	.....	.....	7	7
Bolivia	.....	.....	.....	.....	.....	3	3
New Grenada	.....	.....	.....	.....	.....	2	2
Paraguay	.....	.....	.....	.....	.....	1	1
South America, not specified	.....	543	856	3,579	1,224	1,153	7,355
Cuba	.....	.....	.....	.....	.....	3,598	3,598
Jamaica	.....	.....	.....	.....	.....	84	84
Hayti	.....	.....	.....	.....	.....	80	80
Porto Rico	.....	.....	.....	.....	.....	42	42
West Indies, not specified	.....	3,998	12,301	13,528	10,660	4,787	45,274
Australia	.....	2	3	.....	104	129	238
Sandwich Islands	.....	1	6	28	44	75	154
East India Islands	.....	79	.....	.....	.....	20	99
Isle of France	.....	.....	2	1	.....	.....	3
New Zealand	.....	.....	.....	.....	4	4	8
Society Islands	.....	.....	.....	1	6	.....	7
Islands of Pacific, not spec'd	.....	.....	.....	.....	.....	2	2
Azores	.....	13	29	327	2,873	3,383	6,625
Bermudas	.....	.....	.....	.....	.....	58	58
Cape de Verdes	.....	4	15	3	7	42	71
Madeira	.....	70	52	3	189	9	323
St. Helena	.....	.....	1	3	13	9	26
Canary Islands	.....	271	6	1	8	4	290
Miquelon	.....	.....	.....	.....	.....	3	3
Iceland	.....	.....	.....	.....	10	1	11
Countries not specified	250,000	32,892	69,799	52,725	25,438	34,754	465,608
Corsica	.....	2	5	2	.....	.....	9
Barbary States	.....	4	.....	.....	.....	.....	4
Aggregate	250,000	151,824	599,125	1,713,225	2,598,214	2,112,655	7,425,043
Add emigration to Dec. 31, '70	.....	.....	.....	.....	.....	339,046	339,046
Total from the beginning of the government to Dec. 31, 1870	.....	.....	.....	.....	.....	2,451,701	7,764,089

STATISTICS OF COUNTRIES

Governments.	Population.	Area square miles.	Population to sq. mile.	Miles of Railroad.	Miles of Telegraph.	National Debts.	Revenue.
United States	43,000,000	3,603,844	11	70,178	75,137	1873—$2,234,682,990	$333,738,200
Great Britain	31,628,338	4,677,432	England, 389	15,814	24,363	1873— 3,924,860,515	383,043,850
Colonies			Ireland, 169	..	..	....	....
Canada	3,602,321	....	Scotland, 109	2,428	10,995	1872— 122,400,140	29,817,830
Queensland	120,104	....	....	..	..	....	....
New South Wales	134,755	....	....	1,058	..	....	....
Victoria	774,784	....	....	..	..	....	....
South Australia	185,626	....	....	..	..	....	....
India and Ceylon	193,306,070	....	207	4,182	13,371	....	....
Cape Colony	636,158	....	....	..	..	....	....
New Zealand	256,260	....	....	134	..	....	....
Bermuda		....	....	..	..	....	....
Jamaica	506,000	....	....	..	..	....	....
Brazil	9,858,000	3,100,104	3	410	1,500	1872— 450,000,000	46,293,105
Argentine Republic	1,176,861	515,700	3	875	3,150	1873— 75,181,303	18,606,625
Chili	1,938,861	230,977	15	452	2,045	1872— 21,447,750	9,274,920
Mexico	9,176,002	1,030,442	9	300	3,150	1871— 395,500,000	18,500,000
Hawaii	57,000	....	....	..	..	....	....
Peru	3,199,000	502,760	....	375	608	1872— 203,600,000	29,491,175
Venezuela	1,564,433	368,235	....	..	..	1872— 100,000,000	4,392,600
France and Algiers	39,102,921	201,900 proper	150 proper	10,333	23,100	1873— 3,743,950,410	500,204,020
Spain	16,301,851	182,758	90	3,801	7,011	1871— 1,307,375,000	139,506,425
Austria and Hungary	35,904,435	226,400	158	7,529	11,665	1873— 1,734,634,530	285,432,160
Germany	41,009,999	212,091	193	13,066	26,060	1873— 675 072,675	223,909,290
Belgium	5,087,105	11,367	451	1,842	2,694	1873— 183,909,800	36,684,820
Netherlands	3,674,402	13,464	291	1,045	1,869	1873— 392,180,760	40,980,715
Denmark	1,884,741	14,553	111	530	1,225	1872— 63,737,445	11,536,960
Norway	1,750,898	120,729					
Sweden	4,250,412	168,042	21	1,049	7,263	1873— 52,741,325	27,785,300
Italy	26,796,253	112,677	237	3,895	10,595	1872— 1,834,037,035	309,667,005
Russia	82,172,022	7,861,330	10	7,297	31,450	1873— 1,875,000,000	340,546,425
Portugal	7,868,111	36,510	108	453	1,930	1872— 367,165,000	20,517,105
Turkey	66,050,000	1,812,048	20	488	16,125	1872— 1,075,000,000	97,441,875
Egypt	7,000,000	644,800	....	737	3,780	....	....
Tunis	1,200,000	....	..	..	..	....	....
Orange Free State	106,000	....	....	..	..	....	....
Japan	32,795,897	156,604	209	..	..	....	....
China	425,213,952	3,924,627	110	..	..	....	.. ..
Switzerland	2,669,147	15,233	175	820	3,530	1872— 4,279,330	5,131,000
All other countries	....	....	....	817	3,405	....	....

This table was copied from a work entitled the "Statesman's Year Book," published in London in 1874. The dates vary from 1870 to 1873. The amounts will vary some from those found in the headings of the different governments in the body of the book. We present them to show the facts to which they relate, at as uniform date as possible; also, for ready comparison. National debts and Revenue were given in pounds sterling—they were estimated at five dollars per pound.

STATISTICS OF FOREIGN COUNTRIES, SHOWING THEIR RESOURCES

WITH ILLUSTRATIONS OF SOME INDUSTRIES SHOWN IN THE EXHIBITION OF 1876.

GREAT BRITAIN.

The history of Great Britain has been so often and so largely written upon the rolls of the world, that we need not at present add to the record. There are, however, some points that are so immediately connected with our present undertaking that they may serve to elucidate the connection of that country with our Centennial Exhibition. The entire population of Great Britain is, in round numbers, 32,000,000. This includes England, Ireland, Scotland, Wales, the Isle of Man, and the Channel Islands; and excludes, of course, the mighty provinces and colonies subject to the British crown, and of which we shall speak, as we reach them, in detail.

The island of Great Britain is 300 miles wide and over 600 long. Scotland—the northern portion—is divided into Lowlands and Highlands, or mountains and valleys. England—the southern portion—has a similar topography, though not so definitely marked. Wales—on the western side—is remarkable for its stupendous mountains. Throughout the island great mineral wealth abounds, and its geology is rich and varied. The value of its mining products in 1874, were, of iron, coal, copper, tin, lead, gold, zinc, and other metals, $340,000,000.

Of these, pig-iron amounted to $82,500,000, and coal $235,000,000, while of gold, recovered from ores of other metals, the yield was only about $8,000. It will thus be seen that her geology was of the ruder minerals, and to her advantage; for gold-raising countries have seldom prospered largely; unless to that were added the former, or other prerequisites calculated to command the general industry of the people. For many centuries, therefore, Great Britain has been compelled to cultivate home industries, suggested or created by her home resources. Her lands have been largely improved, until now she has 47,000,000 of acres tilled.

Upon the introduction of steam her factories began to multiply, and she now has over 7,000 factories confined to the manufacture of textile fabrics, and employing more than 1,000,000 hands. In the carrying trade for her own and foreign products, she employs 21,000 vessels, with a tonnage of 6,000,000, the crews numbering over 200,000. Her revenue for 1875–6 was $378,425,000, and her expenses $376,330,000.

From the above condensed facts, it will be seen that Great Britain is deeply interested in all gatherings where the industries of the nations are displayed; and next our own land, she makes the largest and most valuable display.

FRANCE.

The most westerly country of Europe—greatest length, 620 miles; greatest breadth, 550 miles; area, 201,600 square miles; population in 1872, 36,102,921. Population of Paris, nearly 2,000,000. River navigation, 5,500 miles. Canals, 2,900 miles. Mineral springs abound—about 1,000 in constant use. The production of grains in 1869 amounted to 913,000,000 bushels. Of beet-root sugar, the annual production is 420,000 tons; of wine, 1,000,000,000 gallons; of honey, 15,000,000 pounds; of wax, 2,664,000 pounds. The annual value of poultry is $9,000,000, and of eggs and feathers, $7,000,000. France has 540 steam, and 15,201 sailing vessels. 250,000 men are employed in her coal and iron trade. Granite, marble, freestone, kaoline, and lithographic stones are largely produced. Alabaster is found in the Pyrenees.

Of textile fabrics, jewelry, gilt wares, bronzes, ceramics, minerals, leather, ivory, chemicals, papers, timber, etc., manufactured, she annually produces 1,020,200,000. Estimated expenses for 1876, $515,000,000, and receipts, $514,000,000. Public debt, $4,480,000,000. Railways in operation,

THE KRUPP GUN EXHIBIT.

14,000 miles. There are several colleges and academies in France, and education is made thorough. She has over 300 public libraries, some very extensive. Many valuable works have been published by the government direct, the expense being too great for private enterprise.

GERMANY.

Germany covers an area of 208,000 square miles, and has a population of 42,757,812. The empire is remarkably rich in minerals, as the following statistics of the most important metallurgic products during 1874 will show:—

Mineral coals,	$160,603,688
Ores,	17,447,968
Mineral salts,	1,232,655
Common salt,	2,778,147
Pig-iron,	36,217,948
Cast iron goods,	27,782,225
Wrought iron,	61,828,928
Steel,	23,248,626
Zinc,	7,161,880
Lead,	7,239,753
Copper,	2,720,336
Silver,	6,643,338
Gold, mercury, cadmium, nickel, cobalt, tin, bismuth, antimony, uranium, and arsenic, together,	1,351,010
Sulphuric acid from ores,	1,186,153

The various mines, smelting, and salt works gave, during the same year, employment to 443,211 workmen. The iron industry is the most extensive, and is scattered throughout the whole country; single works, where pig-ion is made into cast ware, are numerous. The coal mines are principally located in Upper Silesia, the rest in various portions of the empire.

The porcelain industry is carried on to an immense extent, and from the works controlled by the government, the treasury receives a large income.

The textile manufactures consumed during the year 1871, 2,336,508,000 pounds of raw cotton, and 1,350,000,000 pounds of raw wool. The manufactures of silk goods, during 1873, amounted to $50.000,000.

AUSTRIA.

The Empire of Austria is composed of two component parts, which are denominated Austrian State Territory, or Western Half of the Empire, comprising all those kingdoms and dependencies that are represented in Parliament; and Hungarian State Territory, or Eastern Half of the Empire, comprising the kingdoms and dependencies of the Hungarian crown. The total area of the united realm is 374,427 square miles. The population at the last census was (exclusive of the military in active service) 35,634,858. The population of Vienna, the capital, was, in 1875, 1,020,770, including the army.

Nearly one-third of the total population are employed in husbandry and the culture of timber. The average value of the crops in this industry amounts to $490,000,000. Austria is, next to Switzerland, the most mountainous country in Europe, and is very rich in minerals. According to the census of December 31, 1869, 154,489 persons were engaged in mining and smelting.

The quantitative returns for 1874 were 330,000 tons of iron; 2,800 of zinc; 6,700 of lead and litharge; 900 of sulphur; 1,800 of alum; 280,000 of salt; and 7,500,000 of pit coal and brown coal. The value of mining and salt productions amounts to $50,000,000. The glassware made in Bohemia is world-renowned, both for its elegance and delicacy. This industry engages many thousand people, and requires an immense capital.

The system of education is very complete, and it may be mentioned that, in the Western division of the Empire, the establishment of a public elementary school is enforced upon every parish where, within the circuit of an hour's journey, there are at least forty children of from six to fourteen years of age, bound by law to attend school. The monarchy is especially rich in museums and libraries.

BELGIUM.

This Kingdom lies north and northeast of France; and southeast of the North Sea. Its greatest length is 173 miles, and its greatest breadth 112; whole area, 11,313 square miles. It is divided into nine provinces or cantons, and has a population of 5,087,105. It is the most densely inhabited country of Europe, having over 400 souls to the square mile. The surface is generally low and level, though occasionally diversified by mountainous districts, yet there is no eleva-

tion exceeding 2,000 feet. Water is abundant, there being several fine streams; and these improved by a general canal system. The country is rich in minerals, which, with agriculture, add to the national prosperity. Iron, lead, zinc, slate, marble, and coal are abundant. Of coal, it produces the heavy anthracite and the light bituminous; the latter especially desirable as a gas coal. In 1871, Belgium raised 13,753,176 tons, worth $30,720,000. Miners employed, 94,186. Miners receive fifty cents a day. Cost of production, $1.90 per ton.

Another source of industry is wool; the factories of Verviers alone employing 50,000 operatives. Flannels, serges, camlets, and carpets are made exclusively; while the laces are of the finest texture, and known the world over. A lady ignorant of Brussels lace is entirely out of the fashion. Most of these fabrics are made by hand, though recently very delicate lace machinery has been introduced. In the working of metals, the Belgians have been remarkably successful; and in their sheet-iron fairly rival the celebrated Russian material. The exports for 1873 amounted to $433,568,600, and the imports to $491,316,600. Government expenses in 1875, $47,656,288; receipts, same year, $48,606,520. Schools are supported by the communes and State combined, but education is not compulsory. Expenses annually, about $2,000,000.

NETHERLANDS.

The Kingdom of the Netherlands, usually called Holland, lies south and east of the North Sea, and west of Hanover. Its greatest length is 195 miles, and its greatest breadth 110 miles. It has an area of 13,627 square miles, including the Grand Duchy of Luxembourg, of which the King of the Netherlands is the Grand Duke—and a population of 3,716,002. The surface of the country is generally low, being in some places several feet below the level of the sea. This has compelled the exercise of much ingenuity and the expenditure of millions to prevent the sea washing away the farms and towns. Hence we find that the Dutch have been required to constantly fight the inroads of the waters. Manfully have they striven, and not only saved the lowlands, but have reclaimed many square miles of territory from the jaws of old Neptune.

Strong dykes have been constructed under the superintendence of engineers, called Officers of the Waterstaat. North Netherlands is very fertile; the lowlands affording fine pasturage, and the lighter soils being well adapted to fruits and cereals. The country is well supplied with canals. A great canal is now being constructed through the Y, that will be eighty yards wide and twenty-three feet deep. It will shorten the distance, between Amsterdam and the sea, fifteen miles. Farms are small and well cultivated. The principal products are wheat, madder, hemp, butter, and cheese. The chief manufactures are silk, woolen, cotton, and linen fabrics. Gin is largely distilled. Until recently the windmill was the chief motive power, though it is now being rapidly superseded by steam. Fishing is largely pursued by the people; 108 vessels being employed. The herring yield is worth nearly half a million, and the anchovy trade runs to $100,000.

The imports of 1875 were $224,571,210. Exports, $299,519,265. Revenue, $49,439,279. Expenses, $45,221,448. Debt, Jan. 1, 1874, $370,928,030. Regular army, including provinces, 78,901. Navy, 88 steamers, 27 sailing vessels, 699 guns. Pupils in schools, 510,000.

The Dutch colonies in the East Indies comprise the islands of Java, Madura, and four smaller; besides portions of Borneo, Sumatra, and New Guinea. Area, 666,756 square miles. In South America the Dutch hold Surinam; and in the West Indies, five small islands. Total population, India and West Indies, 25,090,000. Exports, indigo, rice, tobacco, sugar, coffee, etc.

SWITZERLAND.

This is an inland and mountainous country of Europe. Greatest length, 180, and greatest breadth, 130 miles. Area, 15,233 square miles. Population, 2,800,000. More than half the country is wild and mountainous, interspersed with smooth lakes, rapid rivers, and precipitous cataracts. The mountains consist of parallel ridges, inclosing deep and narrow valleys. The mean elevation does not exceed 4,000 feet above the level of the sea, though there are peaks that rise nearly two miles above the sea. Beyond 9,000 feet, the heights are covered with snow. The valleys are fertile, pro-

ducing many varieties of fruit and grain. Of every 100 square miles, fully seventy are improved. Over 2,000,000 of the population support themselves by agriculture. The principal cities are, Geneva, population, 46,783; Basle, population, 44,834; Berne, 36,000; Lausanne, 26,550, and Zürich, 21,199.

In 1870, the factories employed 216,468 persons, and the handicrafts, 241,425. In Basle, 6,000 persons are employed in the annual production of $7,000,000 worth of silk ribbons. In Zürich, $8,000,000 worth of silk stuffs are made by 12,000 work-people. Watches and jewelry employ 36,000 workmen, who produce 500,000 watches, valued at $9,000,000—three-sevenths gold and five-sevenths silver. 6,000 people make $2,000,000 worth of embroidery. Cotton goods employ 1,000,000 spindles; 4,000 worms; and 20,000 operatives; besides 38,000 hand-loom weavers. The government is republic, and the chief officers are not eligible to a continuance in office without an intervening period of civil life. Revenue of 1875, $7,903,200; expenditure, $7,853,200; public debt, $6,125,110. The State holds property worth $6,356,600. The army consists of four classes, amounting in all to 201,260. There are 1,200 miles of railways, and extensive telegraph lines.

SWEDEN.

Sweden and Norway, two independent kingdoms, but under one king, form the Scandinavian Peninsula; the first named being the eastern portion, the other the western. The length of the peninsula is about 920 miles; each kingdom possessing about one half. The whole area is about 230,000 square miles. They have a combined population of rather more than 6,000,000, about 70 per cent. of which belongs to Sweden.

In Sweden the prevailing religion is Evangelic Lutheran, and it is requisite that the King and members of the Council of State, and every one who holds a clerical office, involving the duty of instructing in religion, or the science of theology, must profess the Lutheran faith.

It is reported that every Swedish adult, both male and female, can read print, but the art of writing is generally confined to the rising generation.

The Laplanders, who occupy the most northern part of the peninsula, number, in Norway, 17,178; and in Sweden, 6,711. They are remarkable for their low stature; light, but sinewy frame, and for the ever-present scowl upon their countenances, caused by the smoke in their huts, and the dazzling light without.

Sweden is very rich in ores, especially iron, gold, silver, nickel, and coal; together with a few others more sparingly produced. The marbles and granites are beautifully marked, and will receive a high polish.

The culture of silk worms and the manufacture of silk have long been industries of the country, and are of more pecuniary value than any other textile manufacture.

NORWAY.

This is the western portion of the Scandinavian peninsula. Its length is 1,100 miles, and its greatest breadth, 250 miles. Area, 121,779 square miles. Population, 1,800,000. Only about one-sixth of the land can be cultivated. The forests form 20, and the mountains, glaciers, rivers, and lakes, about 76 per cent. It is famous for its draft horses, of which it has 150,000. Cattle, 950,000; sheep, 1,700,000; and reindeer, 100,000. Value of annual product, $25,000,000. Of oats, barley, corn, rye, wheat, and potatoes, the product amounts to 25,260,000 bushels. Value of the harvest, $16,000,000. The forests are of great importance, being worth $16,000,000. The fisheries yield as much more. Mineral products yield $1,000,000. Revenue, about $7,000,000. Expenses, $600,000 more. Debt, $9,200,000. Highways, 12,000 miles. Railways, 360 miles. Canals, 147 miles. Telegraphic wires, 5,845 miles.

DENMARK.

Denmark and its possessions—Farve Islands, Iceland, Greenland, and the Danish possessions in the West Indies—have a combined population of 1,988,000. The kingdom has an area of 14,553 square miles. The chief industries are agriculture and cattle breeding; the annual yield of grain being 100,000,000 bushels, and 200,000,000 barrels of potatoes. The live stock numbers as follows: horses, 350,000; cattle, 1,250,000; sheep, 1,900,000; and hogs, 450,000.

Public debt, April, 1876, $38,539,356; revenue, $13,000,000, and expenses about $1,000,000 less. In the last five years the debt has been reduced nearly $20,000,000.

The most important manufactures are terra-cotta and china ware, linen, cloth, tobacco, soap, and paper.

RUSSIA.

The empire of Russia comprises nearly the whole of the north and northeastern portion of Europe; the whole of northern Asia and a part of central Asia. Population, nearly 90,000,000. Imports, $333,743,410. Exports, $273,493,550. Army, peace footing, 846,424. War footing, 1,213,257. Revenue, 1875, $430,608,072. Expenses, $428,201,165. National debt, $1,855,503,096. Railways, 14,073 miles, nearly one-half of which belongs to the government. In Russia there are 23,623 schools of all grades, in which 926,353 scholars are educated. Most of the schools are maintained by the government, although education is not compulsory. So great is the desire for education that there are more applications for teachers than can be filled.

That part of Russia lying along the Ural Mountains, is exceedingly rich in minerals. In 1873, there were mined 35 tons of gold; 2 of platinum; 14 of silver; 1,392 of lead; 4,392 of copper; 3,271 of zinc; 2 of tin; 247,000 of iron; 1,121,703 of coal; 63,000 of petroleum; 46 of nickel, and several hundred tons of chromes and minerals of less value.

SPAIN.

Spain occupies the greater portion of the peninsula which forms the southwest corner of Europe. Its greatest length is 560 miles, and its greatest breadth is 650 miles. The area, including the Balearic and Canary Islands, is 196,031 square miles; the population is 16,835,506. The provinces of Spain are Cuba, which has an area of 43,225 square miles, and a population of 1,400,000; Porto Rico, with an area of 3,544 square miles; and a population of 625,000; the Philippine Islands, with a combined area of 66,426 square miles, and a population of 6,034,410; Fernando Po, Annobon, Islands of West Africa, with an area of 483 square miles, and a population of 35,000.

Spain is one of the most fertile countries of Europe, with a temperate climate. One of the most important industries is the raising of sheep, principally merino.

The state religion is Roman Catholic, and until recently no other was tolerated. The whole number of Protestants, in 1874, being from 30,000 to 120,000. There were, in 1867, 26,362 public schools, having nearly 1,500,000 pupils. There are now ten universities, with an attendance for each of 1,200 pupils. There are also fine institutes for instructing the deaf, dumb, and blind.

In manufactures, Spain is noted for her fine silks and beautiful metal work.

Spain is very rich in minerals, producing fine ores of the following metals: galena, iron pyrites, cobalt, lead, iron, zinc, silver, quicksilver, antimony, nickel, tin, and magnetic iron. The stones produced are beautiful marbles, granite, alabaster, jasper, malachite, and building stones.

ITALY.

This country lies in the south of Europe, forming a peninsula that runs well out into the Mediterranean sea; and from its peculiar structure has received the name of the Boot. Its greatest length is 600 miles, and its utmost breadth 300. Population, 26,796,073. Area, 112,677 square miles. Density of population, 237 to the square mile. Chief mountains, the frontier ridge of the Alps; and their continuation, the Apennines. The volcanoes are Vesuvius, near Naples; Ætna, in Sicily, and Stromboli, in the Lipari Islands. The rivers are generally navigable for small craft. Canals are numerous, particularly in the north. The Naviglio Grande, or Ticinello, is the finest hydraulic construction in Italy. It passes between the Ticino and Milan, 28 miles, navigable for vessels of large size. 253 canals intersect Piedmont, extending over 1,377 miles. Venice comprises 203 navigable and 40 minor canals. The Naviglio Martesana, 38 miles long, was begun in 1179. The water system is of great value to the agricultural districts.

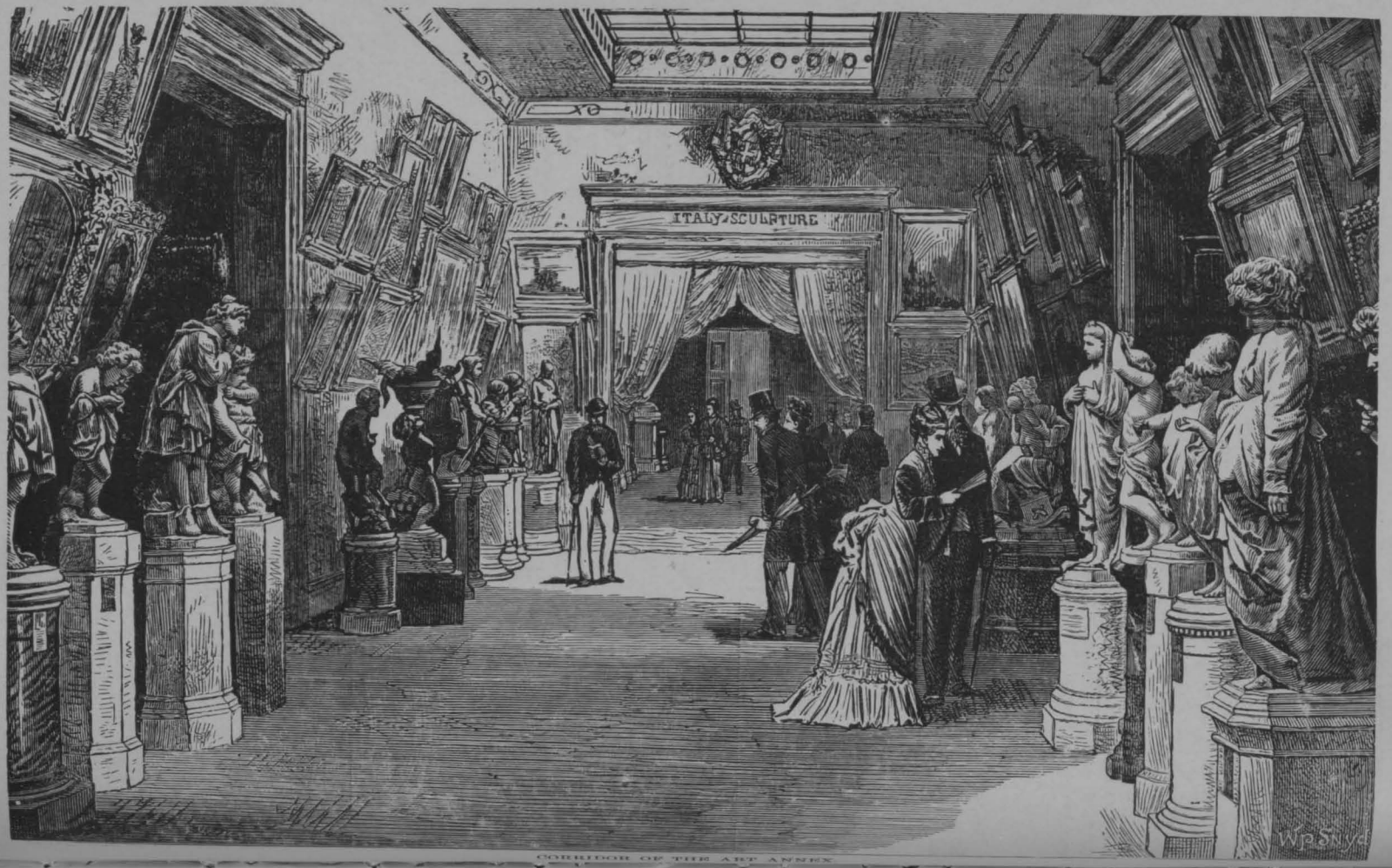
The staple products are—corn, oil, raw silk, rice, olives, wines, and fruit. Only two-thirds of the tillable land are cultivated. The extent of productive soil is 57,592,740 acres. Rock and marsh occupy 9,662,647 acres. Naples wines are the

Enameled Silver Tankard.

Serf Emancipation Cup.

Enameled Silver Tankard.

RUSSIAN.



CORRIDOR OF THE ART ANNEX

best, among which are the famous *Lachryma Christi* and the *Vin d'Asti*. Silk is manufactured in the northern provinces. The fisheries are extensive, and Italy exports large quantities of anchovies and sardines. Exports of 1875 were $211,430,200; and the imports $243,010,200. Public debt, $1,864,219,330. Railways, 4,607 miles. Lines of telegraph, 12,622 miles. Parliament votes annually $2,895,000 for education, and yet nine-tenths of the population cannot read and write.

EGYPT.

THE territories under the Sovereign of Egypt, including those on the Upper Nile and Central Africa, are estimated to cover 1,719,947 square miles; while the gross population is placed at 16,952,000. Egypt proper has an area of 158,227 square miles, and a population of 5,252,000. Though the climate is mild and the air moist, there is no rain in Egypt. The great river Nile commences to rise in the spring, and by the middle of July the red waters appear, and from that time the rise is dated. It continues until the middle of October, when the decline commences. By the end of October, the irrigated land has dried; is sown, and the fields grow rapidly until March, which is the harvest month.

Most of the lands of Egypt are below the level of the Nile, and the inland towns are all inclosed with earthworks to prevent them from being suddenly washed away. Even the banks of the river are carefully attended to, in order to prevent any sudden inroad of the waters. When the rise is expected, guards are stationed by government along the borders of the river to give notice of the coming of the flood, in order to prepare the inhabitants for the outbreak. Notice is given by blowing horns, at the sound of which the people watch eagerly their houses, flocks, and herds.

Egypt is not a healthy country, as beside the plague and cholera, other diseases prevail. The European races cannot become acclimated in Egypt.

The date, sycamore, acacia, and tamarisk, are peculiar to Egypt. Also, the papyrus that in ancient times supplied paper material, and the lotus, or water-lily, of the Nile. The papyrus has almost disappeared, while sugar-cane, tobacco, cotton, and indigo have been introduced. Melons abound. The rocks of Egypt have been known for ages. The immense pyramids, built thousands of years ago, contain stone enough to build a modern city.

The people are considered the oldest in the world. The nation has seen change after change—has been at the very pinnacle of fame and in the depths of misery. Has seemed doubly blessed, and has been doubly prostrated. The land has been overrun, and her true history is blotted from the recording page.

Revenue for 1874, $49,557,350. Expenses, $42,558,200. Funded debt, $246,351,900. Floating debt, $38,000,000. Personal debt of the Khedive, $65,871,800. Total debt, $350,222,800. Expenses of 1873, $72,500,000. Army, 26,0.0. Navy, 56 vessels, large and small.

The Suez Canal, running from Port Said to Suez, 92 miles, is not wide enough for two vessels to pass, but has sidings to obviate that difficulty. Vessels 430 feet long, drawing 25½ feet of water, can go through the canal. It cost (including bonds issued to pay coupons accruing during construction) $94,393,645. It has greatly benefited the commerce of the world. During the first four years after its opening, 4,769 vessels passed through it—the number for the last being three times as many as during the first year.

TURKEY.

THE Turkish possessions comprise large portions of the continents of Europe, Asia, and Africa, and have a total area of 1,812,048 square miles, of which Europe has 207,438 square miles; Asia 660,870; and Africa, 943,740. The total population is 27,250,000, divided as follows:—Europe, 9,700,000; Asia, 16,750,000; and Africa, 600,000.

Some portions of the country are remarkably fertile, producing the cereals and fruits. Valuable timber lands are also met with, yielding cedar, cypress, and oak, in the Asiatic part; and forests of fir and pine, oak, beech, maple, sycamore, walnut, box, myrtle, and chestnut, in the European. Although the method of agriculture is very primitive, the extreme fertility of the soil makes ample amends for want of progress.

The mineral productions are large quantities of iron, argentiferous lead ore, copper, sulphur, salt, alum, a little gold, silver, rock salt, and limestone.

The average annual value of the imports of Turkey in Europe is $92,500,000; and of the exports, $50,000,000.

CHINA.

This extensive empire lies east of India and south of Russian Siberia. It has a coast line of 2,500 miles, and an inland frontier line nearly double that length. It is separated from India by the Himalaya mountains, and has a mountainous border next to Siberia, and a complete horse-shoe range between it and Turkestan. The population has been variously estimated between 450 and 600,000,000. It is now supposed to be about 500,000,000. For thousands of years the country has been shut up from foreigners; though recently the restrictions have been partially removed, and a large part of the empire is now open to the world. It is divided into several provinces, each of which has its own government and pays its own expenses, besides contributing to the annual expenses of the empire.

Its chief exports are tea, silk, and cotton. Of the first, nearly 300,000,000 pounds are exported annually; of cotton, 30,000,000 pounds; of opium, (although forbidden by government) the Chinese raise large quantities, worth at home from $1.40 to $1.60 per pound. It is inferior to the India opium imported into China at nearly double that price. The standing army is nearly 1,000,000; and more than that number can be put in the field when necessary. The soldiers live at their homes and pursue trades, supporting themselves when not in actual service. The great wall of China, built 2,000 years ago, to prevent Tartar inroads, is 1,500 miles long, 24 feet high, and 15 wide. It has been counted as one of the seven wonders of the world. The religion is Buddhism, or the worship of Fo. The people venerate the memory of Confucius, as an ancient teacher of sound morality.

The people are remarkably industrious. Every spot of ground that will raise seed is utilized. Though their agriculture is rude, their system of land irrigation is said to far excel other nations. Porcelain and silk spinning originated with the Chinese. They make fine lacquered ware, and their mother of pearl inlaid, and their carved ivory work, excel the same styles in other countries. Their paper is made of various material, principally bamboo; and is not sized without great care and difficulty.

JAPAN.

The Empire of Japan consists of four large islands, situated in the Pacific, just east of China, the combined area being 59,350 square miles, with a population of 33,300,675.

BRAZIL.

The Empire of Brazil is the most easterly portion of South America—is 2,600 miles long, and 2,500 broad—with an area of 3,100,000 square miles, and a sea-board of 1,200 miles. Population, 12,000,000. General income, $58,888,880. Provincial income, $12,073,000. Municipal income, $2,528,000. Absolute general income, $71,972,672, and general expenses, $67,234,620. Railroads in operation, 1,100 miles; in course of construction, 16 lines, 908 miles. Projected lines under survey, 4,354 miles. Capital invested, $102,778,000. Capital decreed by government, $200,000,000. Annual subsidies, sea-coast, and fluvial lines, $2,000,000. From railroads, $5,000,000. Annual expenditures on public works, $7,000,000. Telegraphic lines, nearly 4,000 miles. Exports, $158,743,000. Imports, $138,172,800. Regular army in peace, 16,000; in war, 32,000. National guard, 772,000; reserve, 125,180. Navy, iron clads, 15; wooden vessels, 53; marines in service, 5,340.

Brazil has 6,000 schools, in which are educated 200,000 children; and several high schools have 4,400 students. The annual expenditure for the former amounts to $3,000,000; and for the high schools $1,388,888. There are 110 libraries, with 461,300 books. Newspapers, 300; printing offices, 320; museums, 12; scientific societies, 40, and industrial societies, 50.

Of general industries there are invested in agriculture, $38,304,000; in cattle raising, $1,080,000, and in manufactures, $1,620,000. Brazil covers a vast extent of agricultural and grazing land; while her mineral wealth is simply inexhaustible.

4. HOOKAH, OR PIPE. 5. GROUP OF ELEGANT POTTERY, AND METAL WARE. 6. CHIBOUK. 7. BRASIER, FROM CAIRO.

BRONZE AND LACQUER WORK IN JAPAN.

Every species of plant grows within her borders, yielding abundantly, while her climate is remarkably bracing and healthy.

Principal articles of export—coffee, cotton, sugar, cacao, caoutchouc, hides, wax, nuts, medicinal herbs, tobacco, tapioca, cereals, matté, vanilla, copaiba, cloves, piassava, copal, feathers, bones, hoofs, horns, tea, gold dust, diamonds, and spirits.

The soil is in general mountainous; though less so toward the south. The empire has vast plains, extensive valleys, and mighty rivers. In the interior are many mountain ranges. The loftiest peak of the Itatiaia ridge, is 10,302 feet, or nearly two miles. Brazil has many fine sea-ports, and numerous small lakes. It has four great fluvial basins, of which the Amazon is the most remarkable. This river has a course of nearly 2,500 miles through the empire. The surface occupied is estimated at about 18,000 square miles. During floods, it rises 10½ feet above the usual level. Such is the velocity and volume of the current, that the water may be drank when taken up at a distance from the coast quite out of sight of land. The river and its affluents admit of steam navigation covering 28,000 miles.

Of minerals, gold is found in every province; and though in some places it is not in sufficient quantities to engage much attention, in others it is of great value.

The gold of the provinces of Minas, Geraes, and Mato-Grosso, is known as black gold, and contains an average of ten per cent. of palladium. The silver is procured from lead, but the proportion is small. Of lead, quicksilver, and copper, there are many rich districts.

Though there are nearly 1,500,000 slaves in Brazil, the institution is being gradually extinguished. By a law passed in 1871, no more slaves are born in the country, and government is annually appropriating a liberal fund for manumitting those now enslaved. From 1871 to 1875 (both inclusive) this sum amounted to $4,057,712.

The government desires to induce immigration, and for this purpose very liberal laws have been enacted, and the prices of lands made most reasonable. Beside these, the immigrant has a portion of his fare paid by the state, is provided with seed and implements, and can have employment on public works for six months at moderate wages.

ARGENTINE REPUBLIC.

This country is located in the southern part of South America, and is divided into fourteen provinces, or states, and three territories. It contains 1,200,000 square miles, and has a population of not quite 2,000,000. The principal exports of the country are—wool, salt beef, tallow, and hides. The live stock consists mostly of horn cattle, horses, and sheep, which are collectively valued at $200,000,000, and annually yield about $50,000,000 worth of exports. The mining industry of the country is very extensive; rich specimens of the following being found—silver, copper, lead, iron, and gold.

CHILI.

The country of Chili is located upon the southwestern coast of South America. It is bounded upon the north by Bolivia, upon the east by the Argentine Republic, and upon the south and west by the Pacific. The country is about 1,240 miles long, and has an average breadth of 120. Area, 148,800 square miles. Chili is surrounded upon every side, but that facing the ocean, by high and rugged mountains; a few passes only ranging from 12,450 feet to 14,370. The cold of winter makes them impassable, and even in summer it is tedious and dangerous to travel them. The sudden and immense height of its mountains, together with its great latitudinal length, gives to the land a variety of climate seldom met with.

MEXICO.

The Mexican Republic lies between the United States, Guatemala, the Gulf of Mexico, and the Pacific ocean. Its greatest length is 1,800 miles, and its area 710,000 square miles. It is traversed by the Sierra Madre mountains, which break into spurs, tall peaks, and elevated table lands. Toward the Gulf the land is low, sandy, and unhealthy; but toward the interior, and at elevated locations, it is salubrious. The table land is reached at an elevation of 7,000 feet. The plain is about 150 miles wide, and descends rapidly to the Pacific coast. Between the cities of Mexico and Puebla are the celebrated volcanoes, the Popocatepetl (hill that smokes) and Istacchuatl (white lady.) The former

is still active at a height of 17,720 feet, but the latter is extinct and only 15,250 feet. Near Orizaba is another extinct volcano, 17,380 feet high. It is covered with perpetual snow.

There are no good harbors on the Gulf, the shifting sands producing continual bars; but the Pacific coast abounds in safe anchorages. The land produces all the grains and fruits of the higher latitudes, as well as those of the tropics; while in variety, Mexico may rival any other country. Corn, coffee, indigo, sugar, and tobacco are raised. *Pulque*, an intoxicating beverage, is made from the juice of the *maguey*, a species of the *agave*, or aloe tree. Cochineal bugs are found on the large cactus, known as the prickly pear. Most valuable woods are found, including the mahogany, Brazil wood, campeche, ebony, etc.

The silver mines are particularly rich, and yield $25,000,000 annually. Other mines are worked imperfectly. Few improvements have been effected. Puebla has factories for iron, glass, and soap. At Cholula is a large pyramid of unburnt brick.

PERU.

PERU lies on the west coast of South America, just south of Ecuador, and has an area of 540,000 square miles. The population consists of whites, mixed races, and Indians, to the number of 2,500,000; the white being only one-seventh of that amount. The land facing the coast is level, but as the interior is gained, a long and rugged slope extends to the top of the Andes, upon which are high, level plains. The seasons, one-half the year rainy, the other half dry. There are found rich specimens of gold, silver, and copper ores. The agricultural products are wheat, barley, cotton, sugar, and coffee.

IMPORTS AND EXPORTS OF THE PRINCIPAL GOVERNMENTS OF THE WORLD.

Those with dates, except the United States, are taken from the "Statesman's Year-book," an English work, considered very reliable. The balance are taken from the American Almanac, said to be the latest dates attainable.

AMERICAN COUNTRIES.		Imports.	Exports.
United States,	1877,	$432,206,422	$704,026,486
Canada,	1875,	93,210,000	80,966,435
Mexico,	1874,	28,485,000	25,435,000
Argentine Republic,		34,910,290	44,041,131
Bolivia,		5,750,000	5,000,000
Brazil,	1874,	95,000,000	127,500,000
Chili,	1875,	35,000,000	35,000,000
Colombia,		6,991,028	9,991,886
Ecuador,		7,596,264	3,913,536
Venezuela,		12,000,000	17,000,000
Uraguay,		21,917,800	16,953,000
EUROPE.			
Great Britain,	1875,	$1,869,697,875	$1,117,389,815
France,	1875,	734,457,200	804,432,400
Germany,		918,850,000	668,200,000
Austria,	1875,	202,233,630	276,274,430
Russia,	1874,	300,000,000	260,000,000
Italy,	1875,	243,010,200	211,434,200
Netherlands,	1875,	299,519,265	224,571,210
Belgium,	1875,	491,316,600	433,568,600
Denmark,	1874,	32,045,680	23,737,000
Portugal,		38,131,520	26,448,000
Spain,	1874,	76,400,000	80,616,630
Sweden,	1874,	90,558,350	64,814,570
Greece,	1875,	17,500,000	15,000,000
ASIA.			
China,		$105,000,000	$114,000,000
British India,	1875,	221,815,670	289,922,097
Japan,	1874,	24,223,629	20,001,639
AFRICA.			
*Egypt,	1875,	$150,000,000	$150,000,000

*A considerable portion of imports and exports are goods in transit, not home production.

The Growth and Progress of Religious Denominations in the United States for the past Hundred Years.

The religious character of the Colonies in 1770, was substantially that which had been imposed on them at the time of their first settlement, and was of necessity very diverse in different sections. Massachusetts and Connecticut, (or rather the different colonies which had united under these names) had been founded by the Puritans or Independents, seceders from the Church of England, who had organized sometimes as independent churches during the reigns of James I. and Charles I. These were, in 1770, the predominant churches—"the standing order," as they were termed, and the established religious body of the colonies, though Episcopalians, Baptists, a few Methodists, and a considerable number of "Separates" were tolerated, and by "signing off" or avowing themselves adherents to one or the other of these denominations, and pledging themselves to sustain it, their ecclesiastical taxes could be, in part, remitted. The "Separates" were mainly converts under the preaching of Whitfield and his followers in 1740–50, who were opposed to an established church, and believed in the voluntary system. Maine was largely settled from Massachusetts, and followed its lead in religious matters. New Hampshire had two distinct religious elements in its early settlement—the Puritan or Congregational—and the Presbyterian, represented by the Protestant Irish settlers of several of its towns. At the period we speak of there was a larger measure of toleration of other denominations there than in Massachusetts. Rhode Island had been settled by Baptists driven from Massachusetts a hundred and forty years before, on account of their avowal of their religious belief. It was the only one of the New England colonies in which, even at that time (1770,) there was complete liberty of conscience, and its population were of all denominations, Baptists, Quakers, Separates, Independents, Presbyterians, Episcopalians, Roman Catholics, Fifth Monarchy Men, etc., etc Vermont, or "New Hampshire Grants," was not an independent State till after the Revolution, and its few inhabitants were of all shades of religious belief, or of none, at this time. New York, originally settled by the Dutch, had had the Reformed Dutch or Holland Church for its established church till 1684, but after its conquest by the English the church of England had in turn become the established religion, and under some of the colonial governors, Presbyterians, Baptists, and Quakers were persecuted and imprisoned. This persecution had, however, ceased some years before this period, and though the Episcopal church was still the state church, its prestige waned subsequently during the years of the revolution, from the fact that, in that colony, the greater part of its members were tories, and sympathizers with the British. The Presbyterians were considerably numerous in New York, the Baptists and Methodists less so, and there were a few Roman Catholics.

Pennsylvania had been settled by the Quaker Penn, for a refuge for the sorely persecuted Quakers of England and America, but it was open to all denominations, and to those who had no religious beliefs. The Quakers or Friends were predominant in numbers, but Episcopalians, Presbyterians, Baptists, Methodists, Lutherans, and Roman Catholics, were all received cordially.

New Jersey and Delaware had a moderate Swedish and Danish (Lutheran) element, but the former had a much larger constituency of Irish Presbyterians, and was, before the Revolution, probably the most thoroughly Presbyterian colony of the whole thirteen. There was not, however, at this time, so far as we can learn, anything like an established church in the colony.

Maryland was founded and settled by Lord Baltimore and his kinsmen, the Calverts and Carrolls, all of them Roman Catholics; but to their honor, be it said, there was complete religious toleration from the first, and in 1770 the Catholics had but a slight majority among the inhabitants; still

it was the predominant faith of the people of the colony.

Virginia, settled by the younger sons of the English nobility and their friends at first, and its population subsequently largely increased by the great number of "redemptioners," (paupers, convicts, etc., sent over and sold for a term of years to pay for their passage,) had up to the commencement of the Revolution, recognized the church of England as the established church of the colony, and at times had persecuted sharply other denominations. Through the influence of such men as Patrick Henry, Thomas Jefferson, and others, who, though not religious men themselves, yet saw the necessity for religious liberty, that principle was incorporated in its first constitution as a State.

North Carolina and South Carolina were settled largely by Protestant Irish (Presbyterians,) Huguenots (Protestant Reformed Church,) Moravians, and other Germans, mostly Protestant; their constitutions and charters were favorable to religious liberty.

Georgia, the youngest of the colonies, was largely settled by the followers of Whitfield and Wesley, and was, moreover, a refuge for persecuted Protestants from the states of continental Europe. The largest religious liberty existed here from the first.

Such was the religious, or rather denominational history of the thirteen colonies when they came together by their representatives in the Continental Congress. Every form of christian belief then known, had its adherents in one colony or another. Most of them assimilated to a considerable extent by their years of intercourse during the war, abolished all restrictions on complete religious liberty (where any existed) before the adoption of the constitution, but Massachusetts and Connecticut retained theirs till the adoption of new and revised constitutions in the early part of the present century. It is to be said in their favor, however, that these restrictions were not, after the revolution, so severe or onerous as those under which the dissenters in England groan to-day.

Meanwhile there had grown up a second tier of States beyond the Alleghanies, which were now knocking for admission to the Union. What were the religious denominations to be found in these? In general, we may answer, that they were the same with those of the States from which most of their inhabitants had come. Thus Ohio, settled largely from New England, especially in its northern half, had a predominance of Congregationalists, with some Methodists and Baptists in that section, and in the southern portion which was peopled from Pennsylvania and Virginia, a large proportion of Presbyterians, Lutherans, Quakers, and many German Methodists, with some Episcopalians and Baptists. Kentucky and Tennessee had at this time more of the Presbyterian element, modified by the great awakening of 1801–2 to the Cumberland Presbyterian creed, while Baptists and Methodists alike were gaining the affections of large numbers of the people. A few years later other forms of faith made great inroads into the ranks of the older denominations. Alabama, settled mostly from Georgia and Tennessee, though with some admixture of northern men, drawn thither by its commercial facilities, had many representatives of most of the older denominations, but did not in its early history give much heed to the apostles of new faiths. The purchase of Louisiana in 1803, added a considerable Catholic element to the religious population of the country, not only in Louisiana proper, but in Mississippi, and in the states and territories subsequently organized west of the Mississippi. In fact there were scattered Catholic churches in all the French and Spanish forts and trading stations throughout the northwest, and these, though very feeble and widely scattered, served as *nuclei* for more extensive establishments as the country was settled. Detroit, Michigan; Vincennes, Indiana; Vandalia, Kaskakia, and Joliet, Illinois; two or three points in Wisconsin, and as many in Illinois, St. Louis, and some other points in Missouri, Bardstown, Kentucky, and missions in Arkansas and Kansas, indicate how zealously the French Catholic priests had planted their outposts throughout the Mississippi valley. As yet, however, the Catholics were not strong anywhere in the United States, and it was not until immigration commenced on a large scale from Ireland and Germany that they attained to a prominent position among the religious denominations of the country. The German immigration, as well as that at a later date from Sweden and Norway, also largely increased the number of Lutheran and German Reformed churches, and that from England, Scotland, and the north of Ireland, enured mainly to the benefit of the Presbyterians, and Methodists, though a minority were Baptists.

Several denominations, some of them now among the larger religious bodies of the country, have either originated here or had their principal development in the United States. The first of these in the order of time was the Shakers, or followers of Mother Ann Lee. This noted religious leader was born and lived for many years in England, and claimed to have received her first and principal revelations there; but she had not a score of adherents when she came to the United States in 1774, and it was not till about 1780 that she had any considerable number of disciples, and it was not till 1805 that the societies of the Shakers were established at any great distance from their first center, Watervliet. The disciples, or followers of Alexander Campbell, were first organized as a distinct body of christians about 1810, but did not increase very rapidly till about 1831. They are now about in the fifth or sixth rank among the religious denominations of the country.

The United Brethren in Christ, (not Moravians, but German Methodists,) date back to 1760, when Otterbein and Bochm commenced their missionary labors; but their principal development has taken place during the present century.

The Mormons organized their first community or church in 1831, though the professed revelations of Joseph Smith date some years earlier. Various methods of classification of religious and irreligious societies have been attempted, but all of them are liable to some objection. The most common classification is that of Roman Catholics, Protestants, Infidels or Unbelievers in Christianity, and Pagans. This answers well enough for a generic division, but when we come to a minute classification we find a difficulty. The Roman Catholics, though divided into several orders or societies which are more or less hostile to each other, such as Jesuits, Dominicans, Franciscans, Benedictines, Paulists, Lazarists, etc., have yet this common bond of union that they all acknowledge allegiance to the Pope, while Protestants, however we may classify them, will hardly come under any strict rule of division. One classification is into Trinitarians and Anti-Trinitarians; but to this it may be objected that neither party are wholly Protestant, the Roman Catholics being Trinitarians as well as most of the Protestants, and a part of the Baptists, and a portion of the Anglican churches, denying that they are Protestants, as do likewise some of the Anti-Trinitarians. This division is liable to the further objection that it arrays a very large body of religionists on one side against a comparative handful on the other.

The division into Orthodox and Heterodox, is liable to the objection that there is no universally recognized standard of Orthodoxy, and to call a man Heterodox because his belief on all points was not the same with that of some other man would be invidious. The division into Evangelical and Unevangelical is equally objectionable on the ground of its indefiniteness, with the added difficulty that it would divide two denominations, the Anglican churches and the Unitarians, a part of each claiming and receiving the title of Evangelical, and the other part rejecting it. The division of the denominations into Calvinists and Arminians is perhaps as fair as any, though several denominations have both classes in their membership. That into Baptists and Paedobaptists is faulty because, though no Baptist, i. e. Immersionist, is a Paedobaptist, that is, an advocate for the baptism of infants, yet many Paedobaptists occasionally practice immersion, as for example, the Methodists, the Congregationalists, and the Episcopalians. It is liable to another difficulty, viz., that some of the organizations not reputed Christian, such as the Mormons, practice immersion.

In the attempted subdivision of the Infidel or unbelieving class, we are met with still greater difficulties. The Deist, especially, if an Israelite, and a believer in the Old Testament scriptures, will object strenuously to be ranked with the sceptic whose only God is nature, and whose highest hope for the future is in annihilation, or with the Comtist who recognizes no divinity of greater knowledge or power than himself, or the Atheist, who believes that all things are the result of chance. Between these extremes there are an infinitude of opinions, no two of which can be reconciled with each other, even to the extent of a common classification. Of Paganism there are but comparatively few representatives—the Indian tribes in the West, the Chinese, who seem to be in about equal proportions, Buddhists, Sintuists, and followers of Confucius, the Alaskan Indians, and Esquimaux, whose religion seems akin to Shamanism, the small colonies of Japanese, (Buddhists) and the traces of Fetictism found

in the more ignorant and superstitious of the Southern negroes.

The following table exhibits as accurately as they can be obtained from official and other sources, the statistics of the various religious and irreligious sects in the United States, as reported at or near the close of 1870. The denominations have been taken generally in the order of their membership; but the smaller churches which affiliate with the larger ones in their doctrines and ordinances, have been considered in the same connection, in preference to a rigid classification on the basis of number of members.

TABLES FROM THE CENSUS OF 1870,—RELIGIOUS CREEDS.

ITEMS OF AGGREGATES OR TOTALS FROM THE CENSUS OF 1870:—

	Religious Denominations.	No. of Organizations.	No. of Edifices.	No. of Sittings.	Value Church property.	
1	Baptists	15,829	13,952	4,366,135	$41,608,198	1
2	Christians	3,578	2,822	865,019	6,425,137	2
3	Congregational	2,887	2,715	1,117,212	25,069,698	3
4	Episcopal (Protestant)	2,835	2,601	991,051	36,514,549	4
5	Evangelical Association	815	641	193,796	2,301,650	5
6	Friends	692	662	224,664	3,939,560	6
7	Jewish	189	152	73,265	5,155,234	7
8	Lutheran	3,032	2,776	977,332	14,917,747	8
9	Methodist	25,278	21,337	6,528,209	69,854,121	9
10	Miscellaneous	27	17	6,935	135,650	10
11	Moravian	72	67	25,700	709,100	11
12	Mormons	189	171	87,838	656,750	12
13	New Jerusalem	90	61	18,755	869,700	13
14	Presbyterians	7,824	7,071	2,698,244	83,265,256	14
15	Reformed Church (Dutch)	471	468	227,228	11,359,255	15
16	Reformed Church (Ger.)	1,256	1,145	431,700	5,775,218	16
17	Roman Catholic	4,127	3,806	1,490,514	60,985,566	17
18	Second Advent	225	140	34,555	306,240	18
19	Shaker	18	19	8,850	86,900	19
20	Spiritualist	95	22	6,970	100,150	20
21	Unitarian	331	310	155,571	6,282,675	21
22	United Brethren in Christ	1,495	937	265,025	1,819,810	22
23	Universalists	719	602	210,884	5,692,325	23
24	Unknown (Local Unions)	26	27	11,925	687,800	24
25	Unknown (Union)	409	552	153,202	965,295	25
		72,509	63,073	21,170,579	$335,483,581	

Estimated number of different Religious creeds of the world:—

Nominal Christians	380,000,000
Budhists	360,000,000
Other Asiatic religions	260,000,000
Pagans	200,000,000
Mohamedans	165,000,000
Jews	7,000,000

Number of Colleges in the United States authorized to confer degrees in Art	372
Number of Theological Seminaries	117
Number of Law Schools	40
Number of Medical, Dental, and Pharmaceutical Institutions	73
Number of Agricultural and Scientific Schools	56
Number of Institutions for the superior instruction of females exclusively	136
Number of Normal Schools	114

Compiled from the Reports of the Commissioners of Education.

CHAPTER II.

HISTORY AND PROGRESS OF THE DIFFERENT DENOMINATIONS.

I. ROMAN CATHOLICS. The adherents of the Roman Church in the United States were, as we have already seen, just before the American Revolution, except in Maryland, but a very small proportion of the population. They had small congregations in New York, Philadelphia, and perhaps, two or three other large towns. In Baltimore, they were the leading denomination, and in several towns of Maryland they had congregations. In sections which soon after came into the Union as states or organized territories, their congregations were scattered somewhat widely. In North Eastern Maine, the Arcadian settlers, mostly French or of French extraction, were generally devout Catholics; and a few priests with their flocks were found along the northern line of New England and New York. Detroit had a very considerable Catholic element in its population from the first; and farther west, at several points in Illinois, Wisconsin, Iowa, and especially in Missouri and below in the Mississippi Valley, among the French and creole population of Louisiana Territory, churches and cathedrals were comparatively numerous. Farther west, in Texas and California, as well as in Mexico, New Mexico, and Arizona, all at this time under the control of Spain, and subsequently of the Mexican Republic, Catholicism had been for two centuries the established religion of the state, and Indians, Mexicans, and Spaniards of the pure blood were alike, nominally at least, enrolled among its numbers. The missions, churches and cathedrals, many of them in ruins, which dot the prairies and oases of the vast territory acquired by the war of 1846, show that in former times, a very considerable, though mainly a native population was subservient to this faith. It was not, however, till after 1820, when the vast tide of immigration from Ireland and from Catholic Germany, with its occasional additions from France, Italy, and Spain, began to flow in upon us, that the Roman Catholic church assumed anything like its present proportional magnitude. Its outposts were indeed already planted, and it had its centers of influence, its *nuclei* around which it could gather its incoming hosts. But prior to 1820, it probably ranked in the number of its communicants not higher than fourth or fifth among the religious denominations of the country. It is stated on good authority (that of a Roman Catholic archbishop), that more than five millions of Catholic emigrants have landed upon our shores since 1820. Of course many of them have apostatized; many more have died, and their children have been reared in other faiths, or in no faith at all. In these ways only can we account for the fact attested by the highest Roman Catholic authority, that their communicants do not to-day number over 3,500,000. Their clergy have not been wanting in zeal or fidelity to their faith; and no denomination in the country has provided so well or so promptly for the maintenance of religious worship as they. They have not been persecuted for their faith, or their numbers would be larger; but there has been on the part of immigrants a strong disposition, on coming to this country, to throw off all religious restraints under the impression that this was one of the requisites of national freedom.

With this brief sketch of its history, we proceed to give the leading doctrines of the Roman Catholic Church, stating them in this case, as we shall in that of all the other denominations, in the exact language of their own ablest and most representative writers, as the only course which will render strict justice to each denomination. The late Archbishop Kenrick of Baltimore, one of the ablest writers and most accomplished scholars of the Roman Church, thus states its doctrines: "The chief doctrines of the Church regard the unity of the divine nature in three dis-

tinct divine persons, and the incarnation of the second divine person, through the mysterious operations of the Holy Spirit in the Virgin Mary, and his death on the cross for the expiation of the sins of mankind. The belief of the incarnation is the ground and motive of the high veneration which is entertained for the Virgin, who is styled Mother of God, because Christ her son is God incarnate." (Since the death of Ab'p Kenrick, the dogma of the Immaculate Conception of the Virgin Mary, regarding her as born as free from sin as Christ himself, has been proclaimed by the Pope as a fundamental doctrine of the church.) "To her is ascribed all sanctity and perfection which can be bestowed on a mere creature, and she is held to have been free from all stain of sin by a special privilege granted her, that she might be worthy of the dignity for which she was divinely chosen. The mystery of the redemption is prominent in the teaching and worship of the church. Christ suffered and died, as man, to atone for the sins of our first parents, and the sins of all mankind. His death fully expiated the guilt of sin, and presented an atonement in every respect perfect. Yet all men are not justified and saved, but those only to whom the redemption is applied by means divinely prescribed. Baptism is believed to be a remedy for original sin, applicable even to infants. Adults having the use of reason must believe in Christ and repent of sin, in order to receive the benefit of the atonement. From those who have forfeited baptismal grace, fruits of penance are required as evidences of their sincere conversion to God, and as conditions to entitle them to the application of the merits of Christ. Nothing that man can do, can take away the guilt of sin, or prove an adequate satisfaction for it; but God requires the humiliation of the sinner, and accepts his penitential works, which derive value from the ransom offered by Christ. They add nothing to it, but they become acceptable through it. Christ is the spiritual Mediator through whose blood we must sue for pardon and salvation. The worship of the church is given to God only—the one Eternal Being in the three divine persons—and the incarnate Word, God consubstantial to the Father. Inferior religious honor, which may be called worship in a qualified sense, is given to the Virgin Mary, on account of the gifts and graces with which God has endowed her, and her exalted dignity as Mother of God incarnate. The angels, namely, incorporeal spirits reigning with God, are honored as his creatures, in whom his perfections are reflected, and his messengers through whom he has manifested his will. Saints, those who have proved faithful in the divine service to the end, and are already crowned with glory in the kingdom of God, are venerated likewise for their triumphant virtue; the martyrs especially, who died amid torments rather than deny Christ, and the virgins, who throughout life preserved the purity of their affections, are deemed worthy of high honor. But there is an essential difference between the honor given to the creatures of God, and that which belongs to God alone. He receives the submission of the understanding and the will, the homage of the affections. He is acknowledged to be the essential Being, the supreme Lord, the beginning and the end of all things. Sacrifice is given to him only. Prayer, in its strict acceptation, can be offered to him only, the Giver of every good gift. Grace and salvation depend upon his bounty and mercy. Litanies and prayers to the saints are only appeals to them to intercede with God for us through Jesus Christ. They are not supposed to be omniscient or omnipresent; but they know, in God, the pious desires as well as the penitential sighs of the faithful. Respect is paid to the crucifix, which recalls to our mind the sufferings of Christ for our redemption, but it does not terminate in the symbol or material object. The kissing of the image, the bending of the knee, the prostration of the body in the ceremonial of Good Friday, are all directed to Christ, our Redeemer. So the images of the saints awake the remembrance of their virtues. The bowing of the head to a statue, or the burning of incense before a shrine, is referred to the saint whose memory is honored for his love of God and his zeal for the divine glory. Relics, that is objects used by the saints, or particles of their remains, are venerated for the relation they bear to them. The fall of the first parents of the human race is the fundamental doctrine on which the belief of the mystery of redemption depends. . . . . Original sin is that transgression which is common to the whole human family, each one being estranged from God, and liable to his wrath, in consequence of the act of the heads of the race. The natural powers have been weakened by the fall. The freedom of the human will remains, but it is

less vigorous than in our first parents. Our nature is not vitiated and dependent, but it is prone to evil and exposed to violent temptation. . . . . A Redeemer was given us, in the person of Christ, who, being God-man, atoned by his sufferings for the sin of our first parents, and merited for us all grace by which temptation may be overcome. Actual sin is the willful transgression of the divine law by individuals having the use of reason. Mortal sin is any act, speech, desire, or thought grievously opposed to the natural or divine law. Sins which imply no direct or grievous opposition to the law of God, are styled venial, because their pardon is easily obtained, since they do not separate the soul from God. Slight impatience, rash words, vain self-complacency, may be venial. Deliberate hatred, gross calumny, acts of violence, not to speak of drunkenness, lust, and murder, are mortal sins. The distinction of sins is not derived from the individual who commits them, although they may be aggravated by his personal obligations. Forgiveness of sins, even the most heinous, is promised to the penitent. Sorrow for having committed them is a necessary disposition in order to obtain it. Perfect sorrow, which is called contrition, springs from divine love, and leads us to detest sin as opposed to the goodness of God and to his eternal perfection. Attrition, is sorrow of a less perfect kind, arising from an experience of the evil consequences of sin, and the dread of the punishments which await it hereafter. If it wean the heart from sin, and inspire an effectual detestation of it, so as to be accompanied with a firm resolution of amendment, it is held to be useful and salutary, and such as may dispose for pardon in the sacrament of penance. . . . . The forgiveness of sin properly belongs to God, who is offended. Christ, as God-man, forgave sin, and authorized the apostles to impart forgiveness or withhold it. The power is judicial, since they may bind or loose, retain or forgive; on which account a confession of sin is required from every applicant for its exercise. When this is made with sincerity, humility, sorrow, a willingness to repair the wrong committed, and a determination to shun the occasions of sin, the priest absolves the penitent. This absolution is a judicial sentence, deriving its force from the divine institution. The sacraments (seven in number) are rites instituted by Christ our Lord, as instruments and means of grace to apply to our souls the merits of his sufferings and death. They are said to contain and confer grace, technically *ex opere operato*, because they are effectual means divinely chosen to impart it, where no obstacle is presented by the receiver. Certain dispositions, however, are required on the part of adults who desire to partake of them. Faith and compunction are necessary on the part of the applicant for *baptism*. Sorrow, with a firm purpose of amendment, is required from the professed penitent, in the sacrament of *penance*. The strengthening grace of the Holy Spirit is granted, by *the laying on of hands* with prayer, to the baptized believer, whose heart is free from willful sin. Sin is forgiven to the dying man who with penitence and hope receives the mystic *unction*, and for whom the prayer of faith is offered up. *The imposition of hands* is available for the communication of sacerdotal power, even to the unworthy candidate, but grace is given to him who is called by God, and who with humility corresponds to the divine vocation. *Marriage* is a great mystery, the image of the union of Christ and the Church, to be celebrated with purity of affection. *The Eucharist*, the chief sacrament, is to be approached with hearts cleansed from sin, under penalty of becoming guilty of the body and blood of the Lord, and incurring condemnation. . . . . .

It is not easy to reconcile the exercise of free will with the divine foresight We cannot understand how it is possible for us to act independently, and of our own determination, when God has foreseen our action. It is sufficient to know and feel our freedom, without sounding the depths of divine knowledge. It suffices then to admit that without the grace of Christ we can do nothing, and to hold that we can do all things in Him who strengthens us. Everlasting beatitude, consisting in the contemplation and enjoyment of God, is the reward promised by Him on condition of the fulfilment of His commandments, and bestowed gratuitously on baptized infants or others incapable of personal acts. The punishment of grievous sin is eternal. Impenitent sinners are forever separated from God, and suffer torments. Those who die guilty of slight faults or debtors to divine justice, are withheld for a time from the enjoyment of Heaven (and suffer the pains of purgatory). The glory of heaven is immediately attained by baptized infants dying before the use of reason, by

adults dying immediately after baptism, by martyrs, and by all who die with perfect love of God, and free from sin or debt of punishment. The soul only is admitted to happiness. The body is subject to dissolution, but is to be raised at the end of time, in order to be reunited to the soul, and made partaker of her glory.

The teaching of Christ our Lord, becomes known to us especially by the preaching of the ministry, tracing back their commission to the apostles. Solemn definitions of faith are the most authoritative forms of this preaching. They are declarations not merely of doctrines contained in the written word, but of revealed truths, whether written or unwritten. Christ himself left nothing in writing; several of his apostles wrote much, and two other sacred writers composed narratives of his life and teaching; but many things belong to the deposit of doctrine which were not explicitly placed on record. The body of bishops feel themselves authorized to propose as revealed truth whatever has come down from the beginning in the church, and been generally acknowledged to appertain to doctrine. In cases of difficulty, when doubts have been raised with regard to some tenet, they feel themselves competent to examine the evidence, and decide whether the doctrine has been revealed. After a definition, it is no longer allowed to question a truth sealed with their approval. Infallibility in judgment is claimed for the body of bishops with their head, the bishop (pope) of Rome. (The infallibility of the pope was declared one of the cardinal doctrines of the Roman Catholic Church by the Council of Rome in 1870—71.) By the infallibility in judgment of the bishops, is meant the providential guidance of the Holy Spirit, by which they are directed and enlightened in doctrinal decisions, that they may not mistake error for truth or propose as divinely revealed what wants the seal of divine authority. The tribunal of the pope is universally acknowledged (in the Roman Catholic church) as competent to pronounce judgment in controversies which regard faith, and its decrees, directed to the body of bishops or to the church at large, proposing doctrines under penalty of excommunication, when acquiesced in by the bishops, are final and irreversible.

The Church accepts the Divine Scriptures is the word of inspiration, written under the impulse of the Spirit of God, and to be received with all faith and veneration. To the books of the Old Testament, according to the Jewish Canon, she adds certain other books (usually known as the Apocrypha) on ancient testimony, usage, and tradition derived from the apostles. The books of the New Testament included in the Canon, are those adopted as inspired by the Council of Trent. The Church claims the supreme authority of determining the meaning of the Scriptures, in conformity with the general teaching of the fathers, that is, the ancient Christian writers. Faith, according to the Roman Catholic view, is the assent of the human mind to divine truth as it is proposed and attested by the church of God. The truth must be revealed, and it must be propounded by the church. Faith is necessary to salvation, so that without it, it is impossible to please God. The wanton and proud rejection of a single point of revealed doctrine involves shipwreck of faith. Hence, the plea of invincible ignorance is the only one which Roman Catholic divines admit as of any avail in behalf of those who reject any of the doctrines which the Church has propounded as revealed, and only God can determine with certainty the individual for whom such plea may be available. All baptized children are claimed by the church as her own, since baptism is the sacrament of regeneration, and they continue such until by their willful profession of condemned error they forfeit their birthright. The principles of the Catholic Church with regard to civil duties, are highly conservative. She feels bound to respect established authority, and enforce, by moral suasion, obedience to those in high station, and she uses every fit occasion to insinuate the axiom, that religion is the only sure basis and strong bond of security. The duties of her members are dependent on the providential position in which they find themselves. They are to support law and order, and fulfil faithfully every obligation to society.

By *discipline*, Catholics understand all that appertains to the government of the Church, the administration of the sacraments and the observance and practice of religion. The essential *worship* consists in the sacrifice of the mass, which, although mystical and commemorative, is real and propitiatory, being a continuation of the sacrifice of the cross. Vespers, or evening prayers, are solemnly sung, the psalms of David, the song of the Virgin Mary, and pious hymns and

prayers being used. In the cathedral churches, other portions of the divine office are sung at various hours of each day, by clergymen, called canons, devoted to this duty. Numerous festivals are also celebrated to honor the divine mysteries and present them to the devout contemplation of the faithful. Many are solemnized in honor of the Virgin Mary, the apostles, martyrs, confessors, virgins, and saints of every class, whose virtues are thus set before the faithful for their imitation. Fasting is also a part of church discipline. Forty days before Easter (the Lenten Fast) are devoted to this exercise. Ember days, viz., Wednesday, Friday, and Saturday, in each of the four seasons, are observed as fasts to obtain the divine blessing, and worthy ministers for the church, ordinations being held at those times. The eve of great solemnities is observed by fasting, in order to prepare by penance for their celebration. Abstinence (from meat) is observed on each Friday of the year, and in some dioceses, on Saturday also. All these penitential observances are matters of church law, which admits of dispensation. The rites of the mass, and the ceremonies used in the administration of the sacraments, appertain to discipline, which admits of variety and change, although great deference is shown for ancient usage. For this reason, the Latin liturgy, used from early times in the Roman church, is still employed by the celebrant, although instructions are given in the vernacular language, and facilities are offered to the faithful for praying in a manner suited to their capacity. The changes which have been made are in the manner of administering baptism, and the Eucharist, and penitential discipline. The solemn mode of baptism was originally by immersion. The candidate used to descend into fonts, or streams, or rivers, and sink beneath the waters under the pressure of the hands of the sacred minister. In cases of necessity and danger, less solemn modes were used, which, from being frequent at length, after the lapse of ages, became universal. In like manner, the Eucharist, having been instituted by our Lord under the forms of bread and wine, was generally administered under both kinds for many ages. Exceptional cases were always admitted, which at length proved so numerous as to supersede altogether the ancient usage. The church claims the right to regulate, at her just discretion, whatever regards the manner of administering the sacraments, while she holds their substance to be inviolable. The change in regard to penance, has reference mainly to the issue of indulgences, i. e. pardons for offences justly liable to penitential discipline. These, which were generally *plenary*, were not directed to the forgiveness of sin which needed the sacramental remedy, but to the remission of the temporal punishment, which was often exacted by divine justice from those whose sins had been pardoned. They served as incentives to works of piety, such as almsgiving, fasting, and prayers.

The organization of the church consists in its government by bishops, each in charge of a special flock, with subordination one to another, and the dependence of all on the bishop of Rome (the pope), as shepherd of the whole fold of Christ. The Episcopal character is the same in all bishops, but governing authority, which is called jurisdiction, is possessed in various degrees—in its fulness, by the pope, who is the fountain, the streams of which flow to all others. He alone has apostolic authority, which may be everywhere exercised, with due regard to the local prelate, and which is suited to every emergency. Next to him, in governing authority, are the cardinals, in whom, during the vacancy of the Roman see, this plenitude of jurisdiction is believed to reside. Each bishop governs his own diocese, not as papal vicar, but as ordinary or proper ruler, although in some things his authority is enlarged as delegate apostolic. Several dioceses form a province which is governed by an archbishop. Many ecclesiastical provinces are sometimes united as a nation, under a primate who ranks above other prelates. The vicar apostolic is, in some sense, a missionary bishop. The general government of the church is carried on at Rome, where the pope is assisted by the body of cardinals, several of whom compose standing committees to examine and prepare the matters for final action. Nearly thirty belong to the College of Propaganda, which is charged with a general superintendence of missionary countries. The appointment of bishops is made on the recommendation of the local prelates, with the advice of the cardinals.

The religious orders in the church are like corporations in a civil government, having special exemptions and privileges to enable them successfully to pursue the objects of their respective institutes. They derive

these from the pope, who, in virtue of his apostolical authority, exempts the members from the jurisdiction of the bishops in what regards their domestic discipline, but leaves them dependent on them for faculties to be exercised in behalf of the faithful. The older religious orders of Europe all have their houses here; the Benedictines, Dominicans, Franciscans, Carmelites, Augustinians, Lazarists, and the followers of Loyola, or, as they are often called, Jesuits. A new religious order, that of St. Paul the apostle, or as they are usually called, Paulists, was founded a few years since in New York, and has been very efficient in missionary labors. There are also teaching orders, like the Brothers of the Christian Schools, and charitable orders of both sexes, like the Sisters of Charity, Brothers and Sisters of the Sacred Heart of Jesus, Sisters of Mercy, Little Sisters of the Poor, &c., &c. These charitable orders have effected much good in the founding and management of schools, in visiting the sick and prisoners, in managing hospitals, reformatories, &c. Of late years, the Roman Catholics have not only largely increased their colleges, but have multiplied their schools, claiming that their children should be instructed in religious as well as in secular knowledge. They have also established many orphan asylums, reformatories, and Magdalen asylums.

II. BAPTISTS.

I. Regular Baptists. The Baptist churches of the United States rank among the most numerous and influential of the evangelical religious denominations in the country, and while generally either moderate or strict, (but not high,) Calvinists in their theology, and strictly congregational in their church government, are distinguished from other denominations holding to Calvinistic doctrines and a congregational polity, by their views on the mode and subjects of *baptism*. They hold that immersion is the only true mode of baptism, and a personal profession of faith in Christ the necessary prerequisite for every subject of that ordinance.

It is usually stated that Roger Williams, the founder of the colony of Rhode Island, was also the founder of the Baptist denomination in the United States. The statement is but partially true. Four years before Williams's baptism, in 1635, Hansard Knollys, an English or rather Welsh Baptist preacher, had emigrated to New England with a portion of his flock and settled as a pastor at Dover, New Hampshire, and though he afterward returned to England, his church remained. Baptist sentiments were propagated in the Rhode Island colony, but much more by John Clarke, a friend and associate of Williams, than by Williams himself; indeed, the latter, whose memory is deserving of all honor for his noble defence and maintenance of complete liberty of conscience, held certain views in the latter part of his life, which caused him to stand aloof, so far as communion went, from the Baptist as well as from other churches. There were, however, a considerable number of Baptists who emigrated from England, Holland, and Germany within the next hundred and thirty years, and Baptist churches existed in most of the thirteen colonies at the commencement of the Revolution; yet their membership was small. In 1762 there were but 56 churches with less than 6,000 members in the denomination. In 1776 they reckoned nearly 150 churches with a membership of about 13,000. From the time of the revolution, their growth was very rapid, exceeded only by that of the Methodist churches.

Every church among the Baptists is completely independent of every other and fully competent to establish its own doctrinal views, its own course of polity and discipline, and to elect, license, and ordain its own officers whether they are deacons, licensed preachers, ordained ministers or pastors. The Baptists acknowledge no church courts, no hierarchy, presbytery, synod, directory, classis, general assembly, annual or general conference, dean or bishop as having any power over the *individual church*, which they regard as the final arbiter in all matters of discipline, polity, and doctrine. In these matters they are the most absolutely pure and simple congregationalists, the completest democracy in the world. They have, it is true, their associations and conventions, and their church councils, but these are only for devotional, charitable, and advisory purposes; they possess no disciplinary powers. It follows as a necessary corollary from this, that though all the Baptist churches acknowledge and receive "the Scriptures of the Old and New Testaments as their only and all sufficient rule of faith and practice" they have no articles of faith or creed which are universally received. Many of the oldest and

most influential churches have never had articles of faith. Where they are used, each church prepares its own or adopts one already prepared as it pleases, yet most of them agree in the principal points of doctrine. The Regular Baptists are in general Moderate Calvinists, accepting "for substance of doctrine" the view of the general sufficiency but particular application of the Atonement enunciated by Rev. Andrew Fuller, in his theological works. A confession of faith, embodying these doctrines and known as the New Hampshire Confession of Faith, was prepared more than forty years ago and has perhaps been adopted by more churches than any other; yet while it represents fairly the views of the great body of regular Baptists, it cannot be considered an authoritative document. We give below the articles of this confession.

I. *Of the Scriptures.* We believe that the Holy Bible was written by men divinely inspired, and is a perfect treasure of heavenly instruction, that it has God for its author, salvation for its end, and truth without any mixture of error for its matter; that it reveals the principles by which God will judge us; and therefore is, and shall remain to the end of the world, the true centre of Christian union, and the supreme standard by which all human conduct, creeds, and opinions should be tried.

II. *Of the True God.* We believe that there is one, and only one, living and true God, an infinite, intelligent Spirit, whose name is JEHOVAH, the Maker and Supreme Ruler of Heaven and Earth; inexpressibly glorious in holiness, and worthy of all possible honor, confidence, and love; that in the unity of the Godhead there are three persons, the Father, the Son, and the Holy Ghost; equal in every divine perfection, and executing distinct but harmonious offices in the great work of redemption.

III. *Of the Fall of Man.* We believe that Man was created in holiness, under the law of his Maker; but by voluntary transgression fell from that holy and happy state; in consequence of which all mankind are now sinners, not by constraint but choice, being by nature utterly void of that holiness required by the law of God, positively inclined to evil; and therefore under just condemnation to eternal ruin, without defence or excuse.

IV. *Of the Way of Salvation.* We believe that the salvation of sinners is wholly of grace; through the Mediatorial offices of the Son of God; who by the appointment of the Father, freely took upon Him our nature, yet without sin; honored the Divine law by his personal obedience, and by his death made a full atonement for our sins; that having risen from the dead, He is now enthroned in Heaven, and uniting in His wonderful person the tenderest sympathies with divine perfections, He is every way qualified to be a suitable, a compassionate, and an all-sufficient Saviour.

V. *Of Justification.* We believe that the great Gospel blessing which Christ secures to such as believe in Him is Justification, that Justification includes the pardon of sin, and the promise of eternal life on principles of righteousness; that it is bestowed, not in consideration of any works of righteousness which we have done, but solely through faith in the Redeemer's blood, by virtue of which faith His perfect righteousness is freely imputed to us of God, that it brings us into a state of most blessed peace and favor with God, and secures every other blessing needful for time and eternity.

VI. *Of the Freeness of Salvation.* We believe that the blessings of salvation are made free to all by the Gospel; that it is the immediate duty of all to accept them by a cordial, penitent, and obedient faith; and that nothing prevents the salvation of the greatest sinner on earth, but his own inherent depravity and voluntary rejection of the Gospel, which rejection involves him in an aggravated condemnation.

VII. *Of Grace in Regeneration.* We believe that in order to be saved, sinners must be regenerated, or born again, that regeneration consists in giving a holy disposition to the mind; that it is effected in a manner above our comprehension by the power of the Holy Spirit, in connection with Divine truth, so as to secure our voluntary obedience to the Gospel; and that its proper evidence appears in the holy fruits of repentance, and faith, and newness of life.

VIII. *Of Repentance and Faith.* We believe that Repentance and Faith are sacred duties, and also inseparable graces, wrought in our souls by the regenerating Spirit of God, whereby being deeply convinced of our guilt, danger, and helplessness, and of the way of salvation by Christ, we turn to God with unfeigned contrition, confession, and supplication for mercy; at the same time heartily receiving the Lord Jesus

Christ as our Prophet, Priest, and King, and relying on Him alone as the only and all-sufficient Saviour.

IX. *Of God's Purpose of Grace.* We believe that Election is the eternal purpose of God, according to which He graciously regenerates, sanctifies, and saves sinners; that being perfectly consistent with the free agency of man, it comprehends all the means in connection with the end; that it is a most glorious display of God's sovereign goodness, being infinitely free, wise, holy, and unchangeable; that it utterly excludes boasting, and promotes humility, love, prayer, praise, trust in God, and active imitation of his free mercy, that it encourages the use of means in the highest degree; that it may be ascertained by its effects in all who truly believe the Gospel; that it is the foundation of Christian assurance, and that to ascertain it with regard to ourselves demands and deserves the utmost diligence.

X. *Of Sanctification.* We believe that Sanctification is the process by which, according to the will of God, we are made partakers of his holiness; that it is a progressive work; that it is begun in regeneration; and that it is carried on in the hearts of believers by the presence and power of the Holy Spirit, the Sealer and Comforter, in the continual use of the appointed means—especially, the word of God, self-examination, self-denial, watchfulness, and prayer.

XI. *Of the Perseverance of Saints.* We believe that such only are real believers as endure unto the end; that their persevering attachment to Christ is the grand mark which distinguishes them from superficial professors; that a special Providence watches over their welfare; and they are kept by the power of God through faith unto salvation.

XII. *Of the Harmony of the Law and Gospel.* We believe that the Law of God is the eternal and unchangeable rule of His moral government; that it is holy, just, and good; and that the inability which the Scriptures ascribe to fallen men to fulfil its precepts, arises entirely from their love of sin; to deliver them from which, and to restore them through a Mediator to unfeigned obedience to the holy Law, is one great end of the Gospel, and of the Means of Grace connected with the establishment of the visible church.

XIII. *Of a Gospel Church.* We believe that a visible church of Christ is a congregation of baptized believers, associated by covenant in the faith and fellowship of the Gospel; observing the ordinances of Christ; governed by his laws; and exercising the gifts, rights, and privileges invested in them by His word; that its only scriptural officers are Bishops or Pastors, and Deacons, whose qualifications, claims, and duties are defined in the Epistles to Timothy and Titus.

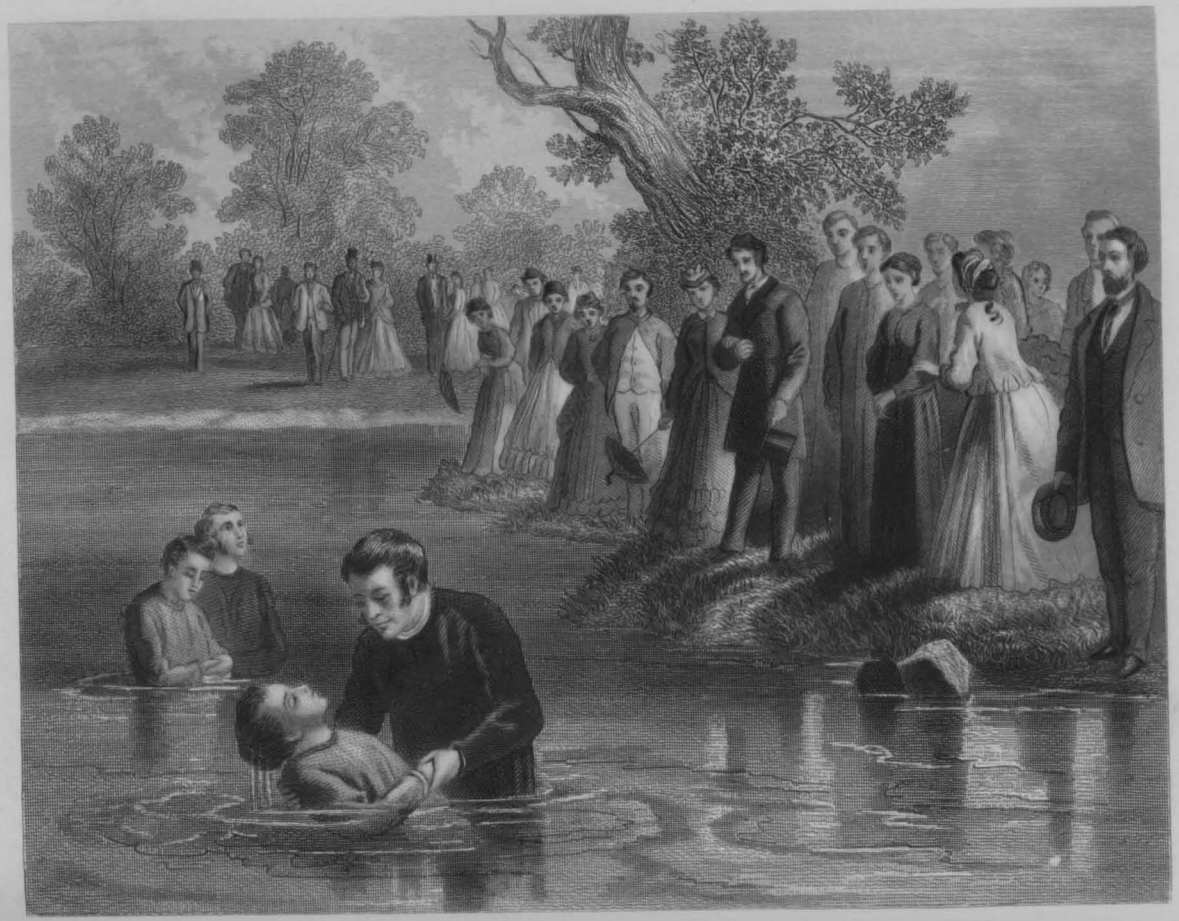
XIV. *Of Baptism and the Lord's Supper.* We believe that Christian Baptism is the immersion in water of a believer, into the name of the Father, and Son, and Holy Ghost; to show forth in a solemn and beautiful emblem, our faith in the crucified, buried, and risen Saviour, with its effect, in our death to sin and resurrection to a new life; that it is pre-requisite to the privileges of a church relation; and to the Lord's Supper, in which the members of the church by the sacred use of bread and wine, are to commemorate together the dying love of Christ; preceded always by solemn self-examination.

XV. *Of the Christian Sabbath.* We believe that the first day of the week is the Lord's Day, or Christian Sabbath; and is to be kept sacred to religious purposes, by abstaining from all secular labor and sinful recreations, by the devout observance of all the means of grace, both private and public, and by preparation for that rest that remaineth for the people of God.

XVI. *Of Civil Government.* We believe that Civil Government is of Divine appointment, for the interests and good order of human society; and that magistrates are to be prayed for, conscientiously honored, and obeyed; except only in things opposed to the will of our Lord Jesus Christ, who is the only Lord of the conscience, and the Prince of the kings of the earth.

XVII. *Of the Righteous and the Wicked.* We believe that there is a radical and essential difference between the righteous and the wicked; that such only as through faith are justified in the name of the Lord Jesus, and sanctified by the Spirit of our God, are truly righteous in His esteem; while all such as continue in impenitence and unbelief are in His sight wicked, and under the curse; and this distinction holds among men both in and after death.

It is usual also in Baptist churches to have a Church Covenant, to which the members, when received, give their assent, as it is read by the pastor. This covenant pledges them to the duties of the Christian life, to the observance of the worship, ordinances,



Church Extension, &c., $237,645.50; Sunday school and denominational and circulation, $384,324.17 and of $851,738.11 for missionary and educational purposes. The contributions for church purposes, and church extension, education, &c. not passing through these channels the same year was about

The statistics of the denomination for as follows: 702 associations, 17,- churches, 10,818 ordained ministers; number of members 1,319,492, a net of 138,144 during the year. There connected with these churches 5,251 Schools reported with 50,515 teachers and 2,664 scholars. The number of in the Sunday School libraries re- 67,162, and the benevolent con- of the church $272,143. There year 28 colleges and theo- institutions belonging to the denomi- 18 or 20 others, mostly for founded by Baptists and control. These institu- instructors and professors students. The college prop- is somewhat more

year
N.
ted
Whitfield,
church.
was a man
possessed
and having
views of
gard to the
he joined
ed preach-
and the
Baptist church,
being
Mississippi
Missionary Baptist Convention
missionary and educational work, mainly among the freedmen.

The ten societies of the denomination reported in 1870 the following sums: for Foreign Missions, $220,768.44; for Home Mis-

discipline, and doctrines of the church, and to a strict avoidance of all temptations to evil, and of all habits which may bring dishonor or reproach upon their profession, and to live in harmony and peace and in christian fidelity with the members of the church. In case of discipline, the usual charge against the offender is the violation of his covenant vows. With rare exceptions the Baptist churches are associated; that is, the churches of each convenient district unite in an association of churches, varying in numbers from four or five to fifty or sixty. Each church is represented at the annual meetings of these associations by the pastor and a number of lay delegates. The functions of these associations are wholly advisory, except that sometimes there is formed from them a Society or Board for missionary work, which may or may not be incorporated, but which, while responsible to the association which created it, takes upon itself, with their sanction, the raising of the necessary monies for its work, and the management of that work in all its details. The Baptist churches have also in most of the states and territories, state conventions, composed in the smaller states of the pastor and two or three lay delegates from each church; in the larger states, of clerical and lay delegates appointed by the associations. These conventions are generally occupied with the domestic missionary work of the states, aiding feeble churches, establishing new ones, assisting in the cause of ministerial and denominational education, &c. In these bodies, as in the associations, the strictly democratic principle of having all power inhere in and proceed from the membership of the church is fully observed.

The Baptist denomination in the United States maintains general organizations for Foreign Missionary purposes, for Home Missions, Church Extension, and the education of Freedmen for the ministry; for the translation, publication, and circulation of the scriptures in our own country and in foreign lands; for the publication of tracts, sunday school, and denominational works; for the promotion of theological, collegiate, and academical education, and a consolidated American Baptist Missionary Convention for missionary and educational work, mainly among the freedmen.

The ten societies of the denomination received in 1870 the following sums: for Foreign Missions, $229,768.44; for Home Missions, Church Extension, &c., $237,645.50; Bible, sunday school, and denominational publications and circulation, $384,324.17 making a total of $851,738.11 for missionary and educational purposes. The contributions for church purposes, and church extension, education, &c., not passing through these channels, the same year was about $8,100,000 more.

The statistics of the denomination for 1870 were as follows: 799 associations, 17,745 churches, 10,818 ordained ministers; whole number of members 1,419,492, a net gain of 198,144 during the year. There were connected with these churches 5,251 Sunday Schools reported with 56,515 teachers, and 473,664 scholars. The number of volumes in the Sunday School libraries reported was 617,102, and the benevolent contributions of the schools $122,143. There were the same year 38 colleges and theological seminaries belonging to the denominations, besides 18 or 20 others, mostly for female education, founded by Baptists and mainly under their control. These institutions had about 350 instructors and professors and over 6,000 students. The college property of these institutions is somewhat more than $6,500,000.

They supported in 1870, 24 weekly, 3 semi-monthly, 12 monthly, and 3 quarterly periodicals devoted to the interests of the denomination, its Sunday Schools, and Mission enterprises.

II. Freewill Baptists. This denomination originated in 1780, in which year Benjamin Randall, a native of Newcastle, N. H., born in 1749, and in 1771 converted under the preaching of George Whitfield, organized the first Freewill Baptist church, at New Durham, N. H. Randall was a man of but moderate education, but he possessed a strong and brilliant intellect, and having become convinced, in 1776, that the views of the Baptists were correct in regard to the mode and subjects of baptism, he joined them, and very soon after commenced preaching. He was a diligent student, and the Calvinistic doctrines of the Baptist churches being distasteful to him, he adopted after careful examination the views of Arminius, substantially as held by the New Connection of General Baptists in England, and the Methodists in this country. Mr. Randall preached these doctrines with great success, and in 1780 established his first church holding these doctrines. He also adopted the

principle of free or open communion. The growth of the denomination has been considerably rapid, though it has been, from their strong anti-slavery principles, confined entirely to the northern states, and its churches have been multiplied rather in the country than in the large cities. Almost two thirds of its membership reside in New England and New York. Their views of doctrine correspond with the Regular Baptists on all points except the following, which we give from their Confession of Faith:

"*The Atonement.* As sin cannot be pardoned without a sacrifice, and the blood of beasts could never actually wash away sin, Christ gave himself a sacrifice for the sins of the world, and thus made salvation possible for all men. Through the redemption of Christ, man is placed on a second state of trial; this second state so far differing from the first that now men are naturally inclined to transgress the commands of God, and will not regain the image of God in holiness but through the atonement, by the operation of the Holy Spirit. All who die short of the age of accountability are rendered sure of eternal life. Through the provisions of the atonement, all are abilitated to repent of their sins, and yield to God; the Gospel call is to all, the Spirit enlightens all, and men are agents capable of choosing or refusing."

"*Regeneration* is an instantaneous renovation of the soul, by the Spirit of God, whereby the penitent sinner, believing in, and giving up all for Christ, receives new life, and becomes a child of God. This change is preceded by true conviction, repentance of, and penitent sorrow for sin; it is called in Scripture, "being born again," "born of the Spirit," "passing from death unto life." The soul is then *justified* with God."

"*Santification* is a setting apart the soul and body for holy service, an entire consecration of all our redeemed powers to God; believers are to strive for this with all diligence."

"*Perseverance.* As the regenerate are placed in a state of trial during life, their future obedience and final salvation are neither determined, nor certain; it is, however, their duty and privilege to be steadfast in the truth, to grow in grace, persevere in holiness, and make their election sure."

"*Communion.* Communion is a solemn partaking of bread and wine, in commemoration of the death and sufferings of Christ."

The custom or ordinance of "washing the saints' feet," once practised to a considerable extent by this denomination, is still optional with them, but has generally been abandoned. In their church polity the Freewill Baptists are not so independent or democratic as the Regular Baptists, having adopted, with their doctrines, some of the views of the Methodists on church government. They have but two classes of officers in the church,—elders and deacons. Each church elects its own pastor, and exercises discipline over its own members; but as a church is accountable to the yearly meeting, which has, also, the power of receiving appeals and trying them. The ecclesiastical organizations of the denomination are the church, the quarterly meeting or conference, the annual meeting, and the general conference, which meets triennially. The quarterly conference consist of the ministers of its territory, and such lay members as the churches may select. A council from the quarterly conference organizes churches, and ordains ministers, and the ministers are accountable to it and not to their churches. The annual conferences are composed of delegates appointed by the quarterly conferences, and the general conference delegates are chosen from the annual conferences. The statistics of the denomination for 1870, are as follows; One general conference; thirty yearly meetings; 155 quarterly meetings; 1386 churches; 1145 ordained ministers, and 66,909 communicants. We have no report of their Sunday Schools, and no recent one of their benevolent contributions. Their donations to the foreign missionary cause in 1866, were $12,166, but have since been considerably increased. They have also a Home Mission Society, and an Education Society. They have four colleges: Bates College, Lewiston, Me., which is liberally endowed, and has 12 instructors and 103 students; Hillsdale College, at Hillsdale, Mich.; West Virginia College, at Flemington, W. Va., and Ridgeville College, Ridgeville, Ind. They have also a Theological Seminary at New Hampton, N. H, and a Theological Department of Bates College, Me. There are also thirteen academies, seminaries, &c., and a society for the promotion of Education in the South They have a printing establishment, the property of the denomination, at Dover, N. H., and issue a weekly paper, the "Morning Star," a monthly juvenile paper, and an annual, the "Freewill Baptist Register." The Free Communion Baptists or Free

Baptists, a separate denomination until 1841, united with them in that year; but the Freewill Baptist General Conference withdrew subsequently from 4000 of their own members in North Carolina, on the question of slavery, and refused to receive about 12,000 more from Kentucky, who applied, on the same grounds.

III. THE SEVENTH DAY BAPTISTS, differ from Regular Baptists only in the observance of the seventh, instead of the first day of the week for religious worship. Their first church in the United States was organized in 1671. They practice restricted communion, are Calvinistic in doctrine, and independent in church polity. They had in 1870, seventy-five churches, eighty-two ministers, and 7,336 members. They sustain missions in China and Palestine, and have a Home Missionary organization, an Education Society, and a tract and publishing house. They issue a weekly, a monthly, and a quarterly religious periodical. They have a flourishing college, Alfred University, at Alfred, Alleghany Co., N. Y., with 16 teachers and 364 students, and a good academy, the "De Ruyter Institute," at De Ruyter, Madison Co., N. Y. There are also a few churches of GERMAN SEVENTH DAY BAPTISTS, seceders from the Tunkers or German Baptists, in Franklin, Bedford, and York counties, Pa. They are inclined to monasticism, or the community life, and number but a few hundreds.

IV. THE SIX PRINCIPLE BAPTISTS are a small body, mostly confined to Rhode Island, but having a few congregations in Massachusetts, New York, and Pennsylvania. They are Arminian in doctrine. Their six principles are those stated in Hebrews, vi: 1, 2. Their rite of "laying on of hands" is analogous to Episcopal confirmation, and is their principal distinguishing point. Their ministers are not generally well educated, and receive no stated support. They are generally opposed to missions and to most of the reforms of the day. The denomination originated in 1639, but has not grown rapidly. It now numbers about 20 churches, 18 ordained ministers, and 3,300 members. They have no periodical, and no schools or colleges.

THE OLD SCHOOL OR ANTI-MISSION BAPTISTS, are diminishing every year in numbers, but have their churches scattered through most of the states of the Union, except New England. They are generally hyper-calvinistic or anti-nomians, in doctrine, and oppose strongly missions, sunday schools, temperance societies, and all agencies not mentioned in the Scriptures. Their ministers are not generally educated, and seldom or never receive any salary. Fifty years ago the number of these churches was very large, but they have dwindled to a few hundreds, and their membership to perhaps, 45,000. They have no schools or colleges, but have several periodicals, one of them, "The Signs of the Times," being published semi-monthly, at Middletown, Orange Co., N. Y.

VI. THE DISCIPLES OF CHRIST, OR CHURCH OF CHRIST, or, as they are often called, though they do not acknowledge the name, CAMPBELLITES, are a body of Baptists, who owe their origin, as a distinct denomination, mainly to the labors of Thomas and Alexander Campbell, two Presbyterian clergymen, father and son, who settled in Western Pennsylvania, in 1808. They originally belonged to the "Seceders," one of the denominations which had come off from the Scottish Kirk. The first effort of Mr. Thomas Campbell, in which his son joined him very heartily, was to effect a union of the different Protestant denominations of that region, by an agreement to reject all creeds and confessions of faith, and take the Scriptures only as the rule of faith and practice, seeking to come at their meaning by earnest prayer, and careful study. A considerable number joining in this work, a small congregation was formed in Washington Co., Penn, known as the "Brush Run Church," Sept. 10, 1810. Of this church Thomas Campbell was the elder or pastor, and by it, his son, Alexander, was ordained to the ministry. Careful and prayerful study of the Bible for nearly two years, brought the Campbells and several of their followers to the conclusion that the Scriptures taught "the immersion of believers," and they with five others, were accordingly baptized in June, 1812, by a Baptist minister. Within the next three years, their adherents had increased to five or six considerable congregations, and they united with the Redstone Baptist Association, stipulating, however, in writing "that no terms of union or communion, other than the Holy Scriptures, should be required." Some difficulty arising in the Association in consequence of their measures, they withdrew and joined the Mahoning (Ohio) Association, which soon became

fully identified with the movement. In 1823 Alexander Campbell, a man of extensive scholarship, and remarkable logical and dialectic powers, commenced the publication of "The Christian Baptist." This periodical was edited with great ability, and through its very large circulation, aided by his extensive tours, and his public discussions with the leading men of different denominations, his peculiar views spread widely among the Baptists and other denominations, throughout the Middle and Northwestern States. Though acknowledging no creed or confession of faith, and making his motto "Faith in the Testimony of God, and obedience to the commandments of Christ, the only bond of union," Mr. Campbell did use a phraseology in the enunciation of his doctrines which was liable to perversion, and was, in fact, often perverted. He insisted that the Scriptures commanded "baptism for the remission of sins," and as Peter replied in Acts, ii : 38, to those who asked what they should do: "Repent and be baptized, every one of you, in the name of Jesus Christ, for the remission of sins, and ye shall receive the gifts of the Holy Ghost," so he would have the Christian minister now baptize all who professed to be penitent, for the remission of their sins, and the assurance of pardon, and the gifts of the Holy Spirit. His own views were decided that penitence and faith were necessary to salvation, but that the assurance of this pardon and salvation was to be attained through submission to this initiatory rite. To many of the Baptist churches, it seemed that this was opening the door to a belief in baptismal regeneration, a doctrine abhorrent to them as to most Protestants, and in 1827 the excision of Mr. Campbell's followers commenced, and was carried on unsparingly for many years after. Their exclusion from the regular Baptist churches led to their forming churches and associations of their own, and their numbers were largely augmented by the accession of a body known as Reformers, who, by an independent process, had reached substantially the same conclusions with them. The "Disciples," owing to their somewhat peculiar and vague phraseology in avowing their faith, have been charged with Unitarianism, as well as some other heresies; but it is now very generally conceded that they are Trinitarians, and that they do not differ in the cardinal doctrines of the Bible from other Evangelical Christians. That their formula on the subject of baptism has led some astray and prejudiced the minds of others, is probably true; but judged by the tests of Christian activity and evangelical labor, they are perhaps little, if at all, behind other denominations. Their only distinctive practice, aside from the baptismal formula, is the observance of the ordinance of the Lord's Supper weekly. They recognize three orders of church officers, viz: 1. Elders, presbyters, or bishops, terms which they regard as synonymous; 2. Deacons; 3. Evangelists. The last are their itinerant ministry or missionaries, and are supported by voluntary contributions. They are very earnest in their support of educational institutions, and of organizations for the distribution of the Scriptures. Their distinguished leader died in 1866, at the age of 77, after performing an amount of intellectual labor greater than falls to the lot of one educated man in a thousand. He had written largely on theological subjects, edited for more than forty years a very able religious periodical, conducted successfully five or six protracted public discussions, founded, and taught large classes in a college of good repute, and preached many thousand sermons.

The "Disciples" at the time of his death had 1,642 preachers (elders or bishops) a large number of evangelists, and 424,250 members. Their present number of preachers of both classes is estimated at about 3,000, their congregations at nearly 5,000, and their membership at about 512,000. The educational institutions organized and supported by the "Disciples," are Kentucky University at Lexington, Ky.; Bethany College, Bethany, West Virginia; a College at Indianopolis, Ind.; Eureka College and Abingdon College, at Eureka and Abingdon, Ill.; Oskaloosa College, Iowa; Wilmington College, Wilmington, Ohio; Franklin College, near Nashville, Tenn.; Woodland College, California; Jeffersontown and Eminence, Kentucky; female colleges at Columbia, Missouri, Versailles, and Harrodsburg, Ky., and Bloomington, Ill.; and 12 Academies and Seminaries. They have twenty-three periodicals, of which 9 are weekly, 13 monthly, and one quarterly. The "*Millennial Harbinger*," a monthly, succeeded the "*Christian Baptist*," Dr. Campbell's first periodical, and was edited by him till his death.

VII. THE CHRISTIAN CONNECTION, often but unproperly called CHRIST-IANS, are a body of religionists who claim a threefold

origin. In North Carolina, in 1793, a considerable number of churches seceded from the Methodist Episcopal Church under the leadership of Rev. J. O. Kelley, and others, and first took the name of Republican Methodists, but afterward making the Bible their sole standard of faith, and having become convinced of the necessity of immersion on the profession of faith, they adopted the name of "*Christians.*" In 1800, Dr Abner Jones, Elias Smith, and other members of a Baptist church in Hartland, Vermont, knowing nothing of the action of these North Carolina churches, separated from the church with which they were connected and organized a church at Lyndon, Vermont, on the principle of "making the Bible alone their confession of faith." This soon grew in numbers and other churches were constituted on the same principle. In 1801, after the great revival in Kentucky and Tennessee, which led to the organization of the Cumberland Presbyterian Church, Rev. B. W. Stone, and four other Presbyterian ministers of Kentucky, withdrew, and adopting soon after the name of "Christians," organized churches and formally proclaimed their principles in 1804. These three bodies originating in as many denominations, came together in a general convention two or three years later and became one body. They have two Quadrennial Conferences, the United States and the Southern. Their first weekly periodical, "*The Herald of Gospel Liberty*," was one of the first if not the first of the religious newspapers published in the United States, and is still maintained.

Admitting no creed or confession of faith, and allowing all its adherents to interpret the Scriptures for themselves, the Christian Connection necessarily allows a wide range of doctrinal belief, and it is somewhat difficult to determine what are their doctrinal views. A considerable portion, especially in the Western and Central States, are not Trinitarians. They hold that there is one God, the God of the Bible; that Christ is a divine being, pre-existent, and the mediator between God and man; that Christ's sufferings and death atone for the sins of all men, who, by repentance and faith, may be saved. They believe immersion the only proper mode, and believers the only proper subjects of baptism. Communion at the Lord's table is open to believers of all denominations. In regard to church government and polity, each church is theoretically and practically independent. They have annual State Conferences, composed of ministerial and lay delegates from the churches which receive and ordain pastors, but can pass no laws binding the several churches. Their General Convention or Conference has Missionary, Educational, Publishing, and Sabbath School departments, each of which are in a prosperous condition. They have a publishing establishment at Dayton, Ohio, from which are issued, the *Gospel Herald*, a weekly, the Sunday School Herald, a monthly periodical, a Quarterly Review, and a Christian Register, annually, and the books and tracts of the denomination. The "*Herald of Gospel Liberty*," now (1871) in its sixty-third year, is still published at Newburyport, Mass. There was also, previous to the war, a publishing establishment of the denomination at Suffolk, Va., and "*The Christian Sun*," the organ of the Southern churches, was published there. The printing establishment was destroyed and its funds lost during the war, but the paper, though discontinued for the time, was revived in 1867. There is great difficulty in ascertaining accurately the statistics of the "Christian Connection." At the West they are often confounded with "The Disciples," with whom many of them fraternize. They have about 70 Conferences, and it is estimated 3,000 ministers, 5,000 churches, and about 300,000 members. Their educational institutions are Antioch College, Ohio, which has been aided largely by the Unitarians, Union Christian College, Indiana, Le Grand Institute, Iowa, Wolfsborough Seminary, New Hampshire, and Starkey Seminary, New York. We can obtain no statistics of their Sabbath Schools.

VIII. THE MENNONITES, a denomination of Baptists, first known in Holland as the followers of Simonis Menno in the sixteenth century. They settled in and about Germantown, Penn., in 1683, and in Lancaster County, Penn., in 1709. They have since spread over a great portion of Pennsylvania, and have churches also in Maryland, Virginia, Ohio, Indiana, New York, and Canada. Their doctrines are, in general, similar to those of the regular Baptist churches, except that some of them admit the validity of sprinkling as baptism. They observe the ordinance of "Washing the Saints' feet," and forbid their members to marry any except those who are members of the church. They resemble the Friends in their aversion to

legal oaths, to war, and to capital punishment. They are divided into three parties, or sub-sects: the Old Mennonites, the Reformed Mennonites, who came off in 1811; and the Amish Church or Hooker Mennonites. All profess to agree to the standard or confession of faith adopted at Dort, Holland in 1632. The statistics of the denomination, as well as its history, are very imperfectly known. According to their journals they had, in 1859, 128,000 members in America; but later statistics (in 1869) which do not, however, include Canada, where they are considerably numerous, put their number in the United States at 60,000, with about 400 churches, and perhaps 450 ministers. In 1860, the eighth census reported their church edifices as having only sittings for 37,000, but these returns were so fallacious that little dependence could be placed upon them. The denomination are not apparently increasing with any great rapidity. They have one English, and two German newspapers, and a German and an English Almanac, all published at Elkhart, Ind., except one of the German papers, which is issued from Milford Square, Penn., There are no colleges, we believe, under their special care or patronage.

IX. BRETHREN, GERMAN BAPTISTS, TUNKERS OR DUNKERS. A small body of Baptists, who originated at Schwartzenau, Germany, in 1708, but were driven to America by persecution in 1719. They are found mostly in Pennsylvania, Ohio, and Virginia, Maryland, and Indiana. In doctrine they incline to Arminianism, believing in a general redemption, though in other doctrines, they refer to the confession of Dort, which is Calvinistic. They have been charged with believing in the final restoration of the wicked to heaven and happiness, but the doctrine is not a part of their public teaching, and is not perhaps generally held by them. They practice trine immersion, and in baptism incline the body forward instead of backward as other Baptists do. They also practice laying on of hands and prayer, while the person baptized is still in the water. The Lord's Supper is celebrated with its accompanying usages of love feasts, the washing of feet, the kiss of charity, and the right hand of fellowship. They also anoint the sick with oil for their recovery. In other matters they resemble the Friends, using great plainness of dress and speech, refusing to take legal oaths, and to engage in war. They will not go to law, and generally will not take interest on money lent. They have bishops or ministers, elders or teachers, deacons, and deaconesses, the latter being aged women set apart for this special work. The ministers or bishops alone receive ordination. Until recently, questions were decided by lot instead of by voting. Their statistics in 1866 were 200 churches, 150 ministers or bishops, about 500 elders, and 20,000 members. They have recently established Sabbath Schools, though a branch of them, (the Seventh Day Dunkers,) maintained a Sunday School at Ephratah, Penn., from 1740 to 1770.

X. CHURCH OF GOD OR WINEBRENNERIANS, a denomination of Baptists, organized in 1830, by Rev. John Winebrenner, formerly a minister of the German Reformed Church at Harrisburg, Pa., where he was settled in 1821. He was very successful in his pastorate, and great revivals took place in his congregations, but he was charged with deviating from the doctrines and practice of the German Reformed Church. In 1830 he withdrew from the church, and held a meeting with some other preachers, in which it was resolved that the only scriptural name for the one true Church was "The Church of God," and that they would henceforth belong to that church only. At the same time Mr. Winebrenner avowed the change of views to which he had been led, which was accepted by the others.

The doctrines then advanced are substantially those of "The Church of God" to-day. The general tone of her doctrines is thoroughly evangelical though inclined rather to the Arminian than the Calvinistic view. So far as baptism, in mode and subjects, is concerned they are in unison with the regular Baptists. Their peculiar views of doctrine and polity are thus expressed by themselves: —She ("The Church of God") believes in three positive ordinances of perpetual standing in the church, viz., Baptism, Feet-Washing, and the Lord's Supper.—She believes that the ordinance of feet-washing, that is, the literal washing of the saints' feet, according to the words and example of Christ, is obligatory on all Christians, and ought to be observed by all the churches of God.

She believes that the Lord's Supper should be often administered, and to be consistent, to Christians only, in a sitting posture and always in the evening.

She believes in the propriety and utility

of holding fast days, experience meetings, anxious meetings, camp meetings, and other special meetings of united and protracted efforts for the edification of the church, and the conversion of sinners.

She believes in the personal coming and reign of Jesus Christ. There are also articles in her confession of faith against the manufacture, traffic, and use of ardent spirits as a beverage, against slavery as impolitic, and unchristian, and against civil wars as unholy and sinful and that the saints of the Most High ought never to participate in them.

Her church government is somewhat peculiar. She claims to be independent and Congregational, yet each church has its council, composed of the preachers in charge, and the elders and deacons, which has all the powers of the session of a Presbyterian, or the consistory of a Reformed church.

She has also her annual Elderships, consisting of all the pastors, and an equal number of ruling elders within a given district, and her Triennial General Eldership, consisting of delegates from the Annual Elderships, who, if preachers, must have been at least five years in the ministry. This General Eldership owns and controls all the common property of the church. Her officers are ministers, who may be either stationed pastors, itinerants on circuits, or missionaries at large; ruling elders, and deacons. The church has a domestic and a foreign missionary society, and a printing establishment. They issue a weekly paper "*The Church Advocate*," a Sunday School paper, and a German weekly paper. They have two colleges, one at Centralia, Kansas, and another as yet only partly organized. Their numbers were estimated in 1870, at 400 churches, 350 ordained ministers, and 30,000 members. They are found mostly in Pennsylvania, Ohio, Indiana, Illinois, Iowa, Michigan, and Kansas.

IV. PRESBYTERIANS.

I. THE PRESBYTERIAN CHURCH IN THE U. S. AMERICA. (North.) This large and respectable body of Christians, trace their origin as a denomination in this country to the Scottish Kirk, or Established Church of Scotland, to which most of the early Presbyterians in this country had belonged previous to their emigration hither. The first Presbyterian church in the Colonies is believed to have been the Rehoboth church in Maryland, organized in 1690; that on Elizabeth River, Virginia, was formed about the same time, and those of Freehold, and Woodbridge, N. J., not later than 1692. The first presbytery, (that of Philadelphia,) was formed in 1706, and a synod of four presbyteries in 1716. A division took place between the "Old Side" and the "New Side" or "New Lights," in the synod (the synod of Philadelphia) in 1741; the "Old Side insisting upon a thoroughly educated ministry, and the strict observance of Presbyterial order in accordance with the rules of the Scottish Kirk, while the "New Side" or "New Lights," who had been to some extent under the influence of Whitfield and his followers, required conclusive evidence of experimental religion in the candidates for the ministry, and a good, but not necessarily a collegiate education, and were less strenuous on the minutiæ of Presbyterial order. This division continued for 17 years, when the two parties came together and the two synods were united under the name of the "Synod of New York, and Philadelphia." At the close of the Revolutionary war, there were about 170 Presbyterian ministers, and rather more than that number of churches, with an entire membership of less than 20,000. In 1788 a committee of the Synod had completed the revision of the standards of doctrine and polity of the church, and recommended its reorganization into four synods, and a General Assembly over the whole. This recommendation was adopted, and taking a new departure from the great revivals of 1800, 1801, and 1802, the church began to grow with considerable rapidity. In 1801 a "plan of Union" was arranged between the Presbyterians and Congregationalists in the new settlements to prevent disagreement between the two denominations, and to facilitate their coöperation in missionary enterprises. This continued 36 years. There had been evidently two parties in the Presbyterian church prior to 1830, but there had been no decided collision between them until about 1835, when some test cases led to a division, and the excision of four synods from the General Assembly in 1837. At this time the New School General Assembly was formed, and for thirty-three years there were two General Assemblies, both calling themselves the General Assembly of the Presbyterian Church in the United States of

America; both holding professedly to the same standards and alike in church polity as well as in doctrine. They were distinguished as the Old School and the New School General Assemblies. Each had their missionary, and publication organizations, though the New School body coöperated for many years with the American Board of Commissioners for Foreign Missions, and the American Home Missionary Society. In 1870, after a discussion and balloting for nearly two years on the details, the two General Assemblies, with their entire constituency reunited, and now form one body. The Southern synods, the larger portion of them belonging to the Old School branch, seceded from the General Assembly, those heretofore belonging to the New School in 1857, and those of the Old School in 1861, and eventually coalesced in the General Assembly of the Presbyterian Church, south. Overtures have since been made to them for reunion with the now United church in the Northern states, but they have been thus far repelled.

The Presbyterian church recognizes and avows the necessity of doctrinal standards of faith, and adopts as its standard, The Westminster Assembly's Confession of Faith, and Exposition of doctrine, as contained in the shorter and larger catechisms of that body. We have not space to give the whole of these, but insert below, those which are distinctive in their character, giving only the answers to the questions of the shorter catechism, as these contain the declarative portion of the confession. It is hardly necessary to say that this confession is always in accordance with the principles, and often uses the very phraseology (translated) of Calvin in his celebrated Institutes, and is sustained by abundant references to scripture on each point.

"1. Man's chief end is to glorify God, and to enjoy Him forever.

2. The Word of God, which is contained in the Scriptures of the Old and New Testaments, is the only rule to direct us how we may glorify and enjoy him forever.

3. The Scriptures principally teach what man is to believe concerning God, and what duty God requires of man.

4. God is a spirit, infinite, eternal and unchangeable, in his being, wisdom, power, holiness, justice, goodness, and truth.

5. There is but one only, the living and true God.

6. There are three persons in the Godhead, the Father, the Son, and the Holy Ghost, and these three are one God, the same in substance, equal in power and glory.

7. The decrees of God are his eternal purpose, according to the counsel of his will, whereby for his own glory, he hath fore-ordained whatsoever comes to pass.

8. God executes his decrees in the works of creation and providence.

9. The work of creation is, God's making all things of nothing, by the word of his power, in the space of six days, and all very good.

10. God created man, male and female, after his own image, in knowledge, righteousness, and holiness, with dominion over his creatures.

11. God's works of providence are, his most holy, wise, and powerful preserving and governing all his creatures, and all their actions.

12. When God had created man, he entered into a covenant of life with him, upon condition of perfect obedience; forbidding him to eat of the tree of knowledge of good and evil, upon the pain of death.

13. Our first parents being left to the freedom of their own will, fell from the estate in which they were created, by sinning against God.

14. Sin is any want of conformity unto, or transgression of, the law of God.

15. The sin whereby our first parents fell from the estate wherein they were created was their eating the forbidden fruit.

16. The covenant being made with Adam, not only for himself, but for his posterity; all mankind descending from him by ordinary generation, sinned in him, and fell with him, in his first transgression.

17. The fall brought mankind into an estate of sin and misery.

18. The sinfulness of that estate whereinto man fell, consists in the guilt of Adam's first sin, the want of original righteousness, and the corruption of his whole nature, which is commonly called original sin, together with all actual transgressions which proceed from it.

19. All mankind by their fall lost communion with God, are under his wrath and curse, and so made liable to all the miseries of this life, to death itself, and to the pains of hell forever.

20. God having out of his mere good pleasure, from all eternity, elected some to everlasting life, did enter into a covenant of

grace to deliver them out of the estate of sin and misery, and to bring them into an estate of salvation by a Redeemer.

21. The only Redeemer of God's elect is the Lord Jesus Christ, who, being the Eternal Son of God, became man, and so was and continues to be God and man, in two distinct natures and one person, forever.

22. Christ, the Son of God, became man, by taking to himself a true body and a reasonable soul, being conceived by the power of the Holy Ghost, in the womb of the Virgin Mary, and born of her, yet without sin.

23. Christ, as our Redeemer, executes the offices of a prophet, of a priest, and of a king, both in his estate of humiliation and exaltation.

24. He executes the office of a Prophet in revealing to us, by his Word and Spirit, the will of God for our salvation.

25. He executes the office of a Priest, in his once offering up himself a sacrifice, to satisfy divine justice, and reconcile us to God; and in making continual intercession for us

26. He executes the office of a King, in subduing us to himself, in ruling and defending us, and in restraining and conquering all his and our enemies.

27. Christ's humiliation consisted in his being born, and that in a low condition, made under the law, undergoing the miseries of this life, the wrath of God, and the accursed death of the cross; in being buried, and continuing under the power of death for a time.

28. His exaltation consists in his rising again from the dead on the third day, in his ascending up into Heaven, in his sitting on the right hand of God the Father, and in his coming to judge the world at the last day.

29. We are made partakers of the redemption purchased by Christ, by the effectual application of it to us by his Holy Spirit.

30. The Spirit applies to us the redemption purchased by Christ, by working faith in us, and thereby uniting us to Christ, in our effectual calling.

31. Effectual calling is the work of God's Spirit, whereby convincing us of our sin and misery, enlightening our minds in the knowledge of Christ, and renewing our wills, he doth persuade and enable us to embrace Jesus Christ, freely offered to us in the gospel.

32. They that are effectually called, do, in this life, partake of justification, adoption, sanctification, and the several benefits, which, in this life, do either accompany or flow from them.

33. Justification is an act of God's free grace, wherein he pardons all our sins, and accepts us as righteous in his sight, only for the righteousness of Christ, imputed to us, and received by faith alone.

34. Adoption is an act of God's free grace, whereby we are received into the number, and have a right to all the privileges of, the sons of God.

35. Sanctification is the work of God's free grace, whereby we are renewed in the whole man, after the image of God, and are enabled more and more to die unto sin, and live unto righteousness.

36. The benefits which, in this life, do accompany or flow from justification, adoption and sanctification, are, assurance of God's love, peace of conscience, joy in the Holy Ghost, increase of grace, and perseverance therein to the end.

37. The souls of believers are, at their death, made perfect in holiness, and do immediately pass into glory; and their bodies being still united to Christ, do rest in their graves till the resurrection.

38. At the resurrection, believers being raised up in glory, shall be openly acknowledged and acquitted in the day of judgment, and made perfectly blessed in the full enjoyment of God to all eternity.

39. The duty which God requires of man is obedience to his revealed will.

40. The rule which God at first revealed to man for his obedience, was the moral law.

41. The moral law is summarily comprehended in the ten commandments.

42. The sum of the ten commandments is, to love the Lord our God, with all our heart, with all our soul, with all our strength, and with all our mind; and our neighbor as ourselves."

(Then follow in the Catechism, forty questions and answers, comprising the words of the ten commandments and expositions of their teaching, not necessary to be inserted here, and the Catechism then proceeds with answer.)

"82. No mere man, since the fall, is able, in this life, perfectly to keep the commandments of God, but doth daily break them, in thought, word, and deed.

83. All transgressions of the law are not equally heinous, some sins in themselves, and by reason of several aggravations,

being more heinous in the sight of God than others.

84. Every sin deserves God's wrath and curse, both in this life, and that which is to come.

85. To escape the wrath and curse of God, due to us for sin, God requireth of us faith in Jesus Christ, repentance unto life, with the diligent use of all the outward means whereby Christ communicateth to us the benefits of redemption.

86. Faith in Jesus Christ is a saving grace, whereby we receive and rest upon him alone for salvation, as he is offered to us in the gospel.

87. Repentance unto life is a saving grace whereby a sinner, out of a true sense of his sin, and apprehension of the mercy of God in Christ, doth with grief and hatred of his sin turn from it unto God, with full purpose of, and endeavor after, new obedience.

88. The outward and ordinary means whereby Christ communicateth to us the benefits of redemption, are his ordinances, especially the word, sacraments, and prayer; all which are made effectual to the elect for salvation.

83. The Spirit of God maketh the reading, but especially the preaching of the word, an effectual means of convincing and converting sinners, and of building them up in holiness and comfort, through faith, unto salvation.

90. That the word may become effectual to salvation, we must attend thereunto with diligence, preparation, and prayer; receive it with faith and love; lay it up in our hearts, and practise it in our lives.

81. The sacraments become effectual means of salvation, not from any virtue in them, or in him that doth administer them; but only by the blessing of Christ, and the working of His Spirit, in them that by faith receive them.

92. A sacrament is a holy ordinance instituted by Christ wherein by sensible signs, Christ and the benefits of the new covenant are represented, sealed, and applied to believers.

93. The sacraments of the New Testament are Baptism and the Lord's Supper.

94. Baptism is a sacrament wherein the washing with water, in the name of the Father, and of the Son, and of the Holy Ghost, doth signify and seal our engrafting into Christ, and partaking of the covenant of grace, and our engagement to be the Lord's.

95. Baptism is not to be administered to any that are out of the visible church till they profess their faith in Christ and obedience to him; but the infants of such as are members of the visible church are to be baptized.

86. The Lord's Supper is a sacrament wherein by giving and receiving bread and wine, according to Christ's appointment, his death is showed forth; and the worthy receivers are, not after a corporeal and carnal manner, but by faith, made partakers of his body and blood, with all his benefits, to their spiritual nourishment and growth in grace.

97. It is required of them that would worthily partake of the Lord's Supper, that they examine themselves of their knowledge to discern the Lord's body, of their faith to feed upon him, of their repentance, love and new obedience, lest, coming unworthily, they eat and drink judgment to themselves.

98. Prayer is an offering up of our desires to God for things agreeable to his will, in the name of Christ, with confession of our sins, and thankful acknowledgment of his mercies.

99. The whole word of God is of use to direct us in prayer, but the special rule of direction is that form of prayer which Christ taught his disciples, commonly called the *Lord's Prayer*.

100. The preface of the Lord's Prayer (*Our Father which art in Heaven*) teacheth us to draw near to God with all holy reverence and confidence, as children to a Father, able and ready to help us; and that we should pray with and for others.

101. In the first petition (*Hallowed be thy name*), we pray that God would enable us, and others, to glorify him in all that whereby he maketh himself known, and that he would dispose all things to his own glory.

102. In the second petition (*Thy kingdom come*), we pray that Satan's kingdom may be destroyed, and that the kingdom of grace may be advanced, ourselves and others brought into it, and kept in it, and that the kingdom of glory may be hastened.

103. In the third petition (*Thy will be done on earth as it is in Heaven*), we pray, that God, by his grace, would make us both able and willing to know, obey, and submit to his will in all things, as the angels do in Heaven.

104. In the fourth petition (*Give us this day our daily bread*), we pray that of God's free gift, we may receive a competent portion of the good things of this life, and enjoy his blessing with them.

105. In the fifth petition (*Forgive us our debts, as we forgive our debtors*), we pray, that God, for Christ's sake, would freely pardon our sins; which we are the rather encouraged to ask, because by his grace, we are enabled from the heart to forgive others.

106. In the sixth petition (*And lead us not into temptation, but deliver us from evil*), we pray that God would either keep us from being tempted to sin, or support and deliver us when we are tempted.

107. The conclusion of the Lord's Prayer (*For thine is the kingdom, and the power and the glory, forever, Amen.*) teacheth us to take our encouragement to prayer from God only, and in our prayers to praise Him, ascribing kingdom, power, and glory to Him. And in testimony of our desire and assurance to be heard, we say, AMEN.

It will be seen from the 95th article, that the Presbyterian Church, as well as some of the denominations which follow in this volume, is *Pædo baptist* or holds to the doctrine of infant baptism, in distinction from the churches of the Baptist group which administer baptism only to believers. It also differs from all the churches which we have previously described, in its church government and polity. The Presbyterial form of church government characterizes (under somewhat different names, but with the same meaning) all the churches which are affiliated with the Presbyterian, and it may therefore be described here once for all. Their government is representative rather than democratic. They recognize two classes of elders (presbyters); the teaching elder or minister of the word, and the ruling elder, a representative of the people, and their agent and ruler in matters pertaining to the church. While they have but one teaching elder or preacher, generally a pastor, to the church, they have two, four, or more, ruling elders, who, with the teaching elder and deacons, constitute the church session, which governs the church in all matters of doctrine and discipline, and being elected for that purpose also, has charge of the temporalities of the church. The church court next above the church, and, in ordinary cases, the leading judicatory, is the presbytery, composed of the teaching elders or preachers, and one ruling elder in each church within its bounds. The ordaining, recognition, and dismissal of pastors are conducted by the presbytery, on the application of the minister and the church with which he is, or is to be, officially connected. (It is noteworth that very often the minister is not a member of the church to which he ministers.) Difficult cases of discipline, or those in which there are two parties in a church, come before the presbytery for adjudication; and all charges of heresy, or misconduct against any of its ministers, is brought before it for trial and investigation. Above the presbytery in the gradation of church courts, is the synod, composed of a certain number of presbyteries, and when in session consisting of delegates from each presbytery, lay and clerical. It is a court of appeal from the presbytery, and its wider range of territory and larger number of able ministers and elders gives it some advantages. The final court of resort in all church matters is, however, the General Assembly or General Synod, composed of commissioners, clerical and lay, from the Synods. This General Assembly possesses entire control over the church action, the doctrinal soundness, and the educational and benevolent institutions of the denomination, and is, in its assembled capacity, the embodiment of the Presbyterian Church in America, or of the other organizations which it represents. Its sessions are annual, and usually continue for two or three weeks, and sometimes even longer. The Presbyterian Churches seem to have for their specialty the discussion of the doctrines of their confession of faith, and the detection of any and every form of heresy. Months and years of their history have been devoted to these discussions, and, while these are certainly important, there is danger that in these dialectic struggles their strength will be so far expended that they will hardly keep pace with the other denominations in growth and progress. Still they are one of the strongest and most efficient of the evangelical denominations in the United States, and are likely to do more efficient work in the future than they have in the past. They have shown a most commendable liberality recently. During the year ending in May, 1871, the new reunited Presbyterian Church had contributed to a memorial fund for building and paying the debts on church edifices, endowing colleges and theological seminaries, planting new missions, etc., etc., the magnificent sum of $8,600,000, aside from their regular contributions to missionary, publication, educational, and other objects, and the

expenditure for current church expenses, salaries, etc., which amounted to about $8,000,000 more.

The statistics of the "Presbyterian Church in the U. S. A.," for 1870, were as follows: There were 51 synods; 259 presbyteries; 4,238 ordained ministers; 338 licentiates and 541 candidates for licensure; 4,526 churches; 446,561 communicants; 32,003 were added on examination, and 21,447 on certificate; 10,122 adults and 16,476 infants baptized; 448,857 members of the Sabbath Schools. The benevolent contributions (not including any part of the memorial fund mentioned above) $8,440,121. The net gain in the number of communicants in the year 1870–1 was 8,817, and the whole number of members reported May, 1871, 455,378.

II. Presbyterian Church, in the United States (South).—This body is composed of the seceders, who came off from the New School Presbyterian Church in 1857, and who joined the Southern General Assembly in 1863, and the seceders from the Old School Presbyterian Church, who left it in 1861, and immediately formed the Southern General Assembly. The secession, in both instances, was based mainly on the position of the two Northern General Assemblies on the question of Slavery, and in the latter case also because that in the war then just commenced, the Old School General Assembly avowed its loyalty and adherence to the Union. During the war there were hasty, and, perhaps, injudicious resolutions passed on both sides, and to the overtures which have since been made by the re-united Presbyterian Church for their return, the Southern General Assembly has replied "that they do not approve of a union with the Northern Church because it is a total surrender of all fundamental doctrines, and embraces all shades of belief." "The Southern Church," they say, "is the only surviving heir of true, unfailing testimonies, and there are impassable barriers to official intercourse between the two churches."

Their doctrinal standards, and their church government and polity, are identical with that of the Northern church.

Their statistics in 1870 were as follows: There were 11 synods, 55 presbyteries, 840 ordained ministers, 52 licentiates, and 161 candidates, for licensure; 1,469 churches, 82,014 members reported (206 churches did not report the number of members); 5,048 members added on examination, and 2,851 on certificate; 1,529 adults, and 3,555 children baptized; 47,317 Sunday School scholars, $72,335 contributed to benevolent objects and church expenses.

III. United Presbyterian Church of North America. The body bearing this name in the United States is entirely different in its origin from the United Presbyterian Church of Scotland and Canada, though holding nearly the same views of doctrine and polity. The Scottish United Presbyterian Church is composed of the United Secession Church (itself a coalition of the Burgher and Anti-Burgher Synods) and the Relief church, both secessions from the established Kirk of Scotland on the ground of its corruption in doctrine and practice, and its enforcement of the settlement of ministers named by the heritors or aristocracy, against the will of the people. These two organizations came together and formed the Scottish United Presbyterian Church (which has a large and efficient branch in Canada) in 1847. The United Presbyterian Church, in the United States, was constituted in 1858 by the union of the Associate Reformed, and the Associate Presbyterian churches. Of these two bodies, the former was an agglomeration of small bodies of Covenanters, Associates, Reformed, and Burgher Presbyterians, which came together in 1782 and formed a synod composed of three presbyteries at Philadelphia. In 1803 they had increased so as to form four provincial synods, New York, Pennsylvania, Scioto, and the Carolinas, under one representative general synod. Two of these provincial synods (Scioto and the Carolinas) afterward became independent. The "Associate Presbyterian Church" had a somewhat similar history though it retained its allegiance to the Scottish synod of the church of the same name until 1818. It had had several small secessions from its ranks, which have since formed small presbyterian bodies. At the time of the union of these two churches in the United Presbyterian Church, in 1858, a few churches and ministers protested against the union, and have since connected themselves with some of the smaller organizations. The United Presbyterian Church has two colleges, two academies and theological seminaries at Alleghany, Penn., Xenia, Ohio, Monmouth, Illinois, and Newburgh, New York. Its statistics in 1870 were: 8 synods, 56 presbyteries, 553 ordained ministers, 43 licentiates, 55 students for the ministry, 729

congregations, 69,807 members, of whom 4,182 were received on profession, and 3,935 on certificate; 609 Sabbath Schools were reported with 6,761 officers and teachers, and 42,907 scholars. The total contributions to benevolent and church purposes were $827,126. The denomination have 5 foreign missions, 19 foreign mission stations, 12 mission churches, 26 missionaries and helpers, and contributed, in 1870, $63,500 for foreign missionary purposes. They have also successful Home Mission and Freedmen's Mission Boards, and expended on them $49,481, in 1870. The net increase of members in 1870, over the previous year, was 4,183, but the number of ministers had decreased by 12. The contributions were about $43,300 more than the previous year.

IV. General Synod of the Reformed Presbyterian Church. This body in its present organization, originated in 1782 from the ministers of the Reformed Presbyterian church who refused to consent to the union with the Associate Church and maintained their original organization. These were subsequently strengthened by the arrival of several ministers of the Reformed Presbyterian Church of Scotland in 1793, and subsequently. They were organized into a synod of three presbyteries in 1808, and in 1825 constituted a general synod. Their doctrines are those of the Westminster Assembly's Confession of Faith and Catechisms, with the addition of the Declaration and Testimony, in which they express their hostility to the interference of civil government with the affairs of the church, and their unwillingness to be bound by it in matters of conscience. On this point there has been a division among them, and a secession has resulted. The Reformed Presbyterian Church are the lineal and spiritual successors of the Covenanters or Cameronians, and like them have protested earnestly and steadily against a State church and the interference of the State with their ministry and their religious privileges. Even in the last century they were persecuted for these views in Scotland, and it was natural that they should adhere to them with the greater tenacity, but in this country where the State did not interfere with religious worship, and there was no established church, many of the ministers of the Reformed Presbyterian Church felt that there was no necessity for maintaining that hostility or non-intercourse with the civil government which, under the circumstances, in Scotland, was right and proper; and they accordingly participated, as citizens, in voting and in such civil duties as they deemed right, while protesting against all interference of the civil power in matters of conscience. They, like all the Reformed Presbyterians, were strongly opposed to slavery, and would have no communion with slaveholders or those who defended slavery. A part of their ministers, whose feelings on the subjects of the civil power were intense, and who regarded our national constitution and government as infidel and Godless, withdrew from the General Synod on these grounds in 1833 and formed a separate organization which is now somewhat more numerous than the General Synod. All the Reformed Presbyterians refuse to use any other than inspired hymns and psalms in their worship, and for the want of any more literal metrical translation of the Psalms of David sing from Rouse's version of the Psalms, which, though rough and often uncouth in its translation, has the merit of following very closely the inspired original. The number of ministers of the General Synod in 1870 was 31, of churches 43, and of members about 4,000.

V. The Synod of the Reformed Presbyterian Church, referred to above, which seceded in 1833, is now much larger than the General Synod, having, in 1870, 87 churches, 86 ministers, 8,577 members, received 435 by profession and 288 by certificate, and expended for benevolent purposes and church expenses about $144,000.

VI. The Associate Reformed Synod of the South, is the original Associate Reformed Synod of the Carolinas, which, in 1821, became an independent synod and refusing to follow the other associate reformed churches in their union with the Associate Presbyterians to form the United Presbyterian church, has existed as a distinct body. It is small in numbers. It does not differ in doctrine from the Associate Reformed Church or the Reformed Presbyterians, except on the subject of slavery, which it tolerated in its membership. Its growth was very slight for some years, but from 1842 to 1852 it increased quite rapidly; since 1863 there has been a decided falling off; twenty-six of its ministers, and some of the churches, having joined other Presbyterian bodies. In 1870, its statistics were: ordained ministers, 57; probationers, 7; theological students, 6; churches, 66; members, about 6,000. They have a small theological school at Due West,

S. C., and the organ of the church, *The Associate Reformed Presbyterian*, is published at the same place.

VII. THE CUMBERLAND PRESBYTERIAN CHURCH. This body is Presbyterian in its church government and polity but differs from the other Presbyterian churches in its doctrines. It had its origin in the great revival in Kentucky and Tennessee in 1799 to 1803. That revival was mostly among a people nominally attached to the Presbyterian Church, and in the camp meetings which the scattered population rendered necessary, there was a pressing demand for a greater number of ordained ministers to preach and to administer the ordinances. Under this demand some of the members of the newly organized Cumberland Presbytery, felt that it would be desirable to select men of piety, promise, and a fair education, from the laity, and license and ordain them for the work of the ministry. This was accordingly done in a few instances with good results. The Synod of Kentucky, however, regarded this proceeding as irregular and passed a resolution requiring the presbytery to present them for examination to a commission of the synod, and directing the young men to appear. Both the presbytery and the young men refused to submit to this examination, and the Synod, in 1805, in consequence prohibited them from exercising the functions of the ministry. The proscribed ministers, however, continued in the exercise of their ministerial duties, and after in vain appealing to the Synod for a repeal of their action, there was organized, in 1810, in Dickson County, Tennessee, a Cumberland Presbytery entirely independent of the Synod, and of the Presbyterian Church. The special difference between them and the Kentucky Synod is thus set forth in the record of their constitution: "All candidates for the ministry who may hereafter be licensed by this presbytery, and all the licentiates or probationers who may hereafter be ordained by this presbytery, shall be required before such licensure and ordination, to receive and accept the Confession of Faith and Discipline of the Presbyterian Church, except the idea of fatality that seems to be taught under the mysterious doctrine of predestination. It is to be understood, however, that such as can clearly receive the Confession of Faith without an exception, will not be required to make any. Moreover, all licentiates, before they are set apart to the whole work of the ministry, or ordained, shall be required to undergo an examination in English grammar, geography, astronomy, natural and moral philosophy, and church history. It will not be understood that examinations in experimental religion and theology will be omitted. The presbytery may also require an examination on any part or all of the above branches of knowledge before licensure, if they deem it expedient."

The growth of this new organization was rapid; in 1813 they had three large presbyteries, and a synod was formed in October of that year. A committee was appointed immediately by this Synod to prepare a Confession of Faith, Catechism, and form of Church Government. These, when reported, were adopted at a subsequent session, and remain unchanged to the present time. As would be inferred from the constitution of the Presbytery just quoted, their doctrines are less strongly Calvinistic than those of the Presbyterians generally. Rev. Dr. Beard, formerly President of Cumberland College, Princeton, Ky, thus summarizes their doctrines: "That the Scriptures are the only infallible rule of faith and practice; that God is an infinite, eternal, and unchangeable Spirit, existing mysteriously in three persons, the three being equal in power and glory; that God is the creator and preserver of all things; that the decrees of God extend only to what is for His glory; that He has not decreed the existence of sin, because it is neither for His glory nor for the good of His creatures; that man was created upright in the image of God; but that, by the transgression of the federal head, he has become totally depraved, so much so that he can do no good thing without the aid of divine grace. That Jesus Christ is the mediator between God and man; and that he is both God and man in one person; that he obeyed the law perfectly, and died on the cross to make satisfaction for sin; and that in the expressive language of the apostle, *He tasted death for every man.* That the Holy Spirit is the efficient agent in our conviction, regeneration, and sanctification; that repentance and faith are necessary in order to acceptance, and that both are inseparable from a change of heart; that justification is by faith alone; that sanctification is a progressive work and not completed till death; that those who believe in Christ, and are regenerated by His spirit will never fall away and

be lost; that there will be a general resurrection and judgment; and that the righteous will be received to everlasting happiness, and the wicked consigned to everlasting misery."

The church polity of the Cumberland Presbyterian church does not differ from that of the Presbyterian church; it has its teaching and ruling elders, its sessions, presbyteries, synods, and since 1829 a General Assembly; but as a matter of convenience, they have adopted the itinerant system of the Methodists, and have many of their churches arranged in circuits. They practice infant baptism, and in the baptism of adults, immerse, sprinkle, or pour as the candidate prefers. They have a university, and two colleges, two theological seminaries, and a number of academies of high grade. Their Board of Publication has a small capital, about $7,000, but is very efficient. They publish three or four periodicals. Their statistics in 1870 were estimated by their own organs as follows: 25 synods, 100 presbyteries, 1674 ordained ministers, 280 licentiates, 320 candidates for the ministry, about 2,000 churches, and over 80,000 members. Nearly 10,000 communicants were added to the church in 1870.

VIII. The Reformed (late Dutch) Church. This is the oldest, though by no means the largest of the Protestant churches in the United States, being an offshoot of the Reformed Church of Holland, and first planted in New Amsterdam, now New York City, in 1614, though no church was fully organized before 1628. Its growth was slow for 150 years, being confined almost exclusively to the Dutch speaking portion of the citizens, and its pulpit exercises being entirely in Dutch until near the commencement of the present century. It was dependent upon the church in Holland for the education and ordination of its ministry until 1771, when through the efforts of Rev. Dr. Livingston, the Classis of Amsterdam, with which all the churches here were connected, recommended them to organize as an independent church and make provision for the education of their ministry. Queen's (afterward Rutger's) College, at New Brunswick, was founded about 1770, and a professorship of theology (at first separate from the college) established in New York, with Dr. Livingston as professor, in 1784. After the general substitution of English for Dutch in the preaching of its ministers, the church began to grow and has maintained a prominent position in New York, New Jersey, and Eastern Pennsylvania, where alone they have any considerable membership. They have outside of these states 52 churches, mostly in Michigan, Illinois, and Wisconsin, and fifteen on missionary ground in India.

The doctrines of the Reformed church, as laid down in the Belgic confession, the Heidelberg catechism, and the Canons of the synod of Dort, do not vary in any important point from those of the Westminster confession of faith and catechisms, and are properly reckoned among the Calvinistic confessions of faith. The polity of the church is also Presbyterian, though with different names for the same things. The *Consistory*, which answers to the church session in the Presbyterian church, is composed of the dominie or pastor, the elders, and the deacons. The elders are chosen for two years, and after an interval of a year may be again elected. The classis answers to the presbytery, and the particular synods to the synods of the Presbyterian church, while they have a General Synod instead of a General Assembly. They are active in their missionary enterprises, having missions in Amoy, China, and its vicinity, and in Arcot, India. Until 1857 they were connected in these missionary enterprises with the American Board of Commissioners for Foreign Missions, but in that year they withdrew amicably and have since conducted them successfully alone, and have added a mission in Japan. They have an old and flourishing college (Rutger's) at New Brunswick, and a Theological seminary at the same place. They have a publishing establishment which issues four periodicals, and the denominational Psalmody and other books.

Their statistics for 1870 were, one General Synod, eight particular synods, 33 classes, 464 churches, 493 ministers, and 5 candidates, 38,552 families, 61,444 members, 3421 infants and 974 adults baptized, 3,628 received on confession, and 2,294 by certificate, 48,411 Sunday school scholars. Benevolent contributions, $1,187,681.63, including those for congregational purposes. In 1868 the different classes voted to drop the word Dutch from their title, and be henceforth known as The Reformed Church.

IX. The True Reformed Dutch Church. In 1822 Rev. Solomon Froeligh, D. D., of Hackensack, and a few other ministers seceded, with their congregations, from

the Reformed (Dutch) Church on the alleged ground of the prevailing laxness in doctrine and discipline, and organized a church with the above title. It has made very little progress, but had in 1862 less than 20 congregations, and about 1500 members.

X. The Reformed Church in the United States, (late German). This, the last though by no means the least of the American churches which conform to the Presbyterian polity though they do not bear the Presbyterian name, is a descendant, though with some modifications of doctrine, of the Reformed churches of Holland, Germany, France, and Switzerland. Rev. Dr. E. V. Gerhart, the President of its General Synod, and its principal historiographer, states that the first members of the Reformed Church of Germany, who came to the United States in any considerable numbers, were a body of Palatines, who tempted by William Penn's offer of lands, migrated to Pennsylvania and the adjacent colonies, in the early part of the eighteenth century, and many of whom settled east of the Susquehanna. It was among a colony of about 400 of these Palatines who settled in Montgomery county, Penn., about 1727, that Rev. Michael Weiss, one of their number, organized the first German Reformed Church. In the twenty years which followed, they were without ministers, teachers, or church organizations except this parent church, and though they had nearly thirty thousand of their people, mostly speaking German only, within a moderate circuit, they were like sheep without a shepherd. Rev. Michael Schlatter, a German Reformed minister from St. Gall, Switzerland, came over in 1746 as a missionary from the synods of North and South Holland, to look after their welfare. A man of great energy, skill, and judgment, he succeeded, after a time, in evoking order from this chaos. He organized churches, administered the sacraments, located pastors, established schools, and at the end of a year and a half, in September, 1747, was able to form the first synod or coetus of the German Reformed Church, consisting of five ministers, and twenty-six elders, who represented forty six churches, and a population of thirty thousand. He then returned to Europe and succeeded in creating a large fund, the interest of which was devoted to sustaining ministers and school teachers among these people, and brought back with him to America five young ministers, and the promise of a number more. This first coetus or synod was, like the Reformed Dutch church, subordinate to the classis of Amsterdam, until 1793, when it resolved to become independent, the number of churches having increased to one hundred and fifty, though there were yet but twenty-two ordained ministers. On becoming independent, the coetus became the synod, and the church took the name of The High German Reformed Church in distinction from the Low German or Dutch Reformed Church. There was yet a great scarcity of ministers, and as they had no college or theological seminary, it was found impossible to educate their ministry thoroughly, and many errors and irregularities crept into the church. The standard of faith in the Reformed German church was like that of its Holland sister, the Heidelberg catechism, but unlike the Dutch church, it did not adopt the Belgic confession or the canons of the synod of Dort, as defining the sense in which the postulates of the catechism should be held. The rationalism which during the years 1790-1830 was pervading so many of the German churches, was not without its effect here; and this effect was produced more readily because the services of the church were conducted wholly in German until 1825. After a long struggle, a theological seminary was established in 1824, and after two or three removals, finally located at Mercersburg, Pa., in 1835. A religious periodical in English was established in 1828, and one in German in 1836. In 1830 a high school was established at York, which was removed to Mercersburg in 1835, and in 1836 became Marshall College. Seventeen years later (1853) it was consolidated with Franklin College at Lancaster, and removed to that city. The influence of the theological school, under the hands of its able professors Nevin, Rauch, Schaff, and Gerhart, was felt in crystalizing the church into a unity of doctrine and faith which was greatly in contrast with its previous history. Not that there were no dissidents; in their own ranks there were two parties who opposed the Mercersburg philosophy and theology, as it began to be called; those whose sympathies were with the Methodist church, and for whom it was too Calvinistic, and those who adhered to the Belgic confession and the canons of the synod of Dort, or rather went beyond them in their higher Calvinistic leanings. There was also strong opposition manifested to the avowal

boldly made by the Mercersburg theologians that the Church of Rome, despite its many errors, was a part of the Church of Christ, and that Protestantism was a historical continuation of the Church Catholic; opposition also came from without to these views; but on the whole they may be safely asserted to be the views to-day of the great majority of that church. It is a cardinal point in this theology that the Apostle's Creed gives form and vitality to the doctrines of the Heidelberg catechism; and that any explanation of the catechism which leaves this out of the account is defective, and unsound. Rev. Dr. Gerhart thus summarizes the views held by the Mercersburg theologians as thus deduced from the catechism:

"1. Adam, created in the image of God, was endowed with capacity to resist temptation and abide in his original state of life—communion with God; but he transgressed the command of God by a free act of his own will through the instigation of the devil, the head of the kingdom of darkness.

2. The fall of Adam was not that of an individual only, but the fall of the human race.

3. All men are born with the fallen nature of Adam, and are thus under the power of the kingdom of darkness, inclined to all evil, and unapt to any good; and are subject to the wrath of God, who is terribly displeased with their inborn as well as actual sins, and will punish them in just judgment in time and in eternity.

4. The Eternal Law of God, incarnate by the Holy Ghost of the Virgin Mary, true God and true man in one person, is the principle and substance of the new creation.

5. In the mystery of the Word made flesh, the humanity which the Son of God assumed into organic and eternal union with Himself, is the most perfect of supernatural revelation, and the only medium of Divine grace.

6. All the acts of Christ are not those of God or of man separately taken, but the acts of the God-man.

7. His baptism, fasting, and temptation; His miracles and His word; His agony, passion, and death; His descent into Hades; His resurrection from the dead, ascension to heaven, and session at the right hand of God; the coming of the Holy Ghost, and His second advent—all derive their significance and saving virtue from the mysterious constitution of his person.

8. The atonement for the sin of man is the reconciliation of God and fallen humanity in the person and work of Jesus Christ. It is not simply the offering of himself on the cross, but the whole process of resuming human nature into life communion with God, and includes both perfect satisfaction to the law by suffering the penalty and all the consequences of sin, and complete victory over the devil. The full benefit of the atonement inures to the believer, because by faith he is a member of Christ, and a partaker of his anointing, and thus stands before God in the life and righteousness of Christ.

9. The Church constituted by the coming of the Holy Ghost, is the mystical body of Christ, a new, real, and objective order of existence, and is both supernatural and natural, divine and human, heavenly and earthly the fulness of him that filleth all in all; in whose communion alone there is redemption from sin, and all its consequences, fellowship with God in Christ, and the hope of complete victory over death and hell, and of eternal glory. The relation which the new regenerated humanity, His mystical body, bears to Christ the head, the second Adam, is analogous to the organic relation which the old, fallen, accursed humanity bears to the first Adam.

10. The sacraments are visible, holy signs and seals, wherein God by an objective transaction, confirms to sinners the promise of the Gospel. They are the means, whereby men through the power of the Holy Ghost are made partakers of the substance of divine grace, that is of Christ and all his benefits.

11. Holy baptism is a divine transaction, wherein the subject is washed with the blood and spirit of Christ from all the pollution of his sins as certainly as he is washed outwardly with water; that is, he is renewed by the Holy Ghost, and sanctified to be a member of Christ, that so he may more and more die unto sin, and lead a holy and unblamable life.

12. Baptized persons do not attain unto the resurrection of the dead and eternal life in virtue simply of holy baptism, but only on the condition that, improving the grace of baptism, they believe from the heart on Christ, die unto sin daily, and lead a holy life, and thus realize the full virtue of the incarnation and atonement.

13. The sacrament of the holy supper is the abiding memorial of the sacrifice of our

blessed Saviour, Jesus Christ, for our sins, upon the cross; the seal of his perpetual presence in the church by the Holy Ghost; the mystical exhibition of his one offering of himself made once, but of force always to put away sin; the pledge of his undying love to his people, and the bond of his living union and fellowship with them to the end of time. In the use of this sacrament, believing communicants do not only commemorate his precious death as the one all-sufficient, vicarious sacrifice for their sins, but Christ himself also, with his crucified body and shed blood, feeds and nourishes their souls to everlasting life; that is, by this visible sign and pledge he assures them that they are really partakers of his true body and blood, through the working of the Holy Ghost, as they receive, by the mouth of the body, these holy tokens in remembrance of him.

14. The bread and wine of the holy supper are not transmuted into the very body and very blood of Christ, but continue to be natural bread and wine; nor is the body and blood of Christ consubstantial, that is, in, with and under the natural bread and wine, but the sacramental transaction is a holy mystery, in which the full life giving and saving virtue of Christ, mediated through his humanity, is really present by the supernatural power of the Holy Ghost, and communicated to them who, by true faith, eat and drink worthily, discerning the Lord's body.

15. At death the righteous pass into a state of joy and felicity and abide in rest and peace until they reach their consummation of redemption and bliss, in the glorious resurrection of the last day.

16. The second advent of Christ to judge the world in righteousness, will complete the objective order of redemption, and also the subjective process of life and salvation in his body, the church; when the last enemy, which is death, shall be destroyed; when the saints shall come forth from the dead in the full image of their risen Lord, and with Him pass into heaven, the state of perfect blessedness, and the wicked shall rise to the resurrection of eternal damnation."

On points of doctrine not directly connected with the foregoing statements, Dr. Gerhart gives the following summary of the belief of the Reformed Church.

"The church affirms that the person of Christ is the true principle of sound theology; that Christianity is a new life, that the humanity of Christ is an essential constituent of Christianity; that the Christian church is an organic continuation in time and space of the life powers of the new creation in Christ Jesus; that the covenant is an order or institution of grace, spiritual and real; that the Bible was written by members of the church under plenary inspiration of the Holy Ghost; that private judgment is subordinate to the general judgment of the church as expressed particularly in the Ecumenical creeds; that the Word of God is the only form of faith and practice, and is superior to all creeds and confessions; that the individual comes to a right apprehension of the contents of the Bible through the teaching of the church; that the election of grace unto life is effectual in and by the established economy of grace; that justification is by an act of faith in the person and work of Christ; and consists both in the imputation and impartation of Christ and his righteousness; that holy baptism is the sacrament of regeneration, regeneration being the transition from the state of nature to the state of grace, as natural birth is the transition to the natural world; that regeneration succeeded by conversion and sanctification completes itself in the resurrection from the dead, inasmuch as regeneration and salvation pertain to the entire man, the body no less than the soul; that believers only hold communion with Christ in the Lord's Supper; that the ordinary, divinely ordained means of grace are adequate to all the needs of the church and the world, and if faithfully used do not fail to promote a steady and vigorous growth of the church; that although the church of Rome holds many articles of faith, and approves and perpetuates many customs which are not warranted by the Scriptures and are wrong, she is nevertheless a part of the church of Christ; and that Protestantism is a historical continuation of the Church Catholic, in a new and higher form of faith, organization, and practice."

As to its *worship* the Reformed Church was originally liturgical and though extemporaneous prayer has prevailed during the most of the present century in the regular services of the Lord's Day, there is now a strong tendency to revert to its former liturgical service. After repeated trials and the most careful revision and modifications, the successive liturgical committees of the General and the Eastern Synods have perfected an "Order of worship (including a liturgy)

for the Reformed Church" which was published in 1866, and has been adopted in most of the churches of the Eastern synod, and in some of those of the Western synods. It is gaining ground and will probably be eventually the established book of worship for the entire church.

The government of the church is strictly Presbyterian. The *consistory*, answering to the church session, is composed of the pastor, elders and deacons. Both elders and deacons are chosen by the communicant members, for a term of two, three, or four years, generally two years, and ordained by laying on of hands and installed. When the term expires, the administrative power ceases, but not the office. If reëlected, installation is repeated, but not ordination. The *classis* is the first church court above the church, and consists of the ministers and an elder from each parish within a given district. The classes are subject to the synod, which is composed of a given number of ministers and elders, chosen by four or more adjacent classes. The synods are subject to the General Synod, which consists of ministers and elders chosen by all the classes of the church. Appeals to the General Synod may be taken from any of the lower church courts. Infant baptism is faithfully and universally observed. All the children and youth are carefully catechised by the pastor once in two weeks or oftener, for a period of from three to nine months in the year. Catechumens possessing the requisite qualifications are, after examination in presence of the elders, received into the full communion of the church by the rite of confirmation. The holy communion is commonly administered twice a year, and in many of the churches four times. The communicants receive the sacred emblems by companies, standing around the altar. They observe the festivals, Christmas, Good Friday, Easter, and Whit-Sunday with much solemnity.

The statistics of the Reformed (German) Church for 1870, are as follows: one General Synod; four particular synods, viz: the Eastern, or as it is officially called, "The Synod of the Reformed Church in the United States"; "The Synod of Ohio, and adjacent States"; "The Synod of the Reformed Church in the Northwest," and the "Pittsburg Synod of the Reformed Church"; thirty one classes, 526 ministers, 1179 congregations, 217,910 members, of whom, however, only 96,728 are communicants, the remainder being baptized children and unconfirmed members; 12,776 were baptized, 7,068 confirmed, and 3,592 received on certificate. The number of Sunday Schools reported is 1,019, and of Sunday School scholars 49,960. The amount of benevolent contributions, exclusive of those for congregational purposes, was $76,453. There are 2 theological seminaries, one at Mercersburg, Pa., with 4 professors, and 28 students; the other at Tiffin, Ohio, with two professors, and 20 students; a mission house at Sheboygan, Wisconsin, with 3 professors, and 22 students. There are two fully organized colleges, Franklin and Marshall, at Lancaster, Pa., and Heidelberg College at Tiffin, Ohio. There are also seven classical institutions, most of them called colleges, five of them in Pa., one in North Carolina, and one in Ohio; and two female seminaries, one at Allentown, Pa., the other at Tyrconnell, Maryland. They have eleven periodicals, two quarterly (reviews), four weekly, and one semi-monthly newspapers; a monthly magazine, and three monthly Sunday School papers. There are two printing establishments, one at Philadelphia, the other at Cleveland, Ohio.

V. METHODISTS.

I. The Methodist Episcopal Church.

No denomination, in modern times, has had so rapid a growth as the Methodists. Numbering in its various divisions over two million of communicants, and having an adherent population of nearly eight millions, it seems almost incredible that the first Methodist society was organized in New York City in 1766, and that they had no existence as a distinct church until 1784, when their connection with the Church of England, and with the Protestant Episcopal Church in this country, was formally dissolved, and Thomas Coke, who had received ordination as a *Superintendent* over the Methodist societies in the United States at the hand of John Wesley; and Francis Asbury, whom he had in turn ordained for the same office, met a conference of the Methodist Societies at Baltimore, and there assumed the title and position of "Bishops of the Methodist Episcopal Church in America." This act was displeasing to Mr. Wesley, who protested against it in strong terms, and Dr. Coke,

who subsequently returned to England, never attempted to exercise Episcopal functions there. Still the act was a judicious one, and led to the more rapid development of the great denomination which sprung from such small beginnings.

The history of the Methodist Episcopal Church has been one of almost constant success. There have been, indeed, secessions in considerable numbers from its ranks, as there have from the Wesleyan Methodists of Great Britain, and some of these seceding bodies have themselves attained subsequently a large membership, but the seceders have not left the church on doctrinal grounds but on different views of church polity and discipline. Thus the "African Methodist Episcopal Church" withdrew, in 1787, on account of the prevailing prejudice against persons of color, and the "Zion African Methodist Episcopal Church," in 1820, for the same reason. The "Methodist Protestant Church" withdrew in 1830, on account of differences in regard to the episcopate and lay representation. "The Wesleyan Methodist Connection of America" seceded in 1843, in consequence of a difference of views on slavery, temperance, and church government. "The Methodist Episcopal Church, South," by far the largest of the separating bodies, came off in 1844, from dissatisfaction with the action of the general Conference of that year, requiring Rev. J. O. Andrew, D. D., one of the bishops, to desist from the exercise of his episcopal functions on account of his being a slaveholder. Since 1844 there have been several secessions of small numbers of churches which have generally become extinct or have returned to the church in a few years. The Free Methodists still remain separate, basing their withdrawal on their desire to return to the simplicity, plainness, and avoidance of display, either in dress or in the adornment of their churches, into which, as they allege, the great body of Methodists have fallen. The marvelous growth of the Methodist Episcopal Church is not due to any very great extent, like that of the Roman Catholic Church, to immigration; considerable numbers of Methodists have, indeed, come here from Great Britain Ireland, and latterly from Germany and Sweden; but many of these have gone into other though kindred denominations. Its great increase has been due to the earnest and constant labors of its ministers, local preachers, and class leaders, to its strong spirit of propagandism, and to its remarkable adaptation as a religious system, to pioneer life, and to the necessities of a new and only partially settled country. Its triumphs in the western states have been very great; in several of the states, and especially in Indiana and Iowa, its adherent population are said to constitute nearly or quite one-half of the people of the state. Its organization for the promotion of its objects is very efficient. It maintains in most of the large cities, and within convenient distance of each other, its denominational journals, owned by the General Conference, and advocating its measures. It has a book concern, which, after paying over one-third of its capital to the Methodist Episcopal Church, South, and dividing its surplus profits among the annual conferences for the support of enfeebled and superannuated preachers, and the widows and children of those who have died in the ministry, is still the largest publishing house in America, having a net capital of $1,458,575, and assets to the amount of $2,649,549 in 1870. Every itinerant minister is, by virtue of his position, a colporteur and propagandist for the sale and distribution of its publications. It has largely engaged in the Sunday School work, and through this means has greatly increased its membership. Its camp meetings, love feasts, classes, and other means of appealing to the emotional element in the nature of men, attract many to its worship and to its communion. The gradations in its ministerial service are admirably adapted to promote efficiency in its ministry. The class-leader in charge of a small section of a church, for whose spiritual growth and welfare he is in some sense responsible, may, if he develops superior gifts become an exhorter; the exhorter in turn may develop into a local preacher, or into an itinerant or circuit preacher, passing through his probation of the diaconate; the itinerant can look forward to becoming a presiding elder over the churches of a District; and from the ranks of these come the editors of the denominational journals, the managers or agents of the book concern and its branches, and the Bishops. These last have varied and arduous labors to perform, and are liable to break down from over-work. They have no dioceses like the bishops of the Roman Catholic, Episcopal, and Moravian churches, but are, in the true sense of the word, bishops,—*episcopoi*,—overseers, of the whole church. They visit and preside over the

annual conferences, assign, in council with the presiding elders, to the itinerants their charges, visit the missionary fields, superintend and manage, in connection with the other officers, the Missionary, Sunday School, and publishing institutions of the church, and constitute, either singly or together, a high court of appeal—in the *interim* of the sessions of the Quadrennial Conference—in matters of church polity and discipline, and in those appertaining to the property or finances of the church.

The college of bishops, when full, has now ten members; but since the Quadrennial Conference of 1868, three, Bishops Thomson, Kingsley, and Clark, have died, and two others are in such feeble health as to be capable of very little labor.

The following statement of the doctrines of the Methodist Episcopal Church is slightly abridged from a declaration of their doctrines, made by Rev. Abel Stevens, D. D., LL. D., the historian of Methodism, and one of their ablest writers.

The doctrines of the Methodist Episcopal Church are contained in twenty-five articles, and are as follows: 1. There is but one living and true God, everlasting, without body or parts, of infinite power, wisdom and goodness, the maker of all things visible and invisible. And in unity of this Godhead, there are three persons, of one substance, power and eternity—the Father, the Son, and the Holy Ghost. 2. The Son, who is the Word of the Father, the very and eternal God, of one substance with the Father, took man's nature in the womb of the blessed Virgin; so that two whole and perfect natures, that is to say, the Godhead and manhood, were joined together in one person, never to be divided, whereof is one Christ, very God and very man, who truly suffered, was crucified, dead and buried, to reconcile his Father to us, and to be a sacrifice, not only for original guilt but also for the actual sins of men. 3. Christ did truly rise again from the dead, and took again his body, with all things appertaining to the perfection of man's nature, wherewith he ascended to heaven, and there sitteth until he return to judge all men at the last day. 4. The Holy Ghost, proceeding from the Father and the Son, is of one substance, majesty, and glory, with the Father and the Son, very and eternal God. 5. The holy Scriptures contain all things necessary to salvation; so that whatsoever is not read therein, nor may be proved thereby, is not required of any man, that it should be believed as an article of faith, or be thought requisite or necessary to salvation. By the Holy Scriptures we do understand those canonical books of the Old and New Testaments of whose authority was never any doubt in the church. 9. The Old Testament is not contrary to the New, for both in the Old and New Testament everlasting life is offered to mankind by Christ, who is the only mediator between God and man, being both God and man. Wherefore they are not to be heard who feign that the old fathers did look only for transitory promises. Although the law given from God by Moses, as touching ceremonies and rites, doth not bind Christians, nor ought the civil precepts thereof of necessity to be received in any commonwealth, yet notwithstanding, no Christian whatever is free from the obedience of the commandments which are called moral. 7. Original sin standeth not in the following of Adam, as the Pelagians do vainly talk, but it is the corruption of the nature of every man that is naturally engendered of the offspring of Adam, whereby man is very far gone from original righteousness, and of his own nature inclined to evil, and that continually. 8. The condition of man after the fall of Adam is such, that he cannot turn and prepare himself, by his own natural strength and works, to faith and calling upon God; wherefore we have no power to do good works, pleasant and acceptable to God, without the grace of God by Christ preventing us, that we may have a good will, and working with us when we have that good will. 9. We are accounted righteous before God, only for the merit of our Lord and Saviour Jesus Christ by faith, and not for our own works or deservings; wherefore, that we are justified by faith only, is a most wholesome doctrine and very full of comfort. 10. Although good works which are the fruits of faith, and follow after justification, cannot put away our sins, and endure the severity of God's judgments, yet are they pleasing and acceptable to God in Christ, and spring out of a true and lively faith, insomuch that by them a lively faith may be as evidently known as a tree is discerned by its fruit. 11. Voluntary works, beside, over and above God's commandments, cannot be taught without arrogance and impiety. For by them men do declare that they do not only render to God as much as they are bound to do, but they do more for his sake than of bounden

duty is required; whereas Christ saith plainly: When ye have done all that is commanded you, say, We are unprofitable servants. 12. Not every sin willingly committed after justification is the sin against the Holy Ghost and unpardonable. Wherefore the grant of repentance is not to be denied to such as fall into sin after justification; after we have received the Holy Ghost we may fall into sin, and by the grace of God rise again and amend ourselves. And therefore they are to be condemned who say they can no more sin as long as they live here, or deny the place of forgiveness to such as truly repent.

13. The visible Church of Christ is a congregation of faithful men, in which the pure Word of God is preached, and the sacraments duly administered according to Christ's ordinance in all those things that of necessity are requisite to the same.

14. The Romish doctrine concerning purgatory, pardon, worshipping and adoration as well of images as of relics, and also invocation of saints, is a fond thing vainly invented and grounded upon no warrant of Scripture, but repugnant to the Word of God.

15. It is a thing plainly repugnant to the Word of God, and the custom of the primitive church, to have public prayers in the church, or to administer the sacraments, in a tongue not understood by the people.

16. Sacraments ordained of Christ are not only badges or tokens of Christian men's profession, but, rather, they are certain signs of grace, and God's good will toward us, by the which he doth work invisibly in us, and doth not only quicken, but also strengthen and confirm our faith in him. There are two sacraments ordained of Christ our Lord in the gospel; that is to say, baptism and the supper of the Lord. Those five commonly called sacraments: that is to say, confirmation, penance, orders, matrimony, and extreme unction, cannot be counted for sacraments of the gospel, being such as have partly grown out of the corrupt following of the apostles, and partly are states of life allowed in the Scriptures, but yet have not the like nature of baptism and the Lord's supper, because they have not any visible sign or ceremony ordained of God. The sacraments were not ordained of Christ to be gazed upon, or to be carried about; but that we should duly use them. And in such only as worthily receive the same, they have a wholesome effect or operation; but they that receive them unworthily, purchase to themselves condemnation, as St. Paul saith, 1 Cor. xi: 29.

17. Baptism is not only a sign of profession, and mark of difference, whereby Christians are distinguished from others that are not baptized, but it is also a sign of regeneration, or the new birth. The baptism of young children is to be retained in the Church.

18. The supper of the Lord is not only a sign of the love that Christians ought to have among themselves one to the other, but rather is a sacrament of our redemption by Christ's death; insomuch that to such as rightly, worthily, and with faith receive the same, the bread which we break is the partaking of the body of Christ, and the wine which we drink is a partaking of the blood of Christ. Transubstantiation, or the change of the substance of the bread and wine in the supper of the Lord cannot be proved by Holy Writ, but is repugnant to the plain words of Scripture, overthroweth the nature of a sacrament, and hath given occasion to many superstitions. The body of Christ is given and taken in the supper only after a heavenly and spiritual manner; and the means whereby the body of Christ is received and taken in the supper, is faith. The sacrament of the Lord's supper was not by Christ's ordinance reserved, carried about, lifted up, or worshipped.

19. The cup of the Lord is not to be denied to the lay people, for both the parts of the Lord's supper, by Christ's ordinance and commandment, ought to be administered to all Christians alike.

20. The offering of Christ, once made, is that perfect redemption, propitiation and satisfaction for all the sins of the whole world, both original and actual, and there is none other satisfaction for sin but that alone. Wherefore the sacrifice of masses, in the which it is commonly said that the priest doth offer Christ for the quick and the dead, to have remission of pain or guilt, is a blasphemous fable and dangerous deceit.

21. The ministers of Christ are not commanded by God's law either to vow the state of single life, or to abstain from marriage; therefore it is lawful for them, as for all other Christians, to marry at their own discretion, as they shall judge the same to serve best to godliness.

22. It is not necessary that rites and ceremonies should in all places be the same, or exactly alike, for they have been always dif-

ferent, and may be changed according to the diversity of countries, times, and men's manners, so that nothing be ordained against God's Word. Whosoever, through his private judgment, willingly and purposely doth openly break the rites and ceremonies of the church to which he belongs which are not repugnant to the Word of God, and are ordained and approved by common authority, ought to be rebuked openly, that others may fear to do the like, as one that offendeth against the common order of the church, and woundeth the consciences of weak brethren. Every particular church may ordain, change or abolish rites and ceremonies, so that all things may be done to edification.

23. The president, the Congress, the General Assemblies, the Governor, the Councils of State, as the delegates of the people, are the rulers of the United States of America, according to the division of power made to them by the Constitution of the United States, and by the constitutions of their respective states. And the said states are a sovereign and independent nation and ought not to be subject to any foreign jurisdiction.

24. The riches and goods of Christians are not common, as touching the right, title, and possession of the same, as some do falsely boast. Notwithstanding, every man ought, of such things as he possesseth, liberally to give alms to the poor, according to his ability.

25. As we confess that vain and rash swearing is forbidden Christian men, by our Lord Jesus Christ, and James his apostle, so we judge that the Christian religion doth not prohibit, but that a man may swear when the magistrate requireth, in a cause of faith and charity, so it be done according to the prophet's teaching, 'in justice, judgment, and truth.'"

It is proper to notice that as the Methodist church, founded by Wesley, was really an offshoot from the Church of England, much of the phraseology of these articles is taken from the doctrinal standards of that Church.

The legislative power of the church resides in its General Conference, which meets every four years, and to which the 72 annual conferences are subject. This General Conference has hitherto been composed of clerical delegates appointed by the several Annual Conferences. The General Conference of 1872 will, however, have a proportion of lay delegates, as do now the Annual Conferences; lay representation having been approved by a two-thirds vote of the membership in 1869, after having agitated the church more or less for forty years, and having been the basis of one or two secessions. The General Conference governs and controls the entire Church, but is restricted by its constitution on certain points relative to its doctrines, polity, and distribution of its funds.

The Annual Conferences consist of all the traveling preachers, deacons, and presiding elders of a certain portion of country, usually comprising several districts, each under the charge of a presiding elder. There are now also admitted to these conferences delegations of the laity equal in number to the clerical representation. Each conference is presided over by a bishop. The main business transacted at these conferences is the admission and ordination of preachers; an examination of the character and official administration of the ministers belonging to the Conference; a review of the missionary, educational, and publishing interests; the apportionment of the Conference funds to infirm and superannuated preachers, and to the widows and orphans of such within the Conference; and the assignment of the ministers to their several stations and circuits for the year ensuing. In each district there is held a quarterly conference, composed of the traveling and local ministers, the exhorters, stewards, class-leaders, and superintendants of Sunday Schools. These conferences are presided over by the presiding elder of the district, and manage the details of local interests connected with the stations or circuits; serve as courts of appeal in the trial of church members; grant licenses to preach, and recommend suitable candidates for admission into the Annual Conference. The theory of the itinerancy in the Methodist church as defined by Wesley, was, that it incited the preachers to a greater measure of zeal and enthusiasm as they addressed new congregations so often; that it made the congregations or churches more attentive to the gospel and less attached to the persons of those who proclaimed it; that by this method of distributing the various classes of gifts the smaller and poorer locations were sure of receiving a share of the best gifts of which they would otherwise be deprived; and that, not being influenced by local attachments, the preachers would be better fitted to act as pioneers on the frontiers, where, otherwise, they might be less willing to go. In its practical working other advan-

tages and disadvantages have been developed; and while in a new section of country, it proves successful and has accomplished great good, it is every year becoming more distasteful to the clergymen and churches in the more densely populated portions of the country. In the cities and larger towns the circuit feature has almost entirely disappeared; the ministers are pastors of single churches, the only difference being that their stay is limited with a single church. This limit was formerly two years, but the Conference of 1868 made it three years. The more eloquent and popular preachers, however, often manage to evade this limit by securing an appointment in the same city in some different capacity, which will allow them to remain as practical pastors of the churches to which they are attached. With indolent and half educated ministers it is alleged that the itinerancy encourages idleness, as it renders any considerable study, beyond the preparation of plans of sermons for the first year or two years, unnecessary; but the Methodist ministry has but a small proportion of drones. To be eligible to full connection in an annual Conference and the office of deacon, a preacher must have traveled two years as a probationer and stood suitable examinations. He is eligible to elders' or ministers' orders after two years further service and another examination. Preachers—i. e., licensed exhorters and deacons—are not authorized to baptize or administer the Lord's Supper. Elders or ministers are ordained by the bishops, and may administer all the ordinances. Stewards are persons chosen by the Quarterly Conferences to take charge of and disburse all funds collected for the poor, the support of the ministry, and sacramental purposes. Class-leaders are appointed by the ministers; their duty is to see all the members of their respective classes once a week, to learn their spiritual condition, and to receive their contributions for church purposes. Classes usually consist of twelve or more persons.

The statistics of the Methodist Episcopal Church, in 1870, were as follows: Bishops 8; travelling preachers, 9,193; local preachers, 11,404; total preachers, 21,234; members in full connection, 1,173,099; members on probation, 194,035; total lay members, 1,367,134; adult baptisms, 66,481; infant baptisms, 50,153; total baptisms, 116,934; number of churches, 13 373; number of parsonages, 4,179; value of church edifices, $52,614,591; value of parsonages, $7,293,513; number of sunday schools, 16 912; number of sunday school teachers, 189,412; number of sunday school scholars, 1,221,393; amount of benevolent collections, (aside from church expenses,) $967,862.

II. The Methodist Episcopal Church, South. This body seceded from the "Methodist Episcopal Church" in 1844, on the following grounds: It was well known that John Wesley, the founder of Methodism, was opposed to slavery, declaring it to be "the sum of all villanies;" but the Methodist Episcopal Church having a large membership in the Southern states, had grown lax on the subject, and as for many years there was very little agitation on the question, many slaveholders became members and a considerable number ministers of the church. In 1828, one of these latter, known to be a slaveholder, was sent as the representative of the Methodist Episcopal Church to the British Wesleyan Conference. In 1840, the General Conference declared by formal resolution, that "the mere ownership of slave property, in states or territories where the laws do not admit of emancipation, and permit the liberated slave to enjoy freedom, constitutes no legal barrier to the election or ordination of ministers to the various grades of office known in the ministry of the "Methodist Episcopal Church." In 1844, however, the feeling of opposition to slavery began to be renewed in the General Conference, which was held in New York City, and proceedings not assuming judicial form, and unaccompanied with any regular impeachment, were instituted against Rev. James O. Andrew, D. D., who had been one of the bishops since 1832, a citizen of Georgia, who had married a lady possessing many slaves. These proceedings, after a protracted debate, were terminated by an act passed by a majority of the Conference requiring the bishop to desist from his functions, on account of this connection with slavery. Thereupon the representatives of thirteen of the thirty-three annual conferences of which the church was then composed, (being those embraced in the slaveholding states,) presented a declaration which set forth their solemn conviction that a continuance of the jurisdiction of the General Conference over the annual conferences thus represented, would be inconsistent with the success of the Methodist ministry in the slaveholding states. The declaration was accompanied by a for-

mal protest against the action of the majority in Bishop Andrew's case, and thus led to the adoption by the General Conference of a plan of separation, according to which there was contemplated an amicable adjustment of boundary lines, and a fair division of property, should the annual conferences in the slaveholding states find it necessary to unite in an ecclesiastical connection distinct from that of the North. The church in the South and South-west, in primary assemblies, and in quarterly and annual conferences, sustained the declaration of the delegates, and measures were immediately adopted for the assembling of a convention. This was held in May, 1845, at Louisville, Ky. Acting under the provisions of the plan of separation, and in pursuance of the formal instructions of the annual conferences, the convention dissolved the jurisdiction of the General Conference over the conferences there represented, and created a separate ecclesiastical connection under the title of "The Methodist Episcopal Church, South." The first General Conference of this organization was held at Petersburg, Va., in 1846. There was some difficulty in arranging all the details for the separation, and owing to the repudiation of the plan of separation by the General Conference of the "Methodist Episcopal Church" in 1848, the division of the property of the Book concern, *pro rata*, was only accomplished after a lawsuit in 1853. In 1845 the statistics of the Methodist Episcopal Church, South, were: 5 bishops, 13 annual conferences, 1,384 traveling preachers, 90 superannuated preachers, 2,550 local preachers, 330,710 white members, 124,811 colored members, 2,978 Indians; total 462,428. This was almost one-half of the whole membership of the Methodist Episcopal Church before the division. In 1859, there were six bishops, 24 annual preachers, 1,661 traveling preachers, 5,177 local preachers, 511,601 white members, 197,348 colored members, 4,236 Indians; total, 721,023. They continued to increase until the war, when they lost a large number of their colored members, who preferred the African organizations, and after the emancipation proclamation, and the ratification of the XIVth and XVth amendments to the constitution of the United States, the basis on which they had made their separation was removed. The twenty-seven years of separate organization have however, made them indisposed for a reunion, and they repel all overtures looking to such a measure, with considerable bitterness. Their doctrinal views are identical with those of the "Methodist Episcopal Church," and there is no difference in their polity or discipline. They have now when the board of bishops is full, nine, but Bishop Andrew having recently deceased, there are but eight now acting; there are 30 conferences, 2,646 traveling and 187 superannuated preachers, 4,753 local preachers, 540,820 white members, 19,616 colored members, (only one tenth of what they had in 1829,) 3,149 Indians; a total of 571,241.

III. and IV. The two AFRICAN METHODIST EPISCOPAL CHURCHES. The A. M. E. Church proper, and the *Zion* A. M. E. Church may perhaps with propriety be considered together, inasmuch as overtures are now pending for their consolidation. Both profess to be identical in their doctrinal views with the Methodist Episcopal Church, and their polity and government differ but slightly. The first has bishops, but permits lay representation to a limited extent in its General Conference from the ranks of the local preachers, and gives in its annual conferences equal privileges to the traveling and local preachers. The Zion Church has no bishops, but general superintendents in their place, elected every four years. Its General Conference is composed of all the traveling ministers in the connection, but no lay delegation is allowed. An African church seceded in 1787, under the name of the Bethel African M. E. Church, but this was subsequently absorbed into the Methodist Episcopal Church. In 1816, however, some of the more eminent of the colored Methodist ministers believing that they could be freer and more useful in a separate communion, called a convention in Philadelphia, and organized the "African Methodist Episcopal Church. Its growth has been moderate but steady until the emancipation proclamation in 1863, which has led to a great increase in its membership. It has now ten conferences, seven bishops, over 600 traveling and 1200 local preachers, 586 churches, 200,000 communicants, over 500 Sunday Schools, and more than 1200 day schools. Its adherent population is not less than 600,000. The property of the Church, in schools, colleges, and church edifices, exceeds four million dollars. It owns Wilberforce University, near Xenia, Green Co., Ohio, and four seminaries of a high class at Baltimore,

Md.; Columbus, Ohio; Alleghany, and Pittsburgh, Pa. They have a Book concern at Philadelphia, and issue a weekly and a monthly religious periodical.

The "*African Methodist Episcopal Zion Church*" seceded from the Methodist Episcopal Church in 1820, and held its first annual conference in New York, in 1821. Its secession was in consequence of some differences of opinion in regard to church government. Its growth was slow until the war, when it shared with the African M. E. Church, in the large influx of colored Methodists previously connected with the church south, and in a very large accession of new converts. Being very much straitened for means for the support of their schools and churches just after the war, they appealed to Congregationalists, to Unitarians, and to Friends for assistance, and received a considerable amount from each. They had expected to consummate a union with the African M. E. Church in 1868, but from some cause the union has been delayed, but will probably be completed in 1872. They have six general superintendents (answering to bishops, but elected for four years), 694 traveling and about 1300 local preachers, nearly 700 churches, and about 164,000 members.

V. The Evangelical Association, called also *Albright Methodists*, from the name of their founder, is an ecclesiastical body of great energy and activity, which took its rise in Eastern Pennsylvania, about 1790, from the labors of Rev. Jacob Albright, a German Methodist minister, who sought to promote a religious reform among the Germans of that region. It was not organized as a church till about 1800, when Mr. Albright was unanimously elected and ordained as their pastor and bishop.

Sixteen years later they had become so numerous as to organize a general conference. For the first thirty years of their existence, the Evangelical Association met with violent opposition, but since 1830 it has made rapid progress. In doctrines and theology the association is substantially one with the Methodist Episcopal Church; and its mode of worship and usages are essentially methodistic; in its church government it has a General Conference meeting every four years, and constituting its highest legislative and judicial authority. The General Conference elects its bishops for four years; they may be re-elected, but if not, hold no higher rank or privilege than an elder after their term of service is expired. The annual conferences elect their presiding elders for the same term, and these return to the itinerancy at the expiration of their term of service. There are also quarterly conferences, in which a lay delegation is allowed, but not in the Annual or General Conferences. The statistics of the "Evangelical Association" in 1869 were as follows: Two bishops, fourteen annual conferences, 798 churches, 500 itinerant, and 377 local preachers, 65,691 members, 863 Sunday Schools, with 45,175 scholars, 153 mission stations in America, and Europe; a full complement of Missionary, Sunday School, Tract, and Charitable societies, a publishing house at Cleveland; four periodicals, a college, an orphan institution, several seminaries, 207 parsonages, and church property to the value of about $2,000,000.

VI. The "Methodist Protestant Church," an organization which was formed of seceders from the "Methodist Episcopal Church" in 1830, the secession being based on the grounds of dissatisfaction with the Episcopate, and the refusal of lay representation. In doctrinal views, they accept the standards of the Methodist Episcopal Church, but have no bishops. Their general conference, which meets once in seven years, and is composed of one ministerial and one lay delegate for every thousand communicants, is the governing body; and in the *interim* of its sessions, its president and the officers of the different committees and societies created by it, exercise administrative authority to a limited extent. The annual conferences, composed of ministers only, elect their own presidents, and possess authority within their own bounds. Its quarterly conferences, exhorters, class-leaders, stewards, etc., are copied after the Methodist Episcopal pattern. The church had in 1870 423 itinerant, and about 860 local preachers, nearly 900 churches, and about 72,000 communicants. It does not seem to be growing, for its statistics in 1858 were considerably larger than these figures. It has seven collegiate institutions, three of them for females; two other literary institutions; small book concerns at Baltimore, Md., and Springfield, Ohio, and four periodicals.

VII. "The Methodist Church," is another branch of the Methodist family, of which we only know that it reported in 1870 624 preachers, and 49,030 members. Its

doctrines are probably not different from those of the other Methodist bodies; it has, we believe, no bishops.

VIII. "THE WESLEYAN METHODIST CONNECTION OF AMERICA," was organized in 1843, and composed mainly of seceders from the "Methodist Episcopal Church." The seceders were strongly opposed to slavery, and desirous of having the church purged from it; they were also ardent temperance men, and hostile to all traffic in intoxicating liquors as a beverage. The "Methodist Episcopal Church," which subsequently took advanced grounds on both these subjects, was not at this time willing to do so, and disciplined its members who urged it. The consequence was the organization of the Wesleyan Methodist Connection of America, at Utica, May 31, 1843. Their doctrines are the same with those of the Methodist Episcopal Church, except two rules of morality, one excluding from church membership and Christian fellowship all who buy or sell men, women, or children, with intent to enslave, or hold them as slaves, or claim that it is right to do so; and the other, excluding from membership or fellowship all who manufacture, buy, sell, or use intoxicating liquors, or in any way, intentionally and knowingly, aid others so to do, except for mechanical, chemical, or medicinal purposes. In its church government, the Wesleyan Connection is democratic, holding to complete ministerial equality and the power of each church to act for itself. They have an equal representation of ministers and laymen in their general conference, and these are elected by the annual conferences which are composed of all the ministers and an equal number of laymen in their several geographical bounds. They do not seem to have increased since the war, numbering only 250 ministers, and about 20,000 communicants in 1870, against 300 ministers, and 20,000 members in 1858. They have two collegiate institutions, one at St. Louis, Jackson Co., Mich., the other—the Illinois Institute—at Wheaton, Du Page Co., Illinois. They have also one newspaper, "*The True Wesleyan.*"

IX. THE FREE METHODISTS are the latest seceders from the Methodist Episcopal Church. They profess to have left it on the ground of its increasing formalism and conformity to worldly customs and fashions in dress, and in the construction, adornment, and music of the churches. They advocate a return to the early plainness of costume, the avoidance of all ornaments and jewelry, and the simplicity and bareness of architecture which characterized the early Methodists and their houses of worship. With this they also desire to restore the ancient zeal, fervor, and earnestness of the immediate followers of Wesley and his successors. They number about one hundred ministers, and perhaps 7,000 communicants, and have a newspaper — *The Free Methodist* — edited with a good deal of zeal and spirit.

X. THE PRIMITIVE METHODIST CHURCH is a branch of the church of the same name in Great Britain, but has not attained to any very considerable numbers here; its members being mostly immigrants who had been connected with it before migrating to this country. In England it originated in 1807, in a secession from the Wesleyans, on grounds of polity; the seceders desiring to maintain camp meetings, house to house visitation and religious outdoor services, and the employment of female preachers to some extent, with a view to reach the lower and more depraved classes, and the Wesleyans declining to sanction any such movements. The Primitive Methodists, like the Free Methodists, are very zealous and earnest. Their doctrines do not differ from those of Wesley; but in church government they are democratic, having no bishops, and in their conferences, have two lay delegates for every minister. They number in the United States about 20 itinerant, and 35 or 40 local preachers, nearly 40 churches, and a membership of about 2,200.

XI. THE WELSH CALVINISTIC METHODISTS are not a numerous body in the United States, and are only Methodists in their church polity and government, their doctrinal views being more Calvinistic than Arminian, and assimilating in this respect to the Congregationalists, or to the Calvinistic portion of the clergy of the Church of England. They were in England an outgrowth of the labors of Whitfield and his successors. Indirectly, they were also a result of the organization of Lady Huntingdon's Connexion, with which their doctrinal views fully corresponded. In the United States they are found principally among the Welsh, and some efforts to organize other churches, as Congregational Methodists, i. e., with Calvinistic doctrines, and Methodist polity and government, have proved failures, the churches either becoming wholly Congrega-

tional, or joining some of the Methodist sects. The Welsh Calvinistic Methodists number probably not more than 3,000 communicants.

XII. UNITED BRETHREN IN CHRIST, OR GERMAN METHODISTS. This denomination, though not properly Methodists in name, are yet so far in unison with them in doctrines and polity, that they come more appropriately under the classification of *Methodists* than any other. The "United Brethren in Christ" owe their origin to the labors of Philip James Otterbein, a native of Dillenburg, Germany, born June 4, 1726, and ordained to the ministry of the German Reformed Church, at Herborn, Germany, in 1749. He was sent to America as a missionary by the Synod of Holland in 1752, and settled at Lancaster, Pennsylvania. Not long after his arrival he became convinced that he was a stranger to vital godliness, and ere long experienced, as he believed, a change of heart. He very soon began to manifest his zeal by instituting meetings during the week for prayer and religious conference, and finding that the region round about was in a condition of great spiritual destitution he made long preaching tours, and held what were called "great meetings" in barns and groves throughout that region, his labors being attended with great success. Persons who had experienced a change of heart, whatever their ecclesiastical relations, were invited to take a part in these meetings, and among those who accepted the invitation was Martin Boehm, a Mennonite preacher of great zeal and earnestness. At the close of one of Boehm's most effective sermons Otterbein rose, and embracing him exclaimed: "We are brethren!" The name of United Brethren in Christ was adopted by their followers from this time. Otterbein and Boehm labored together for more than fifty years; and what at first seemed a revival in the different churches gradually became agglomerated into a distinct denomination, with its hundreds of preachers, called for the most part from the working classes, and exercising their gifts at first as lay preachers and subsequently licensed and ordained by the leaders or by some of those whom they had set apart for the ministry. At Otterbein's death, in 1813, the "Brethren" were already a large and influential body; they have since increased with considerable rapidity, and adopting the Methodist polity of quarterly, annual, and general Conferences, itinerants, bishops, and presiding elders, they have come to be a well organized and efficient body. Their first organization as distinct churches dates, we believe, from 1774.

In their theological views they are Arminians, agreeing very nearly with the Wesleyan Methodists in England, and the Methodist Episcopal Church in the United States. On a few points only are they peculiar. In common with most of the evangelical churches they require evidence of a change of heart as indispensable to membership, but they prohibit membership to slaveholders, to adhering members of any secret society or organization, and to those who manufacture, sell, or drink intoxicating liquors. Baptism is administered either by pouring, sprinkling, or immersion, as the candidate may prefer; infants are baptized when desired. Open communion is practised and the ordinance of foot-washing, as observed by several of the minor German sects, is optional, some of the churches observing it, while others do not. For the first fifty years of their history their ministers confined their labors almost exclusively to the German-speaking population, but now they have as many English as German churches. Their statistics in 1870 were as follows: thirty-eight annual conferences, one general conference, four bishops who are elected for four years, and may be re-elected, about 900 itinerant and over 800 local preachers; 3,924 organized societies; 1,473 church edifices, with 483,099 settings; 118,055 members; 2,420 Sunday schools, with 16,417 teachers and 112,425 scholars; collections for church purposes, 580,288; value of church property, $2,506,600. They have at Dayton, Ohio, an extensive publishing establishment which issues numerous books, and beside an annual almanac or year book, five periodicals; a German and an English weekly religious newspaper, a monthly German, and a semi-monthly English, child's paper, and a missionary periodical in English, semi-monthly. They have six colleges; Otterbein University at Westville, Ohio; Hartsville University, at Hartsville, Ind.; Westfield College, at Westfield, Ill.; Lebanon Valley College, Annville, Pa.; Lane University, Lecompton, Kan.; and Western College, Western Iowa Sublimity College, Oregon, has passed out of their hands for want of adequate funds for buildings and endowment. They have also three or four female seminaries and collegiate schools

BAPTISM BY SPRINKLING.

V. CONGREGATIONALISTS.

In its broadest sense the name CONGREGATIONALIST is applicable to all the denominations which hold to the independence of each church and to the democratic form of church government and polity. In this sense the Regular Baptists, and, indeed, almost all the denominations which we have ranged under the general head of "Baptists" as well as the Friends, the Unitarians, and the Universalists, are as truly Congregationalists as the churches distinctively known by that name. In common usage, however, the name is applied almost exclusively to those churches which are Augustinian and Calvinistic in doctrine, Trinitarian in belief, and Pædo-baptist in practice; and who holding these views unite with them a democratic church polity, the independence of each church, and a fellowship and inter-communion with all churches holding like views.

While there were undoubtedly isolated congregations in England in the sixteenth century, which maintained substantially congregational views and organization, Rev. John Robinson, first of Scrooby, Nottinghamshire, England, and afterwards of Leyden, Holland, is generally regarded as the father of Congregationalism. His church was organized in 1606, and removed almost bodily to Holland in 1608 in consequence of persecution. After a pastorate of about twelve years in Amsterdam and Leyden, a majority of the church, under Elder William Brewster, determined to emigrate to America, and after many perils and troubles, landed at Plymouth, Massachusetts, Dec. 21, 1620, having previously organized as an independent church and as a civil community. Others followed soon after, and Robinson himself intended to come, but died just as he was about to sail. The colonists of Massachusetts Bay were at first Non-conformists, but they presently adopted the Congregational order. In Massachusetts and Connecticut, as well as in the then province of Maine, and the colonies of New Hampshire and Vermont at a later period, the Congregationalists were the dominant sect or denomination, and in the two former colonies and subsequent states, retained a somewhat peculiar connection with the state, which, though modified, was not wholly abrogated in Connecticut till 1818, and in Massachusetts in 1833. Every householder, or person liable to pay taxes, was regarded as primarily subject to taxation for the support of religious worship in the Congregational church, or, as it was usually called "the standing order;" and this liability, if he possessed property, could easily be avoided by his "signing off," or becoming himself a tax-payer for the support of some other of the tolerated denominations. At first even this was not permitted, except in the case of members of the Church of England, but gradually more liberal views prevailed. This compulsory taxation was abrogated in Connecticut by the constitution of 1818, and in Massachusetts by a constitutional amendment, in 1833. In 1770, the number of communicants in the Congregational churches of the thirteen colonies was about 112,000, almost all of whom were in New England, though two or three churches were planted about that time in Georgia and South Carolina. In 1801, a Plan of Union was agreed upon between the Presbyterian Church and the General Association (of Congregationalists) of Connecticut, which, at that time was an active missionary body. This plan of Union provided that in any new place where there were members of Congregational and Presbyterian churches, to avoid the establishment of weak and feeble churches, the members of the two denominations should unite to form a church which should be either Presbyterian or Congregational as the majority of its members might decide, and if Congregational, that it should still have a qualified right of representation in the Presbytery. Under this arrangement, which continued in full force till 1837, and was not completely abrogated till 1852, the greater part of the advantages enured to the Presbyterians, very few Congregational churches being organized in the middle and western states, and a considerable portion even of these, under the arrangement for representation in the Presbyteries, gradually becoming Presbyterian. It resulted from this liberality, that while there were nearly a hundred thousand former members of Congregational churches who had contributed to swell the numbers of the Presbyterian and Reformed churches, the actual number of communicants in Congregational churches in the entire country, in 1850, at the expiration of eighty years from 1770, did not much exceed 200,000. There had been in this interval, it is true, a very considerable loss in Massachusetts (mostly from 1810 to 1830) by the falling away of the Unitarians. This had probably caused a diminution of fifteen to eighteen thousand members, but soon

V. CONGREGATIONALISTS.

In its broadest sense the name CONGREGATIONALIST is applicable to all the denominations which hold to the independence of each church and to the democratic form of church government and polity. In this sense the Regular Baptists, and, indeed, almost all the denominations which we have ranged under the general head of "Baptists" as well as the Friends, the Unitarians, and the Universalists, are as truly Congregationalists as the churches distinctively known by that name. In common usage, however, the name is applied almost exclusively to those churches which are Augustinian and Calvinistic in doctrine, Trinitarian in belief, and Pædo-baptist in practice; and who holding these views unite with them a democratic church polity, the independence of each church, and a fellowship and inter-communion with all churches holding like views.

While there were undoubtedly isolated congregations in England in the sixteenth century, which maintained substantially congregational views and organization, Rev. John Robinson, first of Scrooby, Nottinghamshire, England, and afterwards of Leyden, Holland, is generally regarded as the father of Congregationalism. His church was organized in 1606, and removed almost bodily to Holland in 1608 in consequence of persecution. After a pastorate of about twelve years in Amsterdam and Leyden, a majority of the church, under Elder William Brewster, determined to emigrate to America, and after many perils and troubles, landed at Plymouth, Massachusetts, Dec. 21, 1620, having previously organized as an independent church and as a civil community. Others followed soon after, and Robinson himself intended to come, but died just as he was about to sail. The colonists of Massachusetts Bay were at first Non-conformists, but they presently adopted the Congregational Order. In Massachusetts and Connecticut, as well as in the then province of Maine, and the colonies of New Hampshire and Vermont, at a later period, the Congregationalists were the dominant sect or denomination, and in the two former colonies and subsequent states, retained a somewhat peculiar connection with the state, which, though modified, was not wholly abrogated in Connecticut till 1818, and in Massachusetts in 1833. Every householder, or person liable to pay taxes, was regarded as primarily subject to a tax for the support of religious worship in the Congregational church, or, as it was usually called "the standing order;" and this liability, if he possessed property, could only be avoided by his "signing off," or avowing himself a tax-payer for the support of some other of the tolerated denominations. At first even this was not permitted, except in the case of members of the Church of England, but gradually more liberal views prevailed. This compulsory taxation was abrogated in Connecticut by the constitution of 1818, and in Massachusetts by a constitutional amendment, in 1833. In 1770, the number of communicants in the Congregational churches of the thirteen colonies was about 112,000, almost all of whom were in New England, though two or three churches were planted about that time in Georgia and South Carolina. In 1801, a Plan of Union was agreed upon between the Presbyterian Church and the General Association (of Congregationalists) of Connecticut, which, at that time was an active missionary body. This plan of Union provided that in any new place where there were members of Congregational and Presbyterian churches, to avoid the establishment of weak and feeble churches, the members of the two denominations should unite to form a church which should be either Presbyterian or Congregational as the majority of its members might decide, and if Congregational, that it should still have a qualified right of representation in the Presbytery. Under this arrangement, which continued in full force till 1837, and was not completely abrogated till 1852, the greater part of the advantages enured to the Presbyterians, very few Congregational churches being organized in the middle and western states, and a considerable portion even of these, under the arrangement for representation in the Presbyteries, gradually becoming Presbyterian. It resulted from this liberality, that while there were nearly a hundred thousand former members of Congregational churches who had contributed to swell the numbers of the Presbyterian and Reformed churches, the actual number of communicants in Congregational churches in the entire country, in 1850, at the expiration of eighty years from 1770, did not much exceed 200,000. There had been in this interval, it is true, a very considerable loss in Massachusetts (mostly from 1810 to 1830) by the falling away of the Unitarians. This had probably caused a diminution of fifteen to eighteen thousand members. But soon

after 1840 there was a spirit of greater activity and aggressive action roused in the Congregational churches. This found expression, in 1852, in the National Congregational Convention, a sort of General Synod or Council, which met at Albany. This Convention initiated measures for greater denominational missionary activity, advised the raising of a fund of $100,000 to aid in the erection of Congregational churches in the new states and territories, and largely increased efforts for the extension of Congregationalism as a denominational organization. As a result of this Convention and the spirit which prompted it, the growth of the denomination has been rapid and healthy in the western states and territories, and during the recent war and since, it has proved itself possessed of great energy and ability in propagating Christianity in its simpler forms throughout the country. The Presbyterians and the Reformed (Dutch) Church had formerly been associated with the Congregationalists in both Home and Foreign Missionary enterprises, but the Old School branch of the Presbyterians withdrew from both about 1837; the Reformed, in 1857; and the New School branch of the Presbyterians partially from the Home Missionary Society in 1853 or 1854, and wholly in 1865, and from the American Missionary Association about the same time; and at the reunion of the two branches of the Presbyterian church in 1870, the New School members withdrew also from the American Board of Commissioners of Foreign Missions, taking with them three or four of the Missions. The Congregationalists have, however, manfully taken the entire burden on their own shoulders, and are maintaining these organizations in their full vigor. In 1865, another General Synod, or National Council, was held in Boston, which has resulted in a further development of denominational as well as of Christian activity. This Council adopted a *Declaration of Faith*, the first authoritative exposition of their views of doctrine and polity, which had had the full sanction of the denomination; though earlier General Synods—those of Cambridge in 1637 and 1646—and the partial one of Saybrook in 1708, had adopted in general terms, and for substance of doctrine, the Westminster and Savoy Confessions of Faith, and the "Cambridge Platform," and the "Saybrook Platform" of polity and discipline.

This "*Declaration of Faith*," adopted in 1865, on Burial Hill, Plymouth, Mass., is as follows:

"Standing by the rock where the Pilgrims set foot upon these shores, upon the spot where they worshipped God, and among the graves of the early generations, we, elders and messengers of the Congregational churches of the United States in National Council assembled, like them acknowledging no rule of faith but the Word of God, do now declare our adherence to the faith and order of the apostolic and primitive churches held by our fathers, and substantially as embodied in the confessions and platforms which our synods of 1648 and 1680 set forth or re-affirmed. We declare that the experience of the nearly two and a half centuries which have elapsed since the memorable day when our sires founded here a Christian commonwealth, with all the development of new forms of error since their times, has only deepened our confidence in the faith and polity of those fathers. We bless God for the inheritance of these doctrines. We invoke the help of the Divine Redeemer, that through the presence of the promised Comforter he will enable us to transmit them in purity to our children.

"In the times that are before us as a nation, times at once of duty and danger, we rest all our hope in the Gospel of the Son of God. It was the grand peculiarity of our Puritan fathers, that they held this Gospel, not merely as the ground of their personal salvation, but as declaring the worth of man by the incarnation and sacrifice of the Son of God; and therefore applied its principles to elevate society, to regulate education, to civilize humanity, to purify law, to reform the church and the state, and to assert and defend liberty; in short, to mould and redeem, by its all-transforming energy, everything which belongs to man in his individual and social relations.

"It was the faith of our fathers that gave us this free land in which we dwell. It is by this faith only that we can transmit to our children a free and happy, because a Christian, commonwealth.

"We hold it to be a distinctive excellence of our Congregational system, that it exalts that which is more, above that which is less important, and by the simplicity of its organization facilities, in communities where the population is limited, the union of all true believers in one Christian church; and that the division of such communities into several weak and jealous societies, holding the same

common faith, is a sin against the unity of the body of Christ, and at once the shame and scandal of Christendom.

"We rejoice that through the influence of our free system of apostolic order, we can hold fellowship with all who acknowledge Christ and act efficiently in the work of restoring unity to the divided church, and bringing back harmony and peace among all who love our Lord Jesus Christ in sincerity.

"Thus recognizing the unity of the Church of Christ in the world, and knowing that we are but one branch of Christ's people, while adhering to our peculiar faith and order, we extend to all believers the hand of Christian fellowship upon the basis of those great fundamental truths in which all Christians should agree. With them we confess our faith in God, the Father, the Son, and the Holy Ghost, the only living and true God; in Jesus Christ, the incarnate Word, who is exalted to be our Redeemer and King; and in the Holy Comforter, who is present in the Church to regenerate and sanctify the soul.

"With the whole Church, we confess the common sinfulness and ruin of our race, and acknowledge that it is only through the work accomplished by the life and expiatory death of Christ, that believers in him are justified before God, receive the remission of sins, and through the presence and grace of the Holy Comforter, are delivered from the power of sin, and perfected in holiness.

"We believe, also, in the organized and visible Church, in the ministry of the Word, in the sacraments of Baptism and the Lord's Supper, in the resurrection of the body, and in the final judgment, the issues of which are eternal life, and everlasting punishment.

"We receive these truths on the testimony of God, given through prophets and apostles, and in the life, the miracles, the death, the resurrection of His Son, our Divine Redeemer,—a testimony preserved for the Church in the Scriptures of the Old and New Testaments, which were composed by holy men as they were moved by the Holy Ghost.

"Affirming now our belief that those who thus hold 'one faith, one Lord, one baptism,' together constitute the one Catholic Church, the several households of which, though called by different names, are the one body of Christ, and that these members of His body are sacredly bound to keep 'the unity of the Spirit in the bonds of peace,' we declare that we will coöperate with all who hold these truths. With them we will carry the Gospel into every part of this land, and with them we will go into all the world and 'preach the Gospel to every creature.' May He to whom 'all power is given in Heaven and earth,' fulfil the promise which is all our hope: 'Lo, I am with you alway, even to the end of the world.' Amen."

As we have already said, the Congregationalists are Pædo-baptists, though infant baptism is far from being as universal with them as it was formerly. Baptized children are not admitted to full membership in the church, except on evidence of conversion, and a profession of their faith in Christ. The usual mode of baptism is by affusion or sprinkling, but most of their clergymen administer the ordinance by pouring, or by immersion, if the candidate has a distinct preference for either of those modes. They recognize the minister, elder, presbyter, or bishop (holding these titles as synonymous) as the only clerical officer of the church. The deacons, though set apart by ordination in some of the churches, have no more authority than any other layman. An executive, or prudential, or standing committee (they are called by these different names in different churches) assist the pastor in examining candidates for membership, and those recommended by them are propounded for membership, and if no exception is taken they are received after a delay of one or two weeks. Pastors are called by the churches which desire their services, and usually also by the ecclesiastical society, the corporation known in law as holding and controlling the church property, and which is usually composed of members of the church; but the pastor is not considered as in the fellowship of the Congregational churches adjacent, until he has been examined, and ordained or installed by a council composed of the pastors and lay delegates from other churches. A church may be organized by a band of believers coming together voluntarily and agreeing to form themselves into a church, but in order to its recognition as in fellowship with other churches of the same faith, a council must be called to examine into the need of it, its material, and its doctrines.

Candidates for the ministry are examined carefully in regard to their religious experience, doctrinal views, knowledge of Scriptural learning, and general fitness. Usually a collegiate education, or its equivalent, is required. The church is practically the

highest authority in regard to matters of discipline, but in important cases at the request of the party under discipline, a mutual, or if the church refuse, an *ex-parte* council of pastors and delegates of neighboring churches, is called, which investigates the case, and communicates the "results" at which it arrives, to the parties. These councils possess, however, only advisory powers, but their advice is usually accepted.

The Congregationalists have now churches in 37 of the states and territories, and while their largest membership is still in New England, in most of the states of that section it being the largest denomination, yet they have very considerable strength in Illinois, Michigan, Iowa, Wisconsin, Ohio, and New York.

Their statistics at the close of 1870, were: Churches 3,121; Ministers 3,194; Members 306,518; teachers and pupils in Sabbath Schools 361,465; gain over the previous year, churches 78; members 6,156; members of Sabbath Schools 4,963; ministers exclusive of foreign missionaries 30. Of the ministers, 928 are reported as not engaged in pastoral work. Of their contributions to benevolent purposes, it is impossible to speak definitely, as they are in the Bible Society, the American Tract Societies, and have been, until the present year, in the American Board, and the American and Foreign Christian Union, associated with other denominations. Their contributions to the several benevolent objects, aside from contributions for home church purposes, and from endowments made to collegiate or Theological institutions or asylums, &c., must have exceeded $2,000,000. For home purposes they were not less than $4,500,000 more.

The denomination have six theological seminaries, which had, in 1870, twenty-eight professors, and 305 students. These were located at Bangor, Maine; Andover, Mass.; Hartford, and New Haven, Conn.; Oberlin, Ohio; and Chicago, Ill. There were also eighteen colleges, having an aggregate of more than 5,000 students, in which, though not exclusively denominational, the Congregationalists have a controlling influence. Aside from these, there are eighteen incorporated and endowed academies, and female seminaries, besides numerous private seminaries and academies, directly under the control of the denomination.

There are seventeen periodicals, weekly, semi-monthly, monthly, and quarterly, which are recognized as distinctively Congregationalist.

The only other denominations not already noticed, which are Congregational in their polity, but not in their doctrine, are the UNITARIANS, and UNIVERSALISTS, both of which will be treated under their respective titles.

VI. THE PROTESTANT EPISCOPAL CHURCH IN THE UNITED STATES,

sometimes called by a section of its members, the ANGLICAN or ANGLO-CATHOLIC CHURCH.

This denomination was, in its origin in the United States, a part of the Church of England, and its clergymen received ordination at the hands of the Bishop of London until 1784, and indeed most of them until 1788 or 1789. Virginia had established the Church of England as the religion of the colony, as early as 1650, and Maryland, though settled at first by Roman Catholics, had done the same thing in 1692. Attempts were made by some of the colonial governors of New York to make it the established religion of that colony, but without great success. The adherents to the Church of England were, however, considerably numerous in New York, Pennsylvania, Maryland, and Virginia, before the Revolutionary War, and they had ten or twelve churches in Connecticut. In the other colonies they were very few. Efforts had been made to obtain one or two bishops for these colonies almost from the beginning of the eighteenth century, but they had failed, both from the unfriendly feeling of the English government, and from the jealousy against Episcopacy in the colonies, growing out of the political complications in which the bishops in Great Britain were involved. In November, 1784, Rev. Samuel Seabury, D. D., a Connecticut clergyman, having sought ordination as a bishop of the diocese of Connecticut, from the English bishops, and being refused on account of some political obstacles, went to Scotland and was consecrated at Aberdeen, by three of the bishops of the Scottish Episcopal Church. In 1787, William White, D. D., was consecrated Bishop of the Diocese of Pennsylvania, and Samuel Provost, D. D., Bishop of the diocese of New York, by the Archbishop of Canterbury, at Lambeth Palace chapel, and three and a half years later, James Madison, D. D., of Virginia, was consecrated at the same place as Bishop of the

Diocese of Virginia. These four bishops were all who received consecration in Great Britain and through them, according to the views of the High Church party, the Apostolical succession in the bishops and clergy was transmitted to the American church. The growth of the Protestant Episcopal Church has not been rapid, but has been to a great extent in the large cities and principal towns of the country, and only to a limited extent in the rural parishes. The beautiful liturgy and imposing ritual of the Episcopal Church, as well as the wealth and fashion of some of its adherents, and the gorgeous architecture of many of its church edifices, have drawn to its worship, in the great cities, large numbers of the fashionable and worldly, attracted by externals; but within its communion are also very many earnest and devout souls, to whom its order and ceremonies are exceedingly precious. Within its communion, as in that of the Church of England, there are three distinct parties, often more diverse in their views than either is from other denominations; yet all professing to hold by the same standards, to which, however, they give very different interpretations. The doctrinal standards of the Protestant Episcopal Church, are the Apostles' and Nicene creeds (for though many of them agree to the Athanasian Creed, it is not an acknowledged standard as it is with the Church of England); the XXXIX articles of the Church of England, except the XXIst and XXXVIIth, and a slight modification of the VIIIth, XXXVth, and XXXVIth; the Book of Common Prayer, as revised by the American Bishops, and the Homilies in general. The *High Church party* (with which are generally included the Ritualists, and the Puseyites or Tractarians, though both go farther than most of the High Churchmen) take their stand upon the Episcopal Constitution, the theory of Apostolical succession, and more than all on the Book of Common Prayer, and give to these standards a signification which seems strained and mystical, and insist that they are to be interpreted with due reference to the practices and customs of the early Catholic Church. They have brought into the worship of the Protestant Episcopal Church many customs, ceremonies, and practices which are certainly borrowed from the Roman Catholic church, and a considerable number of them have demonstrated this, by taking still another step and going entirely over to the Church of Rome. This branch of the Protestant Episcopal Church, or rather this party in it, have been extremely intolerant of other religious denominations, denouncing them as dissenters, and as having no part in the covenant, assuming to themselves even a higher position than that claimed by the Roman Catholic Church. At the same time, it is due to them to say, that in active Christian work within the bounds of their own denomination, exclusively, they are not surpassed by any other denomination in the country, according to their numbers. Their intolerance and bigotry has possibly led another division of the church, the *Low Church* party, to an extreme in the other direction. The Low Church take their position on the "Thirty nine articles" which are Calvinistic on the doctrine of election, and Zuinglian in the doctrine of the Sacraments. They are Evangelical in their doctrinal views, and interpret their standards as permitting, and indeed enjoining, on them free and hearty Christian intercourse with other Evangelical denominations. They interchange pulpits with them, and engage very cordially in associations for the promotion of objects of general Christian benevolence. That in these measures they occasionally overstep the strict letter of their standards, may be, and probably is, due to a too great narrowness in the standards themselves.

The third, or "*Broad Church party*," have not so much inclination either to a narrow and straight-laced interpretation of their standards, and a bigotry toward other denominations, or to a thoroughly evangelical coöperation with them, as to loose and broad views in regard to the inspiration and authenticity of the Scriptures, and a strongly rationalistic tendency. This party, which we believe includes in this country none of the bishops, subscribe to the XXXIX articles, with many mental reservations, and some of them boldly avow that Protestantism is a failure.

The condition of affairs in the Protestant Episcopal Church, resulting from these great differences of sentiment and opinion, have more than once threatened that church with division, if not dissolution, and at the present time seem more likely to rend it than ever. A few churches have already withdrawn from its communion, and others of the Low Church party are only awaiting the result of a last appeal to the Triennial General Convention to decide upon their future course.

Under the article on the METHODIST EPIS-

COPAL CHURCH, we have given twenty-five of the thirty-seven articles retained by the Protestant Episcopal Church, in every case but one using their exact language. (This one is in regard to the "Rulers of the United States of America," and, of course, differs from the English article on the subject of rulers.) It is hardly necessary for us to repeat these, and the others which are omitted by the Methodist Church, but retained by the Protestant Episcopal; they relate, as will appear from their titles, rather to abstract topics and beliefs, and to matters of polity, than to the fundamental doctrines of the Church. The titles of the omitted articles are: "Art. 3. Of the going down of Christ into Hell." "Art. 13. Of works before justification." "Art. 15. Of Christ alone without sin." "Art. 17. Of Predestination and Election" (the most decidedly Calvinistic article in the whole XXXIX, and singularly at variance with some other portions of the standard). "Art. 18. Of obtaining salvation only by the name of Christ." "Art. 20. Of the authority of the Church." "Art. 23. Of ministering in the congregation." "Art. 26. Of the unworthiness of the ministers, which hinders not the effect of the sacrament." "Art. 29 Of the wicked which eat not the body of Christ in the use of the Lord's Supper." "Art. 33. Of excommunicated persons; how they are to be avoided." "Art. 34. Of the traditions of the Church." "Art. 36. Of the consecration of Bishops and ministers." This last is modified to adapt it to the peculiarities of the American church. To the doctrinal discrepancies growing out of the interpretations of the XXXIX articles, and the Book of Common Prayer, which it is very difficult to make accord fully with each other, is due much of the division in the Protestant Episcopal Church.

In matters of polity, the Episcopal Church recognizes three orders of clergy: Bishops, priests, and deacons. The Bishops, like those of the Roman Catholic, Greek, Armenian, and some other churches, are *diocesan*, i. e., have charge of the churches of a particular territory or diocese, in distinction from those of the Methodist Church, which are general and itinerant, and those of a part of the Lutheran churches, which are more nearly Presbyterian, the Bishop being of no higher authority nor dignity than the other clergy, but simply performing duties of a different class. Such is substantially also the theory of Episcopacy in the Moravian church. The High Church theory is, that the Bishops are the successors of the Apostles, that the consecration has come to them in regular order through the hands of a succession of holy men, the bishops of the Roman Church before the Reformation, and that they are thus Bishops by direct transmission from Jesus Christ and his Apostles, and so by divine right. They regard them as superior to priests and deacons. The Low Church party deny all this, and reject the theory of the "exclusive validity of Episcopal orders." The priests, called also in the United States, generally rectors, and, where not in full charge of a parish, assistant ministers, have received at the hands of the bishop the second ordination which confers upon them the power of administering the sacraments. The third, or lowest grade of the ministry, is the deacon, which in this church is usually but temporary, the candidate when invested with this office, is allowed to baptize, to read in the church, and to assist in the Eucharist, but only in the administration of the wine. His office is wholly distinct from that of the deacon in Presbyterian, Congregational, or Baptist churches, being more analogous to that of the licentiate in those churches. It is usually a mere preliminary or stepping stone to the reception of priests' orders, and both ordinations are, in some instances, effected in the same day. The temporalities of the Episcopal churches are administered by the concurrence of the rector and the vestry, composed of wardens and vestrymen elected by the members of the parish. The Episcopal Church usually administers baptism by making the sign of the cross on the forehead of the person baptized, requiring a profession of faith (in the case of infants, this is made for them by their sponsors, or god-father and god-mother). Immersion either in the case of children or adults, though formerly practised by the Church of England, is not now considered necessary. The formula for the baptism of infants, in the prayer book, contains the words, "since this child is now *regenerate*," and a very exciting discussion has sprung up in regard to these words, some clergymen contending that they inculcated the doctrine of baptismal regeneration, and refusing to use them on this account. At the Triennial General Convention, held in Baltimore, in Oct. 1871, though no general canon defining this passage was passed, yet nearly all the bishops signed a paper giving it as their private opinion that the term as

thus used was not intended to imply that doctrine.

The statistics of the Protestant Episcopal Church in 1870 were as follows: Dioceses 39; Missionary do. 11; Bishops 39; Assistant do. 5; Missionary do. 8; Priests and Deacons 2,710; Parishes 2,512; communicants, not fully reported, but believed to be not quite 220,000; Baptisms of infants, 20,749; of adults, 5,030; not specified, 3,760; Confirmations 20,793; Sunday School Teachers 18,661; Scholars 185,979; Contributions (incomplete), $4,205,029.

The Episcopal Church has been very active in the promotion of educational institutions. It has 14 theological seminaries, with 57 professors and 366 students; 15 colleges, with 1,380 students, and 20 academies and diocesan schools, under the control of its Bishops. It has 22 periodicals, weekly, semi-weekly, monthly, and quarterly, devoted to its interests, and within a few years past has manifested a zeal and energy in propagating its views, and establishing churches, especially in the new states and territories, which contrasts very favorably with the apathy of its early history.

VII. THE EVANGELICAL LUTHERAN CHURCH.

The Lutheran Church in the United States, is one, in the sense of holding with greater or less tenacity to the same standards or Confessions of Faith; but it has some elements of discord in it, mainly in matters of minor importance, which have led to violent controversies, and to so great bitterness between some of its synods that they not only refuse fellowship and communion with each other, but have excommunicated each other. These discordant elements are, however, confined for the most part to the smaller independent synods, and do not so much affect the larger bodies. The denomination is growing in the United States with great rapidity, especially in the West, and mainly, though not exclusively, by immigration, the very large numbers of Germans, Swedes, Norwegians, and Danes, arriving here every year being, a majority of them—nominally at least—attached to the Lutheran faith. The first Lutherans came to Pennsylvania between 1680 and 1700, attracted by the offers of William Penn. In 1710, about 3,000 German Lutherans who had taken refuge in England from the persecutions of the Romanists, were sent over to Pennsylvania by the British government. In 1727, another large colony came over from the Palatinate, Wurtemburg, Darmstadt, and other parts of Germany. For nearly twenty years, these poor people had no ministers of their own; but in 1748, Dr. Henry Melchior Muhlenburg, a missionary of the Halle Orphan House, brought up under the training of Francke and Spencer, came to Pennsylvania and labored most zealously for half a century among them, organizing churches, consistories, and synods, and being entitled to be considered the father of the German Lutheran Church in America. At the time he arrived here, there were only eleven Lutheran ministers in the Colonies. Three years later there were forty, and a Lutheran population of about 60,000. No one of the Protestant churches suffered more severely by the Revolutionary War than did the Lutheran, and they were long in recovering from the depression thus caused. Many of their churches were abandoned, and it seemed for years as if their religious vitality had departed. Their churches were scattered, and belonged to distant and separate synods, having little communication with each other and no common band of union, and being in many instances composed of Lutherans from different countries of Europe, they were inclined to look upon each other with jealousy. This was, to some extent, remedied, and a better state of affairs inaugurated by the formation of the General Synod of the Lutheran Church, in 1820. From that time, a steady and constantly increasing tide of emigration began to flow in to the country, and much of the German and Scandinavian part of it was composed of Lutherans, or those who had been brought up under Lutheran influences. Many of these, coming from countries where Lutheranism was the religion of the state, and the sovereign the head of the church, had been accustomed to great laxity in religious matters. At the suitable age they were confirmed and became members of the church, however irregular their mode of life, and no evidence of conversion was required for membership. These lax views, and a general tendency to rationalism, they desired to graft upon the American Lutheran Church, and in some of the newer synods their views prevailed. These synods refused, on these and other account, to join the General Synod. There were other grounds of difference, also, relating to

the standards of the church, the clerical office, the adoption or rejection of symbolical rites and ceremonies, and a liturgical service, and the making use of what have been known as revival measures. These differences were increased by the emigration of a considerable number of the "Old Lutheran" party to the United States in 1837 and 1838. The Lutherans all agree in receiving the "Augsburg Confession," (drawn up by Melanchthon, and sanctioned by Luther, in 1530) as their principal standard of doctrine; though the New Lutherans regard even this as only an expression, "in a manner substantially correct," of the cardinal doctrines of the Bible, which they regard as the only infallible rule of faith and practice. The Old Lutherans on the contrary, while avowing the Bible as the ultimate rule of faith and practice, adhere very strenuously to the entire "Book of Concord," so called, as the standard of their doctrinal beliefs. This Book of Concord contains the three creeds, viz., the Apostles', Athanasian, and Nicene Creeds, the Augsburg Confession of 1830, and the Apology of the Confession (written by Melanchthon, 1540), the Schmalkald Articles (drawn up by Luther in 1537), and the two Catechisms of Luther (prepared before 1530). The Old Lutherans are inclined, to some extent, to retain also, those rites, ceremonies, and observances, which Melanchthon regarded as things indifferent, such as the wearing of clerical vestments, exorcism, private confessions, lax views of the Sabbath, and the old Lutheran doctrine of baptism, in its relation to regeneration and the Lord's Supper.

"The book of Concord," and, indeed, the "Augsburg Confession," and its "Apology," are too long to be inserted in this brief history of denominations, but we give below a summary of their principal doctrines, as stated by an eminent Lutheran clergyman.* "The fundamental doctrine of the Lutheran Church is that we are justified before God, not through any merit of our own, but by his tender mercy, through faith in his Son. The depravity of man is total in its extent, and his will has no positive ability in the work of salvation, but has the negative ability of ceasing its resistance. Jesus Christ offered a proper and vicarious sacrifice. Faith in Christ presupposes a true penitence. The renewed man co-works with the Spirit of God. Sanctification is progressive and never reaches absolute perfection in this life. The Holy Spirit works through the Word and the Sacraments, which alone, in the proper sense, are means of grace. Both the Word and the Sacraments bring a positive grace which is offered to all who receive them outwardly, and which is actually imparted to all who have faith to embrace it. . . . . The Evangelical Lutheran Church regards the Word of God, the Canonical Scriptures, as the absolute and only law of faith, and of life. Whatever is undefined by its letter or its spirit, is the subject of Christian liberty, and pertains not to the sphere of conscience, but to that of order; no power may enjoin upon the church, as necessary, what God has forbidden, or has passed by in silence, as none may forbid her to hold what God has enjoined upon her, or to practise what, by His silence, he has left to her freedom. Just as firmly as she holds upon the one hand that the Bible is the rule of faith and not a confession of it, she holds on the other that the creed is a confession of faith and not the rule of it. The creeds are simply the testimony of the Church to the truths she holds; but as it is the truth they confess, she of necessity regards those who reject the truth confessed in the creed, as rejecting the truth set forth in the Word. While, therefore, it is as true of the Lutheran Church as of any other, that when she lays her hand upon the Bible, she gives the command, 'Believe!' and when she lays it on the Confession, she puts the question, 'Do you believe?' it is also true that when a man replies, 'No,' to the question, she considers him as thereby giving evidence that he has not obeyed the command. . . . . *Baptism.* The Lutheran Church holds that it is necessary to salvation to be born again of water, and the Spirit; but she holds that this necessity is ordinary, not absolute, or without exception; that the contempt of the sacrament, not the want of it, condemns, and that though God binds us to the means, He does not bind His own mercy by them. From the time of Luther to the present hour the Lutheran theologians have maintained the salvability and actual salvation of infants dying unbaptized. The rest of the doctrine of the Lutheran Church as a whole, is involved in her confession, with the Nicene Creed, "one baptism for the remission of sin," and that through it the grace of God is offered; that children are to be baptized, and that being

* New American Cyclopædia, Vol. X, pp. 739, 740.

thus committed to God they are graciously received by him. At the same time she rejects the theory of the Anabaptists, that infants unbaptized have salvation because of their personal innocence, and maintains that the nature with which we are born requires a change, which must be wrought before we can enter heaven, and that infants are saved by the application of Christ's redemptory work." It has been charged for more than three centuries that the Lutherans held to the doctrine of *Consubstantiation*, that is, the local or corporeal presence in, with, or under the bread in the Lord's Supper; they deny this most strenuously, but admit that they hold to a sacramental, spiritual, or supernatural presence of the Divine Redeemer in the sacrament, and that those who partake, do in reality feed upon him spiritually, though if unworthy, to their own condemnation. On the subject of the Lord's Day, while it is acknowledged that the general practice among Protestants on the continent of Europe, in regard to its observance, is much more lax than that which prevails in England and the United States, yet the American Lutheran Church profess to hold that the Sabbath was instituted at the creation of man; that the generic idea of devoting one day of the week to rest from labor, and to religious duties, pertains to the entire race through all time; and that the law of the Sabbath, so far as it is not determinative and typical, is binding on Christians.

"*Divine Worship.* The Lutheran Church regards preaching as an indispensable part of divine service. All worship is to be in the vernacular; the wants of the heart as well as of the reason are to be met. Whatever of the past is spiritual, beautiful, and appropriate, is to be retained. The Church year, with its great festivals, is kept. With various national diversities, there is a substantial agreement in the liturgical services of the Lutheran Church, throughout almost all the world. The hymns are sung by all the people, with the organ accompaniment." The hymnology of the Lutheran Church surpasses that of all other churches in the world in sweetness, richness, power, and unction. Even in their English dress there are few hymns more beautiful or soul-inspiring than Luther's "A strong fortress is our God," or "O! Head, so bruised and wounded," or "Jerusalem, the Golden."

"The clergymen in their official functions, wear a distinctive dress, usually a black robe, with the bands. A preparatory service precedes communion. The doctrine and practice of auricular confession were rejected in the beginning. The "private confession," which was established in some parts of the Church, involves no enumeration or confession of particular sins whatever, unless the communicant desires to speak of them; and the "private absolution" is simply the annunciation of the gospel promise, with the gospel conditions to the individual penitent. But even in this form, private confession has ceased in most parts of the church. The practice of exorcism in baptism, simply as a rite long established, and which might be tolerated if regarded merely as a symbolical representation of the doctrine that our nature is under the dominion of sin, was practised in parts of the church, but has fallen almost everywhere into oblivion.

Constitution or Polity of the Church. "Many embarrassing circumstances prevented the Lutheran Church from developing her life as perfectly in her church constitution, as in her doctrines and worship. The idea of the universal priesthood of all believers, at once overthrew the doctrine of a distinction of essence between clergy and laity. (This doctrine is, nevertheless, maintained in one or two of the American synods.—*Editor.*) The ministry is not an order, but it is a divinely appointed office, to which men must be rightly called. No imparity exists by divine right; a hierarchical organization is unchristian, but a gradation (bishops, superintendents, provosts,) may be observed, as a thing of human right only. (In the United States, the Lutheran Church has no bishops, superintendents, or provosts.—*Editor.*) The government by consistories has been very general. In Denmark, Evangelical bishops took the place of Roman Catholic prelates who were deposed. In Sweden, the bishops embraced the Reformation, and thus secured in that country an "apostolic succession," in the High Church sense; though, on the principles of the Lutheran Church, alike where she has, as where she has not such a succession, it is not regarded as essential even to the order of the church. The ultimate source of power is in the congregation, that is, in the pastor and other officers of the church, and the people of the single communions. The right to choose a pastor belongs to the people, who may exercise it by direct vote, or delegate it to their representatives. Synods possess

such power as the congregations delegate to them. "Ministers are related to congregations, not as their servants, but as the servants of the church, and in the United States where the Congregational principle has been more radically developed than anywhere else in the Lutheran Church, "the Synod to which pastors belong has the entire jurisdiction over them." (See Formula of the Lutheran Church, Chap. iii. 3.) Absolute ministerial parity is maintained, and lay representation is universal; but many vital points of church organizations are entirely unsettled, and the doctrine that synods are merely advisory bodies," is often pressed in a way that tends to anarchy.

The Lutheran Church in the United States is divided into the following organizations: 1st, THE GENERAL SYNOD, founded in 1820, and comprising in 1870, twenty Synods, viz: the Synods of Maryland, West Pennsylvania, Hartwick, East Ohio, Frankean, Alleghany, East Pennsylvania, Miami, Wittenberg, Olive, Northern Illinois, Southern Illinois, Central Pennsylvania, English Synod of Iowa, Northern Indiana, New Jersey, Central Illinois, New York, Susquehanna, Pittsburgh, and Kansas. The General Synod recognizes the Augsburg Confession, but allows considerable liberty of doctrinal views in its interpretation. It formerly had more synods connected with it, but six southern synods, subsequently increased to seven, seceded during the war and formed the SOUTHERN GENERAL SYNOD. Their action was based on the resolutions of loyalty to the Government expressed by the General Synod, but they are said to have adhered more closely to the standards, and to have been more strict in regard to the qualifications of membership than the Old Synod. The Northern General Synod had, in 1870, 627 ministers, 1,067 churches, and 103,042 communicants. The Southern General Synod, organized in 1862, had at the same time: 126 ministers, 225 churches, and 20,796 communicants.

A much younger body, and yet having a larger membership, is the GENERAL COUNCIL, organized in 1867. The General Council adheres to the entire body of standards contained in the "Book of Concord," which they declare to be accepted by them as being in full accord with the Scriptures. It comprises twelve Synods, viz: The New York Ministerium, the Synod of Pennsylvania, a Pittsburgh Synod, the English District Synod of Ohio, the English Synod of Ohio, the Synod of Illinois, the Synod of Michigan, the German Synod of Iowa, the Synod of Minnesota, the Scandinavian Augustana Synod, the Synod of Texas, and the Synod of Canada. These Synods had in 1870 535 ministers, 986 churches, and 131,632 members.

Six other Synods, viz: Missouri, Ohio, Wisconsin, the Norwegian, Grabau's-Buffalo Synod, and the German Synod of New York, agree very fully in doctrines with each other, except that the last two named have some peculiar views in regard to the status of the Christian ministry. They differ from the General Council in these four points: they desire to prohibit an interchange of pulpits with all other denominations, and admission to the Lord's Supper; they condemn Millenarianism, and excommunicate from their fellowship all members of secret societies. Their numbers, in 1870, were as follows: ministers, 650; churches, 965; communicants, 150,925. These synods will probably soon be united in one organization.

The following synods all small, are still independent, but will probably soon be connected with some one of the larger bodies: The Tennessee, Von Rohr's Buffalo Synod, the Concordia, Eielson's Scandinavian Synod, and the Norwegian Danish Conference. These synods had in 1870, 70 ministers, 218 churches, 18,327 members. There were, besides, 30 ministers whose synodal connection was unascertained. There were, therefore, in 1870, connected with the different councils, synods, and conferences of the Lutheran Church in the United States, 53 synods, 2,086 ministers, 3,544 churches, and 425,577 communicants. The other statistics of the Church are partial, and not later than 1869. The General Synod had in that year, 81,445 teachers and scholars in its Sabbath Schools, and contributed to benevolent objects $340,133. The contributions of the other branches of the church are not reported.

Thirty-two Lutheran newspapers were published in 1870, viz: Eight English, sixteen German, two Swedish, and six Norwegian and Danish. There are two Lutheran Church Almanacs published annually, one at Baltimore, the other at Allentown, Pa. There are 15 Theological seminaries for Lutheran students, with about 60 professors, and 450 students, and 17 colleges with more than 2,000 students. There are also 18 sem-

maries or academies of high grade under their control.

VIII THE SOCIETY OF FRIENDS OR QUAKERS.

1. THE ORIGINAL OR ORTHODOX FRIENDS. The Society of Friends originated in the early part of the seventeenth century, in Great Britain, as one of those protests against formalism and Christianity from which the heart and life had died out, which have in all ages demonstrated the power of religious principle to react from the deadness of state churches. George Fox, its founder, commenced proclaiming the doctrines of the power of Christ to save men from sin, and the influence of the Holy Spirit in changing and transforming the evil nature, when he was but twenty three years of age, and continued it for forty years, until his death. His followers were not very numerous, but they were exceedingly earnest, stern in their adherence to what they believed to be the monitions of the Holy Spirit, and when persecuted, took joyfully the spoiling of their goods, and went to prison, to the stake, or to the gallows with a calm fearlessness which convinced many of the truth of their doctrines. It was not in England alone that they were thus persecuted. In July, 1656, two female members of the Society of Friends reached the port of Boston, but were compelled by the colonial government to return in the same ship. Others, however, followed soon after, and while their conscientious protest against the prevalent customs and manners may have savored of fanaticism, the colonial authorities were certainly in the wrong in persecuting them so bitterly. They were whipped, imprisoned, and banished from the Massachusetts Colony, and four out of five who ventured to return from banishment, one of them a woman of remarkable gifts and devotion, were hanged for their contempt of the colonial laws. The last martyr of the Society of Friends in America was executed in 1661, but subsequent to that date some were whipped, banished, and imprisoned, in the colonies of Massachusetts and Connecticut. In 1682, a considerable number of Friends came over to Pennsylvania with William Penn, himself a member of the Society. Fox had himself visited America in 1669, and remained till 1673, and had established meetings of Friends in North Carolina and elsewhere, some of which are still in existence. The Society of Friends in America adheres, to this day, to the organization devised for it by Fox. Their meetings, as they call their congregations, are presided over by Elders, and these the most prudent and judicious men of these congregations, exercise a quiet, but effective, supervision over those who believe themselves called of God to proclaim his truth. The utterances of this truth made as the result of a special impulse or call of the Spirit then and there to speak, are made by both sexes, the doctrine of the Friends on this subject being, that God calls both men and women to utter his truths. The meetings are subject to monthly meetings of the different congregations of a neighborhood or district, and these to the "Yearly Meetings," which are diocesan in their character, and have a controlling and disciplinary power. These Yearly Meetings, of which there are ten or more, are equal in their authority, and there is no appeal from their decisions.

At the time of the commencement of the Revolutionary War, there were about 45,000 Friends in the thirteen colonies, and as they were opposed to bearing arms, and utterly refused to take part in the War, there was at first some apprehension that they were hostile to the patriot side. This impression was soon dissipated; for though, with some few exceptions, the members of the society did not bear arms, they rendered great and conspicuous service to the national cause, and this service was rendered with such sacrifices and with so much liberality as to show that their hearts were in the cause, though they were conscientiously opposed to fighting. For two or three decades after the war, they continued to increase, though not very rapidly. Then came a season of stagnation. They, who, in the beginning of their history, had been the most radical of radicals, were now intensely conservative; and while as holy men and women as ever walked the earth shaded their brows beneath broad brimmed hats and Quaker bonnets, and adhered strictly to the Quaker dress, there had come over the society a spirit of formalism, which occupied itself too much in the petty details of dress and language, and neglected, to some extent, the weightier matters of law, judgment, and faith. Their services had become distasteful to many of their young people, and these were abandoning the faith of their fathers and going to the opposite extreme of Ritualistic observance in the Episcopal Church, or,

in still stronger protest against its stringent rules of life, became the most worldly of worldlings, till it became a byeword in regard to the fastest of fast young men, "They were brought up as Quakers! Meanwhile, there was in the meetings themselves a gradual drawing away from the soundness of their pristine faith. There were not, as of old, those fervent, earnest testimonies; the Spirit's power of impressing men and women to utter the word of exhortation came to be less frequently and less decidedly manifested than of old, and ever and anon there were those mute, but protracted, assemblies which bore witness more powerfully than any prophetic utterance could have done, that it was not with them as in days past, when the candle of the Lord shined around about them. In 1827 came the great secession, when almost one-third of their number repudiated the claims of Christ, as the God-man, the Divine Redeemer, and, while still claiming to be "Friends," withdrew with their leader and formed a new organization. For more than twenty years that followed, the 'Friends' of the Orthodox faith still walked in the wilderness, amid clouds and darkness; still their sons and daughters fell away to the world, and their numbers decreased or remained stationary.

But at length the time of refreshing came, and as the testimonies to God's goodness and grace multiplied, and their meetings were no longer silent and dreary as of old, they began to extend their influence, and to find in active work for Christ, in the First Day Schools, in the distribution of the Word of God, in labors for the poor, oppressed, and down trodden, the true secret of success. Since 1850, their numbers have nearly doubled, and in the work of religious instruction, and vigorous efforts for the conversion of men, they have found such blessings that they have become an aggressive, earnest, and efficient body of Christian men and women.

"The Society of Friends," says Mr. William J. Allinson, editor of *The Friends' Review*, "is not at issue with other Orthodox churches on the general points of Christian doctrine. Avoiding the use of the word Trinity, they reverently believe in the Holy Three: the Father, the Lord Jesus Christ, the only begotten of the Father, by whom are all things, who is the Mediator between God and man, and in the Holy Spirit, who proceedeth from the Father and Son—ONE GOD, blessed forever. They accept, in its fullness, the testimony of Holy Scripture with regard to the nature and offices of Christ, as the promised Messiah, the Word made flesh, the atonement for sin, the Saviour and Redeemer of the world. They have no reliance upon any other name, no hope of salvation that is not based upon his meritorious death on the cross. As fully do they admit his humanity, and that he was truly man, "sin only excepted." They so fully believe in the Holy Spirit of Christ, that without the inward revelation thereof they feel that they can do nothing to God's glory, or to further the salvation of their own souls. Without the influence thereof they know not how to approach the Father, through the Son, nor what to pray for as they ought. Their whole code of belief calls for the entire surrender of the natural will to the guidance of the pure, unerring Spirit, through whose renewed assistance they are enabled to bring forth fruits unto holiness, and to stand perfect in their present work. As it was the design of Christ in going to the Father, to send, as a Comforter, his Spirit to his disciples, so it is with his Spirit that he baptized and doth baptize them, it being impossible, in the estimation of the Friends, that an outward ablution should wash from the spirit of man the stains of sin. Hence they attach importance to "the baptism which now saveth," and which John the Baptist predicted should be administered by Christ. And it is by his Spirit, also, that his followers are enabled to partake of the true Supper of the Lord: "Behold I stand at the door and knock: if any man hear my voice, and open unto me, I will come in and sup with him, and he shall sup with me." Thus they hold that the coming of the Lord Jesus Christ in the flesh was the grand epoch and central fact of time, and that types and shadows, and all ceremonial observances, which had their place before, as shadows of good things to come, now that they have been fulfilled in Him, are only shadows of those shadows. The type properly precedes the reality, and truly this was worthy of being fore-shadowed; "but," says Paul, "when that which is perfect is come, that which is in part shall be done away."

In regard to their views of the resurrection, Thomas Evans, another of their leading writers, says: "The Society of Friends, believes that there will be a resurrection both of the righteous and the wicked; the one to eternal life and blessedness, and

the other to everlasting misery and torment, agreeably to Matt. XXV, 31-45; John V, 25-30; 1 Cor. XV, 12-58. That God will judge the world by that man whom he hath ordained, even Christ Jesus the Lord, who will render unto every man according to his works: to them who by patient continuing in well doing during this life, seek for glory and honor, immortality and eternal life; but unto the contentious and disobedient, who obey not the truth, but obey unrighteousness, indignation and wrath, tribulation and anguish, upon every soul of man that sinneth, for God is no respecter of persons."

The Friends have ever regarded war as inconsistent with Christianity. For this they refer to the teachings of Christ and his apostles, the example of the early Christians, and to the witness for truth in their own consciences, tested and confirmed by the sacred writings. They find that all the emotions which are exercised in wars and fightings are traced to evil lusts, and are inconsistent with love which is the substance of the first, the second, and the new commandment, which "worketh no ill to his neighbor," and on which "hang all the law and the prophets." They consider oaths to be inadmissible, as being positively forbidden by our Lord in language not to be mistaken, and this testimony was made the occasion of inflicting severe penalties upon the first Friends. When their persecutors failed to convict them upon false charges, it was customary to administer the test oaths to them, on refusing to take which, they were cast into prison.

They decline to use the complimentary and false language of the world, and to apply to the months and days, the names given in honor of pagan gods, preferring the numerical nomenclature adopted in the Scriptures. In dress, they aim at plainness and simplicity, avoiding the tyranny of an ever changing fashion. As a natural result, a degree of uniformity of dress prevails among them, bearing much resemblance to the style in vogue at the rise of the Society. This approach to uniformity, which at first was unintentional, came to be cherished as a hedge of defense against worldly and ensnaring associations, and a means by which they recognized each other. The principle at stake is not in the fashion of a garb, but in simplicity and the avoidance of changes of fashion. Whilst Friends, as good citizens, have cheerfully paid all legal assessments for the support of public schools, and of the poor, and have contributed abundantly to the various charities, and general claims of benevolence, they have always been characterized by their scrupulous care in relieving their own poor, so that none of their members come upon the public for maintenance or gratuitous education.

The Friends had, in 1870, including one in Canada, ten Yearly Meetings in North America, namely, those of Canada, New England, New York, Philadelphia, Baltimore, North Carolina, Ohio, Indiana, Western Indiana, and Iowa. The increase of membership in the Western States has been very rapid of late years. The membership of the Society is estimated at 80,000. In all the Yearly Meetings, First Day Schools are conducted with zeal and efficiency. The number of teachers and scholars in these First Day Schools is about 65,000. The North Carolina Yearly Meeting has established a Normal First Day School, for the training of teachers of these Schools. They have three colleges, all of them of high character for their thorough scholarship, viz.: Haverford College, in Philadelphia county, Penn.; Earlham College, Richmond, Indiana, and Whittier College, Salem, Iowa. They have, also, large and admirably conducted boarding schools, under the care of their Yearly Meetings, at West Town, Pa., Providence, R. I., Union Springs, N. Y., and New Garden, N. C. They have two or three periodicals of marked ability, *The Friends' Review*, conducted by Mr. Allinson, being in literary merit not inferior to any religious review in this country.

II. The Society of Friends (Seceders or Hicksites). We have already referred to the schism or secession which took place from the Society of Friends, beginning with the Philadelphia Yearly Meeting, in 1827. This secession was led by a preacher among the Friends, named Elias Hicks, and hence those who have followed his leading are commonly called Hicksites, though they repudiate the name and insist that they should be known solely as the Society of Friends. The points of difference between them and the Orthodox Friends seem to have been these: Hicks and his followers, while maintaining a belief in the authenticity and divine authority of the Scriptures, yet do not regard them with the same degree of reverence and faith as the Orthodox. In their authorized summaries of Christian doctrine and the "advices of their Yearly Meetings,"

they say: "We acknowledge them to be the only fit outward test of Christian doctrines. We do not call them the Word of God, because this appellation is applied by the writers of the Scriptures to that Eternal Power by which the worlds were made. . . . . We assign to the Scriptures all the authority they claim for themselves. . . . . In these invaluable writings we find the only authentic record of the early history of our race, the purest strains of devotional poetry, and the sublime discourses of the Son of God. Their frequent perusal was therefore especially urged upon our younger members, who were encouraged to seek for the guidance of divine grace, by which alone we realize in our experience the saving truths they contain. . . . . We believe it not the part of true wisdom to dwell upon defects, whether real or imaginary, in the sacred records, but rather to use them as they were intended, 'for reproof, for correction, for instruction in righteousness,' remembering that it is only through the operations of the Spirit, of Faith upon our hearts, that they can be made availing to us in the promotion of our salvation."

In regard to the original and present state of man, they differ somewhat from the Orthodox, as the following extracts show: "It is a scriptural doctrine that neither righteousness nor unrighteousness can be transmitted by inheritance, but every man shall be judged according to his deeds. . . . . Animal propensities may be transmitted from parents to children, but the Scriptures do not teach that we inherit any *guilt* from Adam, or from any of our ancestors; nor do we feel any compunction for their sins. The language of our Saviour clearly implies that little children are innocent: "for of such," he says, "is the kingdom of heaven."

The followers of Hicks are generally considered Unitarians or Socinians, and yet, while they apparently do not regard Christ as the Second Person in the Divine Trinity, nor attribute a saving efficacy to his death and sufferings, we are inclined to the belief that there is a considerable variety in the views of the individual members of the Society, and, perhaps, even among their leading or representative men on this point. Their "summaries," and "advices" are exceedingly vague, and sometimes conflicting, on these points. The Rules of Discipline of the Philadelphia Yearly Meeting, say: "If any in membership with us shall blaspheme, or speak profanely of Almighty God, Christ Jesus or the Holy Spirit, he or she ought early to be tenderly treated with, for their instruction, and the announcement of their understanding, that they may experience repentance and forgiveness; but should any, notwithstanding this brotherly labor, persist in their error, or deny the divinity of our Lord and Saviour, Jesus Christ, the immediate revelation of the Holy Spirit, or the authenticity of the Scriptures, as it is manifest they are not one in the faith with us, the monthly meeting where the party belongs, having extended due care for the help and benefit of the individual without effect, ought to declare the same, and issue their testimony accordingly." Samuel M Janney, author of the "History of Friends," and one of the leading writers of the Seceding party, thus defines their views in regard to Christ: "The most full and glorious manifestation of the divine Word, or Logos, was in Jesus Christ, the immaculate Son of God, who was miraculously conceived and born of a Virgin. In him, the manhood, or Son of Man was entirely subject to the divinity. The Word took flesh, or was manifested in the flesh. . . . . . The holy manhood of Christ, that is, the soul of him in whom the Holy Spirit dwelt without measure, is now, and a ways will be, the head or chief member of that spiritual body which is made up of the faithful seravnts of God, of all ages and nations. 'There is one God, and one Mediator between God and man, the man Christ Jesus.' As Moses was a mediator to ordain the legal dispensation, so Jesus Christ was, and is, the Mediator of the New Covenant; first, to proclaim and exemplify it in the day of his outward advent, and secondly, through all time, in the ministrations of his Spirit. . . . . The great object of the Messiah's advent, is thus declared by himself: "To this end was I born, and for this cause came I into the world, that I should bear witness unto the truth. Every one that is of the truth, heareth my voice.' He could not bear witness to the truth, among that corrupt and perverse people, without suffering for it. He foresaw that they would put him to death, and he went forward calmly doing his Father's will, leading a life of self sacrifice, wounded for the transgressions of the people, baptized spiritually in suffering for them, and then finally enduring, on the cross, the agonies of a lingering death, thus sealing his testimony with his blood. His obedience in

drinking the cup of suffering was acceptable to God, for 'he hath loved us, and hath given himself for us, an offering and a sacrifice to God, for a sweet smelling savor." It was to reconcile man to God, by removing the enmity from man's heart, that Jesus Christ lived, and taught, and suffered, and for this purpose the Spirit of Christ is still manifested as a Redeemer from the bondage of corruption. . . . . It is the life of God, or spirit of Truth revealed in the soul, which purifies and saves from sin. This life is sometimes spoken of as the blood: for according to the Mosaic law, '*the blood* is *the life*.' And when Jesus told the people, 'except ye eat the flesh of the Son of Man, and drink his blood ye have no life in you,' he alluded to the life and power of God that dwelt in him, and spake through him." How far the views thus stated agree with those generally held by the followers of Elias Hicks, we cannot say. They would seem to stamp Mr. Janney and his fellow believers as sympathizing with what is sometimes called the Evangelical wing of the Unitarians. In their other views, the Seceders do not differ materially from the Orthodox Friends. They have been, for some years past, quite active in humanitarian enterprises, being strongly anti-slavery, and having been active in the promotion of asylums and hospitals for the insane, the inebriate, the idiot, and for orphans, blind persons, and the aged and infirm. They had in 1870, six Yearly Meetings, and an estimated membership of between 35,000 and 40,000. They have not done much in the way of establishing First Day Schools, but their boarding and high schools in New York, Philadelphia, Baltimore, and Richmond, Indiana, as well as their smaller schools, are of very high character. Swarthmore College, 8 miles S. W. of Philadelphia, is a well endowed and admirably managed institution, designed for 300 pupils, of both sexes. They have two or three well conducted periodicals.

III. PROGRESSIVE FRIENDS. This is a religious society, organized in 1853, at Chester, Penn., in part as a result of a division in the Kennett Monthly Meeting, of (Hicksite) Friends. The division was caused by a difference of opinion among the members of that meeting, in regard to the propriety of activity in measures of reform. It was organized as the Pennsylvania Yearly Meeting of Progressive Friends, and not long after other organizations in New York and Ohio, having similar objects in view, as well as individuals from New England, New York, and the Western States, who sympathized with it, gradually drifted into a similar organization so far as to attend its Yearly Meetings. Mr. Oliver Johnson, formerly of the *National Anti-Slavery Standard*, and the *Independent*, who has been long identified with this movement, thus defines its character and principles: "The new Society opened its doors to all who recognize the equal brotherhood of the human family, without regard to sex, color, or condition, and who acknowledged the duty of defining and illustrating their faith in God, not by assent to a creed, but by lives of personal purity, and works of beneficence and charity. It disavowed any intention or expectation of binding its members together by agreement as to theological opinions, and declared that it would seek its bond of union in 'identity of object, oneness of spirit in respect to the practical duties of life, the communion of soul with soul in a common love of the beautiful and true, and a common aspiration after moral excellence.' It disclaimed all disciplinary authority, whether over individual members or local associations; it set forth no forms or ceremonies, and made no provision for the ministry, as an order distinguished from the laity; it set its face against every form of ecclesiasticism, and denounced as the acme of superstitious imposture, the claim of churches to hold an organic relation to God, and to speak by his authority, maintaining that such bodies are purely human, the repositories of no power save that rightly conferred upon them by the individuals of whom they are composed." With so radical a platform, it is not a matter of surprise that the yearly gatherings of this Society have drawn together ultraists of all shades, the "come outers" of thirty years ago, Spiritualists, the advocates of female suffrage, and of all manner of practicable and impracticable reforms, and that while, in the company, were many men of lofty purpose and the true martyr spirit, there were others whose whole lives had been devoted to wild and fanatical theories in religions, politics, and social life. Generally these gatherings have been largely attended, but except a single local association at Longwood, near Hamorton, Penn., which have kept up for several years, a meeting on every First Day, and a First Day School for children, and discuss freely questions of ethics, political economy, and religion at their meetings, but have never employed any religious

teacher. It is obviously impossible to give any estimate of the number of Progressive Friends, as their meetings are open to all who choose to come, and there is no enrollment of membership.

IV. We are inclined to place under this general head, also, the SHAKERS, or as they style themselves, the UNITED SOCIETY OF BELIEVERS IN CHRIST'S SECOND APPEARING, not because there is much in common to them and the *Society of Friends* now, but because in their origin they were members of that Society, and because their views of the influence, and inward teachings of the Holy Spirit, though carried to excess, have the same original basis. Attempts have been made to trace their principles back to the *Camisards* or French prophets, and to the school of the prophets in Dauphiny (1688–1705), but these are so evidently an afterthought, as to be unworthy of notice. About 1747, some members of the Society of Friends in the vicinity of Manchester, England, formed themselves into a distinct organization, of which James Wardley and Jane, his wife, were the leaders, and a Mr. and Mrs. Lee were members. Ann Lee, a daughter of the last named couple, born in 1736, and always seriously inclined, had married, in 1756, Abraham Stanley, and in 1758, she, with her husband, joined the association. The religious exercises of this little coterie differed but slightly from those of the other associations of Friends at that time. They were noticeable for greater and more decided physical manifestations than most, such as dancing, shouting, trembling, speaking with tongues, but these were common in that day, and it was only when the excitement was so great as to lead the magistrates and others to charge them with breaking the Sabbath, that the Wardleys, and Ann Lee and her family were fined and imprisoned. In 1770, Ann Lee, then 34 years of age, and to all appearance a woman of no extraordinary talents or education, professed to have received, by a special manifestation of divine light, those revelations which made her the founder of a new faith, and have caused her followers ever since to regard her as an inspired being, and to give her the name of Mother Ann.

In 1774, Mother Ann, and nine of the more prominent members of the Society, under authority of a special revelation, emigrated to America, and 8 of the number proceeding up the Hudson, settled at Niskayuna (now Watervliet), seven miles from Albany, N. Y., a region then a wilderness. Here they remained for three or four years without any excitement, or considerable increase of their numbers. In 1779, a religious revival occurred at New Lebanon, Columbia Co., some thirty miles from Niskayuna, and was accompanied by those extraordinary physical manifestations which a little later characterized the great revivals in Kentucky and Tennessee. In the spring of 1780, some of those who had been most affected by these manifestations, visited Mother Ann at Watervliet, and found in her revelations, as they believed, the explanation of their experiences. Led by their statements, others visited her, and the number of adherents to her doctrines began to increase rapidly, and continued to do so until some time after her death, which occurred in 1784. Among the revelations which she professed to have received was one directing that there should be a community of goods among her adherents, and another requiring their organization into one or more unitary households. In 1787, Joseph Meacham, who had formerly been a Baptist preacher, and who was one of her earliest converts at Niskayuna, gathered her adherents into a settlement at New Lebanon, and established there the first unitary household on a large scale, and with complete community of goods. He was an able administrator, and in five years he had organized 11 Shaker settlements, in New York, Massachusetts, Connecticut, New Hampshire, and Maine. No others were established until 1805, when, after some years effort, four were established in Ohio, and 2 in Kentucky. All are on the same model as that of the New Lebanon Community, regarded from the first as the mother house. Each settlement consists of from two to eight families or households. Each family occupies a large dwelling-house, divided through the center by wide halls, and capable of containing from 30 to 150 inmates, the men occupying one end and the women the other. Beside these, there are storehouses, workshops, dairy houses, a school house for the children they adopt, and a meeting-house or hall. Considerable tracts of land are attached to each settlement, ranging from seven to ten acres to each member. They believe idleness to be sinful, and hence every member who is able to work is employed in some useful labor. They cultivate flowers, medicinal herbs and roots, fruits, vegetables, and collect garden and

flower seeds, dry and preserve fruits, put up dried herbs and roots, and make medicinal extracts. They have also extensive manufactories connected with their settlements. Brooms, wooden and willow ware, some descriptions of cloths, flannels, etc., etc., are produced by them. Their schools are of high grade and abundantly supplied with the best text books, and apparatus. Their doctrines as stated by their chief elder, F. W. Evans, are these: "God is dual, there being an Eternal Father and Mother in the Deity, the heavenly parents of all angelical and human beings. The revelation of God is progressive; in the first or antediluvian period of human history, God was only known as a Great Spirit; in the second or Jewish period, he was revealed as the "I am that I am," or Jehovah; in the third cycle, Jesus made him known as a Father; and in the last cycle, commencing with 1770, God is revealed in the character of Mother, an Eternal Mother, the bearing spirit of all the creation of God. This last is regarded by them as a revelation of God's affectional nature, a manifestation of the divine love and tenderness. They believe Christ to be also dual, male and female, a supra-mundane being, and, at his first appearing, the communicator of the new revelation to Jesus, who, in their system, was a divinely instructed, pure, and perfect man, and who, in consequence of his divine anointing, became Jesus Christ. In the new revelation made to Jesus, these truths were first brought to light; the immortality of the soul, and the resurrection of the soul, which they define as the quickening of the germ of a new life, after the death of the first, Adamic, or generative life.

All who marry or are given in marriage, or who indulge in the earthly procreative relation, they call "the children of this world," and followers of the first Adam; they do not condemn them for living in the marital relation so long as they confine its use simply to the purpose of procreation, the production of offspring being, in their view, the only justification of sexual intercourse. But Shakers, as Christians, hold that they are called to lead a spiritual and holy life, not only free from all lust and carnal sexual indulgence, but even to rise above the order of natural and innocent human reproduction, being themselves the "children of the resurrection," and as such daily dying to the generative nature, as Jesus and the apostles died to it, and thus becoming new creatures, who are able to comprehend the "mysteries of God." Among the other doctrines in which, as they believe, "Christ instructs Jesus," were, human brotherhood, and its development in a community of goods; non-resistance; non-participation in any earthly government, and the necessity of a life of celibacy and virgin purity to a perfect Christianity.

The second appearing of the Christ "without sin unto salvation," they believe took place through Mother Ann Lee, in 1770. She, "by strictly obeying the light revealed in her, became righteous, even as Jesus was righteous. She acknowledged Jesus Christ as her Head and Lord, and formed the same character as a spiritual woman, that he did as a spiritual man." The necessity for a second appearing of Christ in the female form, resulted from the dual nature of Christ, and of the Deity. "Still it was not Jesus, nor Ann, but the principles already stated, which were the foundation of the Second Christian Church. Their importance is derived from the fact of their being the first man and the first woman perfectly identified with the principles and spirit of Christ." This second appearing of Christ they believe to be the true resurrection state, and repudiate a physical resurrection as repugnant to science, reason, and Scripture. We have noticed their four cycles of human religious progress; they also believe that there are four heavens and four hells, the first three of which are still places of probation. The first heaven and hell were for the good and wicked of the antediluvians, and the "spirits in prison," to whom Christ preached in the interval between his death and resurrection, were the wicked of that cycle. Gehenna is the name they give to the second hell, to which are consigned wicked Jews and heathen who died before the coming of Jesus; and the second heaven is paradise, where the thief on the cross had the promise of going. The third heaven is that of the church of the first appearing of Christ, to which Paul was caught up. Higher and more glorious than those which preceded it, it is still not the home of perfect souls. The hell of the third cycle is a place of torment for those who did not believe in, nor follow Christ, according to the light of those days. The fourth heaven is now forming; in it Jesus and Mother Ann reside, and to it will all those go who have resisted temptation until their evil lusts and propensities are all destroyed, and the

life of the generative, natural man is dead in them, for such are born of God, and cannot sin. No one but Jesus had ever attained to this previous to the second appearing of Christ in Ann Lee. It is the heaven of heavens, and to it will be gathered not only all who accept the doctrines of the Shakers in this world, and attain to the new birth, but all those in the lower heavens and hells who shall yet accept them; and when their decision is finally made, the lower heavens and hells, and the earth will be destroyed, and only the fourth heaven for the true believers, and the fourth hell for the finally impenitent, will remain. Each cycle has had its own Holy Spirit, the spiritual efflux from the Church in the heaven of that cycle to the inhabitants of earth at the time. They hold to oral confession of sins to God in the presence of one or two witnesses, as essential to the reception of the power to forsake sin. They believe that the second dispensation (that of Moses) was intended to teach by revelation, God's truth pertaining to the earth life chiefly, and they regard the principles of the Levitical laws, in regard to food and agriculture, etc., as binding to-day as when they were given. All physical disease they say, is the result of some physiological sin against the teachings of Moses, either directly or indirectly. They believe in the power of their members to heal physical diseases, by means of prayer and the regulation of the diet.

The Bible they regard as a record of divine angelic ministrations to man, and as a more or less imperfect account of the religious experience and history of the Jews. They believe that the mental and spiritual condition of the seers and prophets whose prophecies are therein recorded, has materially modified the revelation, and that it has been still farther weakened and impaired by the imperfections of the translators; the book of Revelations having suffered less than any other from these causes, inasmuch as it is utterly incomprehensible to the generative man, and could not be comprehended even by the spiritual until the second appearing of Christ (through Mother Ann Lee), as that was the only key to unlock its mysteries. The revelations of Ann Lee and of others of their elders who have been inspired to speak the words of God, they regard as important and binding on them.

Their mode of worship is peculiar. The two sexes are usually ranged in ranks facing each other, the front ranks being from six to ten feet apart. First there is usually an address by one of the elders, "who is moved to speak" on some doctrinal subject, or some practical virtue, usually closing with a recital of the exalted privileges which they enjoy over the "world's people;" after this they sing a hymn, and then form in circles around a band of male and female singers, and commence marching or dancing, and when, as is sometimes the case, the excitement and fervor reaches its height, their motions, though retaining the order and rhythm of the dance, become inconceivably rapid. At these seasons they believe themselves to be under the influence of spirit agencies, both of angels, and the departed members of their own brotherhood, who have attained in the other life to a greater freedom from the generative nature and order, and a more complete resurrection of the soul, than those who are still in the body can reach. Their ministry are very few in numbers. Two of their most judicious and experienced brethren and the same number of sisters are chosen to have the oversight of from one to three or four Societies; so that there are only twenty or twenty-four of these ministers in all. Each family in every Society has also four elders, viz., two brethren, and two sisters, who have charge of it, and the temporalities are cared for by two deacons, and two deaconesses.

There are three classes of members: 1. The novitiates, who unite with the Society in religious faith and principle, but do not enter into the temporal connection with it. Believers of this class are not controlled by the Society as to their property, children, or families.

2. The Juniors, who join one of the families of the Society, and unite in its labors and religious exercises, but who have not relinquished their property to the Society, or if they have given the Society the improvement of it, may resume it at any time, though without interest; and 3d, the Senior class, who, after a full and complete experience of the Shaker system and faith, have deliberately consecrated themselves, their services, and all their property to the Society never to be reclaimed by themselves or their legal heirs. All who retain their connection with the Shaker Communities are amply provided for in health, in sickness, and in old age. The Shaker Communities are all thrifty and have acquired by their industry, considerable, and some of them very large amounts

of property. They had, at the latest reports, 18 societies, about 6,500 full members (Seniors), and, perhaps, 1,000 more juniors and novitiates, besides a considerable number (nearly three thousand, it is said) of children, orphans, and others, whom they have adopted, and whom they carefully educate. They are thrifty, industrious citizens, and in all the relations of life very exemplary.

IX. UNITAS FRATRUM, OR MORAVIANS.

THE MORAVIANS, OR UNITY OF THE BRETHREN (*Unitas Fratrum*), as they style their religious body, originated with the Bohemian and Moravian churches of the 9th century, but did not assume their present organization till 1457, although they identify themselves with the followers of John Huss more than half a century earlier. They were almost crushed out by the persecutions of Ferdinand II, in 1621 and the following years, but through the fostering influence of the writings and teachings of Amos Comenius, one of their bishops, they were enabled to maintain a secret existence. About 1720 a Moravian exile, Christian David, began to address them earnestly, and a revival ensued. In 1722, two families, subsequently followed by others, made their escape from Moravia, and, after a journey of eleven days, reached the estate of Count Zinzendorf, a young Saxon nobleman, and were cordially received. The Count became thenceforth their leader, and in five years had 300 Moravians on his estate. They had built a village on the Hutberg, called Herrnhut. In 1735, they had obtained the Episcopal succession of the Unitas Fratrum, and in 1749 they were acknowledged by the British Parliament as an Episcopal Church, and encouraged to settle in North America. They accordingly founded several settlements in the American Colonies, and engaged with great zeal in missionary labors among the Indians, in which they were very succesful. They also founded missions in Greenland and elsewhere, many years before the other Protestant denominations had engaged in missionary effort. Their plan of "settlements" or villages in which no person could be a permanent householder unless he or she was a member of the Church, as well as their unitary household of single men and youths, of single sisters and young maidens, and of widows, each presided over by elders of their own sex, their very rigid rules in regard to marriage, and their exclusive and earnest devotion to the missionary work, while it kept their numbers small, greatly contributed to their purity of faith and doctrine. At the period of the Revolution, they probably did not number, of full communicants, in the United States, more than 3,000 souls, and, perhaps, not so many. They had, beside, their several thousand converts among the Indians, who remained faithful to their religious principles, and a considerable number of whom were martyrs to their faith. The distinctive settlements, and the brethren's, sisters', and widows' houses are now entirely given up in the United States. They have two provinces, a Northern, and a Southern, the headquarters of the northern being at Bethlehem, Penn., and of the southern, at Salem, N. C. They have also large boarding schools, and are predominant in the population at Bethlehem, Nazareth, and Litiz, Penn., and at Salem, N. C.

The Moravians are thoroughly Evangelical in their doctrines, and while they sympathize most heartily and fully with the Evangelical churches in all the great cardinal doctrines of scriptural Christianity, they regard it as their special mission to make the principal theme of their preaching and teaching, the life, merits, acts, words, sufferings, and death of the Saviour; considering the revelation of God in Christ as intended to be the most beneficent revelation of the Deity to the human race. In thus preaching and teaching, they carefully avoid entering into any theoretical disquisition on the mysterious essence of the Godhead, simply adhering to the words of Scripture. Admitting the Sacred Scriptures as the only source of Divine Revelation, they nevertheless believe that the Spirit of God continues to lead those who believe in Christ, into all truth; not by revealing new doctrines, but by teaching those who sincerely desire to learn, daily better to understand and apply the truths which the Scriptures contain. They believe that to live conformably to the gospel, it is essential to aim in all things to fulfil the will of God. Even in their temporal concerns, they endeavor to ascertain the will of the Lord. They do not, indeed, expect any miraculous manifestation of his will, but only endeavor to test the purity of their purposes by the light of the Divine Word. Nothing of consequence is done by them, as a Society, until such an examination has taken place; and in cases of difficulty, the question is decided

by lot, to avoid the undue preponderance of influential men, and in the humble hope that God will guide them rightly by its decision, where their limited understanding fails them. In regard to their general, doctrinal belief, the following summary, revised and put forth by their General Synod in 1869, is their most authoritative statement:

"We regard every truth revealed to us in the Word of God as an invaluable treasure, and sincerely believe that the loss of life itself would be a trifling evil compared with the denial of any one of them. But most especially is this the case with that truth which the Renewed Church of the Brethren has ever regarded as her chief doctrine, an inestimable jewel, which, by God's grace, she still holds fast:

'That whosoe'er believeth in Christ's redemption,
May find free grace and a complete exemption
From serving sin.'

From this great truth, we deduce the following points of doctrine most essential to salvation:

a. The doctrine of *the total depravity of human nature*,—that there is no health in us—and that, since the fall, we have no power to help ourselves out of the bondage of sin.

b. The doctrine of *the love of God the Father*, who 'has chosen us in Christ, before the foundation of the world,' and who 'so loved the world that he gave his only begotten Son, that whosoever believeth on Him should not perish, but have everlasting life."

c. The doctrine of *the real Godhead, and the real manhood of Jesus Christ*; that God, the Creator of all things, was manifest in the flesh, and has reconciled the world unto himself—that 'He is before all things, and by Him all things exist.'

d. The doctrine of *the atonement and satisfaction of Jesus Christ for us*; that he 'was delivered for our offences, and was raised again for our justification,' and that in his merits alone we find forgiveness of sins and peace with God.

e. The doctrine of *the Holy Ghost and his gracious operations;* that it is he who works in us the knowledge of sin, faith in Jesus, and the witness that we are the children of God, and that without him we cannot know the truth.

f. The doctrine of *the fruits of faith;* that it must show itself as an active principle, by a willing obedience to God's commandments, flowing from love and gratitude, and that genuine faith *will* ever be thus distinguishable."

In their church polity, the Moravians have points of similarity to several other denominations; they have bishops, presbyters, and deacons like the Protestant Episcopal Church, but their bishops are not diocesan, but are appointed for the whole church; they hold to Episcopal succession, which they derive through the Bohemian and Moravian churches, and which, if apostolical, comes through Paul instead of Peter; but their bishops possess no governing power by virtue of their bishopric; it is the General Synod and its boards that govern, and the bishops derive their power, if they have any, from their connection with some of these boards; their presbyters or elders are preachers and pastors; their deacons are young ministers and missionaries, who can administer the sacraments after receiving their first ordination. They have a liturgy consisting of a litany, forms for infant and adult baptism (they are Pædo-baptists), the sacrament of the Lord's Supper, the rites of confirmation and ordination, the burial of the dead, and marriage. Love-feasts, the apostolical *agapæ*, are celebrated, and once a year, or oftener, there is the rite of "washing the saints' feet." Their General Synod, always held at Bethelsdorf, in Saxony, meets only once in ten or twelve years. It has cognizance of the whole affairs of the "Unity of the Brethren;" but in most matters, local Boards of Elders of the several provinces, have control in the interim of the sessions of the Synod. Each province has its synod, and its Provincial Elders' Conference, and these, and not the Bishops, manage all matters connected with the Church in their province. The American province is divided into two districts, a northern and a southern. They are still very active in the missionary work, and have, in addition to their missionaries among the heathen, nearly a hundred of their ministers who are serving in Lutheran and Reformed churches. In these churches, there are many thousands who are almost as closely affiliated to them as their own members. Every church is divided into three classes: the *Catechumens*, comprising the children of the brethren, and adult converts; the *Communicants*, who are admitted to the Lord's Supper, and are regarded as members of the church; and *The perfect*, consisting of those who have persevered for

a long time in a course of true piety. From this last class are chosen in every church by a plurality of votes, the elders, who are from three to eight in number. These elders are of both sexes, and are assistants to the pastors, in the general church work.

The latest statistics we have of the Moravian Church are only to the close of 1868. They had then five bishops, one of whom has since deceased; 66 ministers; 54 congregations; 6,768 communicants; 11,855 members, including baptized children, etc.; 623 Sunday School teachers, and 5,959 Sunday School scholars. Their boarding schools have increased to six by the addition of one at Chaska, Minn., and one in Bartholomew Co., Ind. They have a theological school at Bethlehem, Penn. Their only periodical in the United States, *The Moravian*, is published at Bethlehem. There is no statement of the portion of the missionary work, or the missionary contributions from the American Moravian churches, the mission work being conducted from the headquarters in Saxony. The entire contributions of the whole church for missionary purposes, (which had 15,176 communicants in 1868) was about $125,000.

X. UNITARIANS AND UNIVERSALISTS.

I. UNITARIANS. The rejection of the doctrine of the Trinity, and the subordination of the Son to the Father, with the acceptance of the other doctrines which have been affiliated with it, has existed in one form or another since the second or third century. At first it was Arianism, contending that the expression, "only begotten Son of the Father," implies a beginning and a subordination of the Son; this view, though maintained even to the early part of the present century in some quarters, gave place generally, to the slightly modified theories of Faustus and Laelius Socinus, in the 16th century, and these, though still prevalent on the continent of Europe, and largely held in the last century in England, by Priestley and his followers, have in their turn been succeeded by the Unitarianism of Channing and his successors. Priestley's views, founded on the principles of the sensational philosophy, and accepting religious truths on the evidence of miracle, but limiting the number of those truths to the cardinal doctrines, the unity of God, and the general resurrection, found some credence in the American Colonies about the middle of the last century. Priestley himself visited Philadelphia, in 1779. Emlyn's "Inquiry into the Scripture Account of Jesus Christ," was published in Boston, in 1756, and there was a gradual lapsing of very many of the clergy of Massachusetts into Arian views in the latter part of the eighteenth century, the result in part, doubtless, of that looseness of doctrine which grew out of the adoption of the Half way Covenant. Toward the close of the century, the tone of religious society in Boston was very generally *Unitarian*, repudiating the Divinity of Christ, and the necessity of an atoning sacrifice, but declining to enter into particulars in regard to the exact status of Christ in their religious system. In 1805, a Unitarian was elected professor of divinity in Harvard University. But as yet, there was no separation, and no lines were drawn, among the Congregationalists of Massachusetts, between Orthodox and Unitarian. The separation came in 1815 and the following years, when the eloquent Channing avowed his Unitarian views, and led off from 15,000 to 20,000 members of the Congregational churches of Massachusetts, or nearly 200 congregations. Channing was not an ultraist in his views, and his plan of withdrawing interest from points of controversial divinity, subordinating religious theories to the religious life, and bringing into marked prominence the spiritual elements of human nature, and in this way initiating the practice of trying religious systems by the instincts and sentiments of the soul, was exceedingly attractive to those restless spirits who had so long been in search of some faith which could satisfy their aesthetic nature and quiet their perturbed spirits. But Channing's successors went farther than he, and many of them in a different direction.

It is hard to define the Unitarian belief, because it is not, in any sense, a unity. While its adherents have some positive points of belief, in which, however, they widely disagree, their tenets are better expressed by a series of negatives, than by positive declarations, confessions, or creeds. They agree in holding to the Unity of God, and the subordination of the Son of God; but while some of them do not attempt to define his real position in their religious system, others hold to every phase of belief from those who accept the Trinity in a philosophical sense, but reject the deity of Christ, to those who hold him to have been mere man, a weak and peaceable man, or a myth.

A considerable number, though not a majority, believe him to be a super-angelic being, divinely commissioned to be the mediator between God and man; others hold that he was a teacher, the prophet and founder of a new religious system; the major part regard him as sinless and pure in his teachings and life, while a not inconsiderable minority class him with Moses, Zartusht, Gotama, Mohammed, and Swedenborg, as a reformer, but by no means an infallible one. They generally regard the Holy Spirit as an influence, while some agree in rejecting, in whole or in part, the doctrines of man's depravity and moral inability, but in regard to the atonement, they range all the way from a modified conception of Christ's office as a Redeemer and Saviour, to the opinion that his whole function was discharged in his office of teacher, exemplar, or reformer. Very few Unitarians hold to the doctrine of eternal punishment of the wicked, but here again their views vary from those who believe in a protracted period of retribution, to those who hold to a speedy restoration, or those who entertain the dogma that the only retribution for sin is in this life. In regard to the inspiration of the Scriptures, there is a similar diversity of belief. Channing, Andrews, Norton, and the early American Unitarians, like their English and Polish brethren, held to the plenary inspiration of the Scriptures, and some of them wrote ably and eloquently in defence of the doctrine; but the "Advanced Unitarians" of the present day, "do not appeal to the Scriptures as inspired and infallible oracles, but discuss religious questions on grounds of philosophy alone. Regarding the Bible as the most interesting and valuable part of the world's literature, they seek in it illustrations of spiritual laws, but not final statements of moral and religious truth. To some, the Vedas and Shastas of the Hindoos, the Zendavesta, the Koran, and the revelations of Swedenborg, are of nearly equal authenticity and inspiration with the Bible.

Unitarianism can hardly be said to have any distinctive ordinances or sacraments. The churches which first separated from Trinitarian Congregationalism, required baptism both of infants and adults, and especially of the latter, but it had lost its significance with their changed views of the atonement, and now infant baptism is wholly abandoned, and adult baptism only maintained in a few churches on sentimental grounds. The same may be said of the sacrament of the Lord's Supper. Where practiced, it is only as a means of cultivating the religious life, and not as a sacrament at all. In their church polity, they are Congregationalists, with, perhaps, somewhat more independency than the Orthodox Congregationalists. Some of their churches have adopted a sort of liturgy, and maintain a vesper service of a musical and devotional character. They have, within the past fifteen or twenty years, manifested an increased spirit of propagandism, disseminating Channing's works, and other Unitarian works published by the American Unitarian Association, and conducting some Home and Foreign missionary operations through their denominational organizations. They have given increased attention to the promotion of education, and have maintained among their clergymen that high reputation for elegant belles-lettres attainments, and rhetorical ability, which have characterized them from the first. They have planted Unitarian Societies in most of the large cities throughout the country, and though their congregations are neither numerous nor large, they have collected in them a considerable number of men of fine culture and æsthetic tastes. Still Unitarianism proper can hardly be said to flourish out of New England, hardly, indeed, out of Massachusetts. Its adherents there and elsewhere deserve credit for their active humanitarian efforts. In rescuing vagrant and vicious children from the evil influence to which they are exposed, in caring for the aged and infirm, the sick and homeless, and especially for their efforts in behalf of the sick and wounded soldiers of our late war, in connection with the United States Sanitary Commission, and their earnest loyalty, the Unitarians are deserving of all honor.

The Unitarians have under their control three colleges, viz: Harvard University, Cambridge, Mass.; Antioch College, Yellow Springs, Ohio, and Humboldt College, Humboldt, Iowa. They have also three theological or Divinity Schools; viz: the Cambridge Divinity School, with 5 professors, and 36 students; the Boston School for the Ministry, Boston, with 12 instructors, and 23 students; and the Meadville Theological School, with 8 professors and 29 students. They had also one nearly organized at Chicago, previous to the great fire.

They had, in 1870, five periodicals: two monthlies, "*Old and New*," and the *Monthly*

Religious Magazine; one semi-monthly, the *Sunday School Gazette*, and two weeklies, *The Christian Register*, and *The Liberal Christian*. Their statistics in 1870, were: one National Conference, 347 societies, 396 ministers, of whom 148 were not in the pastorate. These societies represent it is believed from 30,000 to 40,000 members, and an adherent population of 60,000 to 80,000. The American Unitarian Association, which publishes denominational books and aids Unitarian educational institutions, has an annual income of $100,000 or over. They have four or five mission stations in India, also aided by this Association. There are Sunday Schools attached to many of the societies, but no general statistics of them are published. In most of the cities there are Young Men's Christian Unions, with libraries and reading rooms attached.

II. UNIVERSALISTS. Though entirely distinct in their origin, and giving special prominence to a dogma which the Unitarians keep partially in the background, there is really very little difference in the doctrinal belief of Unitarians and Universalists. At first they appealed to different classes of society; the Unitarians having among their adherents, especially in Massachusetts, a large proportion of the refined and scholarly class, and their discourses being models of graceful rhetoric, while the Universalists gathered into their congregations very considerable numbers of working men, sharp and ready reasoners, but with no great amount of culture or refinement, and their preachers cultivated the power of rough and ready declaration rather than the graces of oratory. There had been very few, if any, acknowledged Universalists in the American Colonies prior to 1770, though undoubtedly some prominent theologians had rather hoped than believed in the final restoration of those who had died impenitent. In that year, however, John Murray, who had been an English Wesleyan preacher, but had become a convert to Universalist doctrines, as taught by one James Relly, came over to America, and landed in New Jersey. He soon went to Massachusetts and commenced a series of itinerant journeys through the states, preaching his views. At first, he did not make many converts, and it was not until 1779 that the first Universalist Society was organized, in Gloucester, Mass. In 1781, Rev. Elhanan Winchester, a Baptist clergyman of Philadelphia, avowed his belief in the final restoration of the wicked to happiness and heaven, and organized a church of Restorationists, in that city. From that time the Universalists began to increase, their growth being promoted by the very strong opposition manifested towards them. In 1791, Rev. Hosea Ballou, who had also been a Baptist minister, espoused the views of Murray, and advocated them with great vigor and earnestness. The growth of the denomination has been steady and considerably rapid during the present century. The most full and satisfactory exposition of the doctrines of the Universalists we have ever seen is that given by Rev. T. B. Thayer, one of their clergymen, in the New American Cyclopædia, Vol. XV, pp. 834. 835. It is as follows: I. They believe that God is infinite in all his perfections, creating man with the fixed purpose that the existence he was about to bestow should prove a final and everlasting blessing; that foreseeing all the temptations, transgressions, and struggles of man, he shaped his government, laws, and penalties with express reference to these emergencies, and adapted the spiritual forces to the overcoming of all evil; that, being almighty, he can convert and save a world of sinners as easily as he converted and saved Saul of Tarsus, or Matthew the publican, and without any more violation of free agency in one case than in the other. They also believe in the perfection of divine justice, and affirm, on this ground, that God would not impose on finite beings a law infinite in its demands and penalties; but that being perfectly just, he will deal with all men according to their works, whether good or bad.

II. They uniformly reject the doctrine of the Trinity, giving to Christ the second place, and making him subordinate to the Father. They believe that he is gifted with spirit and power above all other intelligences; that he is "God manifest in the flesh," *i. e.* that God has displayed in him the brightness of his glory, and the express image of his person, as in no other being tabernacled in flesh; that he was sent of God to be the Saviour of the world and that he will actually save it because God would not offer, nor would Christ accept, a mission which both knew would end in failure; therefore, they say, the work of redemption will be thorough and universal.

III. They believe that man was and is created upright, but liable to sin; that transgression comes not out of any original cor-

ruption of heart, transmitted from Adam; but out of ignorance and unbelief: that all men are formed, as Adam was, in the moral image of God; and that this image though it may be disfigured by sin, can never be wholly lost. Faith and regeneration remove the stains and defilements of sin, and renew or reform the soul in the divine likeness.

IV. They believe the new birth to be that thorough change of heart which takes place when a man, wrought upon by divine grace, forsakes his sins, or turns from his former life of wickedness and indifference, toward God and the Saviour, and is drawn into fellowship with the Holy Spirit, and thus quickened into new spiritual vitality, consecrates himself into a life of active goodness and piety. The new birth is not supernatural, but the result of appointed means suitably improved. The Holy Spirit blesses the use of these means, and moves upon the heart of the sinner, encouraging, comforting, assisting, sanctifying. They do not believe in instantaneous regeneration, though they allow that there may be a turning point in the life of every man when his attention is specially directed to religion. Conversion is only the commencement of religious effort.

V. They teach that salvation is no shelter nor safety, nor escape from present or future punishment. It is inward and spiritual, and not from any outward evil, but deliverance from error, unbelief, sin, the tyranny of the flesh and its hurtful lusts, into the liberty and blessedness of a holy life, and supreme love to God and man. This is an important doctrinal and practical point with Universalists, and is constantly enforced in their preaching and writings. They urge on all to seek salvation, not from the torments of a future hell, but from the present captivity of sin. In reply to the objection that millions die in sin, in pagan ignorance, and unbelief, they answer that no one is wholly saved in this life, but that all men are saved, in a greater or less degree, after death, and assert that the power of Christ over the soul does not cease with the death of the body, but that he continues the work of enlightenment and redemption, till he surrenders the kingdom to the Father, which does not take place till after the resurrection is complete.

VI. The resurrection is not merely a physical, but a moral and spiritual change. It is not only clothing the soul with an incorruptible body, but it is an *anastasis*, a raising up, an exaltation of the whole being into the power and glory of the heavenly; for 'as we have borne the image of the earthy we shall also bear the image of the heavenly.' It is a change, they say, by which we become as the angels, and are 'children of God, being (or because we are) children of the resurrection.' It must therefore be something more than clothing the soul in a spiritual body. It is, beside this, growth in spiritual strength and power, in knowledge, in holiness, in all the elements and forces of the divine life, until we reach a point of perfectness and blessedness described in the term *heaven*. This resurrection or lifting up of the soul into the glorified life of the angels, is the work of the Lord Jesus Christ. The end of his mediatorial reign, the completion of his saving work, and the final surrender of his kingdom back to God, does not take place till after this *anastasis*, this uplifting of all the dead and living into the 'image of the heavenly,' is completed.

VII. On the subject of rewards and punishments, the Universalist belief is substantially, that holiness, piety, love of God and man, are their own reward, make their own heaven here and hereafter; and that in the nature of things no other reward is possible. If men love God with all their heart, and trust in him, they find, and are satisfied with, the present heaven which love and faith bring with them. They hold the same doctrine respecting punishments; that it is consequential, and not arbitrary—the natural fruits of sin; that it is for restraint, correction, and discipline; and that God loves as truly when he punishes as when he blesses, never inflicting pain in anger, but only because he sees that it is needed, as medicine is, to prevent a greater evil. They affirm that the law is made for the good of man, and, of course, that the penalty cannot be such as to defeat the object of the law. Transgression brings misery, or punishment, which is designed to correct and restore to obedience, because obedience is happiness. They maintain that pain, ordained for its own sake, and perpetuated to all eternity, is proof of infinite malignity; but God, they say, is infinitely beneficent, and therefore all suffering must have a beneficent element in it, all punishments must be temporary, and end in good."

The Universalists are very generally believers in the doctrine of Restoration. They do not deny the punishment of sin beyond

this life, but believe that it will be temporary, and end in a restoration of the entire race to holiness, happiness, and heaven.

The Universalists are paying much attention to their educational institutions. They have now five colleges, viz : Tufts College, Medford, Mass., with 15 professors, and property valued at $805,000; Lombard University, Galesburg, Ill., with 6 professors, and property valued at $265,000; St. Lawrence University, at Canton, N. Y., with 9 professors, and property worth about $40,000; Buchtel College, Akron, Ohio, founded in 1870, with $60,000 endowment; and Smithson College, Logansport, Ind., also founded in 1870. They have two divinity schools, both well endowed, one in connection with Tufts College, the other with the St. Lawrence University. They have, also, eight academies, or institutes of high grade, most of them liberally endowed. They have 13 periodicals. Their statistics, in 1870, were: 83 associations, 911 societies, 620 ministers, and a probable membership of their societies of from 90,000 to 100,000, with an adherent population of over 200,000. They have a considerable number of Sunday Schools, but do not give the statistics of them. In 1870–71, they raised a centenary fund in commemoration of Mr. Murray's work in founding Universalist societies, of $200,000, to be called the Murray Fund, and to be devoted to the aid of theological students, the distribution of Universalist literature, church extension, and the missionary cause.

III. The Hicksite or Seceding Society of Friends in America, are Unitarians, in their view of the divinity of Christ. (See VIII, ii.)

IV. "The Christian Connection," at the West, have affiliated with the Unitarians and a large portion of them are believed to hold Unitarian views in regard to the divinity of Christ. In the Eastern and Middle States, they are generally Trinitarians. (See II, vii.)

XI. THE NEW JERUSALEM CHURCH, NEW CHURCH, OR SWEDENBORGIAN.

This denomination refuse to be called a sect of the Christian church, claiming to be entirely distinct from any branch of the Christian church and to belong to a new dispensation as fully and as far removed from the Christian dispensation as that was from the Jewish. They insist, indeed, that the Christian dispensation passed away and came to an end in 1757, and that they are the new dispensation, the New Jerusalem, which has come down from God out of heaven to take the place. The first congregation of the New Jerusalem Church was formally organized in London in 1788, by Robert Hindmarsh, a printer in Clerkenwell, who was chosen by lot, to baptize and ordain his comrades in the ministry. Few if any societies were organized in the United States before 1820, although there were undoubtedly some believers in the New Church doctrines at an earlier date. Their doctrines are those put forth by Emanuel Swedenborg, a Swedish nobleman, statesman and philosopher (1688–1772), a man of extensive attainments in science and of most pure and exemplary life, who, after publishing many scientific and philosophical works, believed that he was favored with visions and revelations from the spiritual world, and in 1745 at the age of 57 relinquished all office and gave himself to communion with the invisible world and to recording his visions and the doctrines he had been therein taught, for the benefit of those who should come after him. No one believes Swedenborg to have been an imposter. Everything in his circumstances and character refutes such a supposition; but there are many who regard him as suffering under hallucinations and as being of unsound mind. He lived to be nearly 85 years of age, and in the last twenty-seven years of his life wrote many books, all on topics connected with his supposed revelation. Some of these books (all written originally in Latin,) contain passages of great beauty and interest; but the greater part have a mystical character, and are not specially attractive except to those who profess to comprehend them by a spiritual insight. We have not the space for anything like a full analysis of the doctrines put forth in these numerous volumes. His doctrines seem to be based on a theory or science of correspondences, which he believed himself to have rediscovered after it had been lost for ages. The law of correspondence is universal; the natural world is a repetition of the spiritual world, and the spiritual world of the invisible mental world. Unseen evil is manifested in things hurtful and ugly, unseen good in things useful and beautiful. Man is a microcosm, or little world; nature is man in diffusion; all things in nature—fire,

air, earth, and water, every beast, bird, fish, insect, and reptile, every tree, herb, fruit, and flower—represent and express unseen things in the mind of man. The scriptures are written according to correspondences, and by aid of the science their mysteries are unlocked. This mystical interpretation gives us to understand that the early chapters of Genesis are not to be received in any historic sense. Adam signifies the most ancient church, and the flood its dissolution; Noah an ancient church which, falling into idolatry, was superseded by the Jewish. The spiritual sense pervades the scriptures with the exception of Ruth, I. and II. Chronicles, Ezra, Nehemiah, Esther, Job, Proverbs, Ecclesiastes, the Song of Solomon, the Acts of the Apostles, and the Epistles. These are all good books but not possessing the internal or spiritual sense. They are not inspired and consequently not the Word. By reason of its symbolism of the inward sense the letter of scripture (with the above exception) is holy in every jot and tittle, and has been preserved in immaculate perfection, since the hour of its divine dictation. By this doctrine of correspondences also the constitution of heaven and hell is revealed. There are three heavens, consisting of three orders of angels, severally distinguished for love, wisdom, and obedience. All angels have lived on earth; none were created such. They are men and women in every respect, the spiritual life corresponding to the natural; they marry and live in societies in cities and countries just as in the world but in happiness and glory ineffable. To the unmarried will be given the honor of caring for the little ones, and their performance of this duty will crown them with glory. All in whom love to God and man is the ruling principle, go to heaven at death. As there are three heavens there are three hells, and every angelic society has an infernal counterpart. Hell, as a whole, is called the Devil and Satan; there is no individual bearing that name. All in whom self love is the ruling motive go to hell. There is no resurrection of the earthly body. Every one passes to the final lot at death, some making a short sojourn in an intermediate state, designated the World of Spirits, where the good are cured of their superficial infirmities and intellectual mistakes, and where the evil reject all their pretences to good. The grand and distinctive principle of Swedenborgian theology is, however, the doctrine of life. God, it is maintained, alone lives. Creation is dead. Man is dead and then apparent life is the Divine presence. God is everywhere the same. It appears as if He were different in one man and in another; but this is a fallacy. The difference is in the recipients; by one He is not received in the same degree as another. A man more adequately manifests God than a tree; that is the only distinction. The life of devils is God's presence perverted in disorderly forms. "All things and each of them to the very uttermost, exert and subsist instantly from God. If the connection of anything with Him were broken for a moment it would instantly vanish; for existence is perpetual subsistence, and preservation perpetual creation." By this law of life is explained man's self-consciousness, freedom, and personality. All these sensations are communicated from God to man. He dwells in man so cordially, that He gives him to feel that he lives of himself, even as He lives.

The Swedenborgian doctrine of the Trinity and the Divinity of Christ is thus enunciated by his followers, in language derived from his writings: "That Jehovah God, the creator, and preserver of heaven and earth is love itself, and wisdom itself, or good itself, and truth itself; that He is one both in essence and in person, in whom nevertheless is the divine trinity of Father, Son, and Holy Spirit, which are the essential divinity, the divine humanity, and the divine proceeding, answering to the soul, the body, and the operative energy in man; and that the Lord and Saviour Jesus Christ is that God. That Jehovah, God Himself, descended from Heaven as divine truth, which is the word, and took upon him human nature, for the purpose of removing from man the powers of hell, and restoring to order all things in the spiritual world, and all things in the church, that he removed from men the powers of hell, by combats against and victories over them, in which consisted the great work of redemption; that by the same acts which were his temptations, the last of which was the passion of the cross, he united in his humanity, divine truth to divine good, or divine wisdom to divine love, and so returned into his divinity in which he was from eternity together with and in his glorified humanity, whence he forever keeps the infernal powers in subjection to himself, and that all who believe in him with the under-

standing from the heart and live accordingly will be saved. The New Church observes the ordinances of baptism and the Lord's supper, but gives them a mystical significance. The Christian church, as established by Jesus himself, came to an end, Swedenborg says, in the middle of the last century, and in one of his visions he relates having witnessed the last judgment effected upon it in the world of spirits in 1757. Then commenced the new dispensation, signified by the New Jerusalem in the Revelation of which he was to be the precursor and revealer. He made no claim to be a leader or divinely inspired person, but only a seer. He did not himself attempt to establish a church, though it was his early expectation that such a church would be raised up among some of the gentile or heathen nations. But his followers have been active propagandists, and though they may have believed, as he did, that the Christian church was dead and at an end, they have to a large extent remained in its communions, and have propagated their views among its members, while retaining their connection with it. A portion have, it is true, come out and organized separate societies or churches, but the New Church has been far more conspicuous for intellectual ability, both among its secret adherents and its avowed members, than for members. After fifty years of really zealous effort, they report only 65 ministers, 78 societies, and at the utmost not more than 4,000 avowed members, with an adherent population of perhaps 8,000. They have an efficient publishing association, with a capital of about $15,000; a tract society which publishes 30,000 or 40,000 tracts per year; three periodicals, a weekly, a monthly, and a child's paper, a theological school at Waltham, Mass; three church schools—one of them liberally endowed, a missionary society, and several Sunday School Unions. It has also a "New Church Union" with a free library having headquarters in Boston.

XII. MORMONS, OR CHURCH OF JESUS CHRIST OF LATTER DAY SAINTS.

I. THE MORMONS under the control of Brigham Young. We have neither time nor space to go into the *history* of this imposture, the most conspicuous one of modern times; nor is it needful; for the story of the golden plates, and of Solomon Spalding's manuscript, of the successive efforts at organization in Manchester, N. Y.; Kirtland, Ohio; Jackson and Clay counties, Missouri; Nauvoo, Illinois; the impositions, threats, and swindles of the Mormon leaders, their expulsion from Missouri, their death at the hands of a mob at Carthage, Illinois, the pilgrimage westward, the wintering in Iowa, the final arrival in 1847 and 1848, at Salt Lake, the founding of Great Salt Lake City, the building of the Tabernacle, the open practice and boast of polygamy, their collisions with the United States government, their Danite band, their murders and outrages, and their present condition, have all been told so many times as to be familiar to all. We will therefore only state their doctrines and practices according to their own authorized manuals. They believe that there are many gods and that eminent saints may in time become gods, and rise one above another in power and glory to infinity. Joseph Smith is the God of this generation. Above him in power and glory is Jesus Christ, who was the offspring of the material union on the plains of Palestine of a God with the Virgin Mary, the latter being duly married after betrothal by the angel Gabriel. Yet Christ had had a previous existence and had made the universe out of unformed chaotic matter as old as God. The God whom they describe as the father of Jesus Christ, had once been a man and still retains a human form, though he is so advanced in intelligence and power that he may now be called, comparatively speaking, perfect, infinite, &c. The Holy Spirit they believe to be also a material being and once human. Above these is an older trinity composed of Jehovah Elohim, and Michael or Adam, the latter being described as the god or superior of Christ, and below, beneath, and associated with these are gods many and lords many. Their whole Theogony seems to be a most unintelligible jumble, mingling Brahminism, Buddhism, and every other form of belief. The *second* article of their creed affirms that men will be punished for their own sins and not for Adam's transgressions. The *third* article states that through the atonement of Christ all mankind may be saved by obedience to the laws and ordinances of the gospel. The *fourth* defines their ordinances to be: Faith in the Lord Jesus, which is expounded as including obedience to the ten commandments, and to the Word of Wisdom revealed to Joseph Smith in 1833; 2. Repentance; 3. Baptism, which is administered

by immersion, only to children at eight years of age, and also to adults who had not been previously baptized. They also baptize for the dead, asserting that at the resurrection all the persons for whom a man has been baptized will be added to his family; 4. Imposition of hands to confer the gift of the Holy Spirit; 5. The Lord's Supper, administered to the recipients kneeling; they use water instead of wine, being averse to the use of the latter, and receive the sacrament every week. The *fifth* article declares that men must be called to the work of God by inspiration. The *sixth* that the same organization must now exist that existed in the primitive church. The *seventh*, that miraculous gifts—discerning of spirits, prophecy, revelations, visions, healing, speaking with tongues, &c.,—have not ceased. Among Smith's and Brigham Young's speculations in the way of discerning of spirits, one was that the soul of man was not created but had existed from all eternity, equal in duration to God. Another of these revelations was that of the transmigration of souls, that rebellious spirits (of men) would descend into brute tabernacles, till they yielded to the law of the everlasting gospel. The *eighth* article affirms that the Word of God is recorded not only in the Bible and the Book of Mormon, but in all other good books. The contradictions which exist in the Bible and other books can be very easily removed by revelations to any of the Mormon leaders or any other inspired prophets. Joseph Smith, it is said, left an "inspired translation" of the whole Bible in manuscript, but none of the leaders since have thought it worth their while to publish it. The *ninth* article expresses a belief in all that God has revealed, is revealing, or will yet reveal. The *tenth* affirms the literal gathering of Israel, the restoration of the Ten Tribes (whom they believe to be the American Indians), the establishment, of the New Zion on the Western Continent (they generally insist that this will be in Jackson county, Missouri), the millenial reign of Christ on earth, with all his holy prophets and demigods (of whom Joseph Smith will be most conspicuous), and the transformation of earth into a paradise. The *eleventh* article maintains "the literal resurrection of the body,—to flesh and bone, but not blood—blood being the principle of mortality." The *twelfth* article asserts the absolute liberty of private judgment in matters of religion. The *thirteenth* declares it to be the duty of the saints and all others to be subject to the powers that be, whether monarchical or republican; and the *fourteenth* and last is as follows: "We believe in being honest, true, chaste, temperate, benevolent, virtuous, and upright; and in doing good to all men; also that an idle or lazy person cannot be a Christian, neither have salvation." The leaders, however, by virtue of the revelations they receive, can, at will, exempt themselves from the obligation of any of these rules or obligations, and most of them are notoriously profane, unchaste, and accessories to the grossest frauds and murders, if they do not commit them in person.

Their most remarkable social peculiarity is the practice of polygamy. Among the early revelations published by Smith, one was the strict enforcement of both monogamy and chastity; but about 1838 he became notoriously licentious and as after a time his wife began to complain of his amours, he had in 1843 a special revelation directing the practice of polygamy not only in his own case, but in that of the other saints. This was denied by the leaders for some years, but in 1852 they openly avowed polygamy as one of their doctrines and referred to this revelation as their authority. It is now very generally practised in Utah; Young himself having, it is said, sixty or more wives. For many years the Mormon leaders have defied the United States government and have ruled the territory of Utah according to their own views, driving out and often murdering United States officers and citizens who attempted to enforce national laws; but the opening of the territory by the passage of the Union Pacific and other railways through it, and the development of the large mining interests there, have brought in so large a population, who are not Mormons, that there is a prospect that the laws may be enforced there without serious difficulty. By the laws of the United States, as well as by common law, polygamy is a crime, and actions have recently been commenced against Brigham Young, Daniel C. Wells, and other of the Mormon leaders for adultery, and for being accessories to the murder of some men whom they had caused to be put out of the way. Young has left Salt Lake City, and it is generally believed, has fled from the territory, and some of the others have given bail, while one or two have been convicted of the minor offense.

The Mormons have habitually greatly overrated their numbers. They claimed early in 1870 a Mormon population in Utah of 150,000, while the United States census of 1870 gave the entire population of the territory as only 86,786, of whom not less than 17,000 are known not to be Mormons, aside from a considerable number of seceders from the authority of Young. Elsewhere in the United States there may be (including the seceding Mormons) seven or eight thousand; and in foreign countries perhaps 50,000 to 60,000. They claim 100,000 on the eastern continent; but they have no such following. Their hierarchy is of two kinds, the Melchizedec and the Aaronic priesthood. To the former belong the First Presidency of three, of which Young is the chief; the twelve apostles, the seventies, the patriarchs, the high priests and the elders. To the Aaronic priesthood belong the bishops, of whom in all there are 240, the priests, teachers, and deacons. Tithes are rigidly exacted from the Mormon believers to be applied to the support of worship, &c., but no inconsiderable portion finds its way into the capacious purse of Brigham Young, who by adroit management has become very wealthy, his property amounting to many millions, and being largely invested abroad.

There have been for the past twenty-five years a body of Mormons who did not go with the others to Utah, who did not recognize Brigham Young as their chief, nor practice polygamy. They have had a colony and settlement for some years in northwestern Iowa, on the borders of Dakota, and have had as their spiritual chiefs, *Emma Smith*, the widow of Joseph Smith, and of late years *Joseph Smith, Jr.* They have about 5,000 adherents, and the Mormons of Utah are very hostile to them. Of late Joseph Smith, Jr. has visited Utah, and a considerable number of Mormons who were disaffected toward Young, have recognized him as their leader. Others of the disaffected, who repudiate Young's authority and teachings though not yet willing to abandon polygamy, have followed a man named Godbe, and are known as *Godbeites*. Both these seceding organizations are bitterly denounced by Young and the Mormon hierarchy.

XIII. ISRAELITES OR JEWS.

I. The Orthodox Israelites, or Jews. This is no place for a history of the ancient people of God in all their dispersions, wanderings, and persecutions; we can only give very briefly, their history as a religious denomination in the United States. The first Jews who emigrated to North America, it is believed, came to the then Dutch colony of New Amsterdam, in 1660. Although, from the first, they have always enjoyed complete religious liberty here, and have often been called to positions of high honor in society and under our government, yet the number of Jewish emigrants to the United States was, for a hundred and fifty years from their first coming, very small, and in 1820 they certainly did not exceed 15,000 in our entire territory. Since that time they have come in somewhat larger numbers, attracted by the opportunities offered them for succesful trade and financial operations. After the revolutions of 1848, on the continent of Europe, many of those, who had participated in those uprisings, came here and have since been some of our most valued citizens. It is difficult to ascertain definitely how many are now residents in the United States; the Board of Delegates of American Israelites, in 1868 reported 200 congregations in the country. If these averaged 100 male members (a large estimate), the adherent population could not much have exceeded 40,000; but there are besides these, the Reformed Jews, a considerable number who have embraced Christianity, and many who in this country do not connect themselves with any religious organization. We are inclined to believe that 75,000 is a large estimate of the actual Jewish population of the United States, though it has been reckoned as high as 200,000. They have worship in their synagogues on the Jewish Sabbath (Saturday), with reading and expounding of the law, chanting of psalms, etc. The reading is usually in Hebrew or Aramaic, although many Jews do not understand the Hebrew well, but the explanations and discourses are in English, or in the vernacular of the country from which they have come. Many of their rabbis are men of extensive learning, and specially versed in Oriental and linguistic science. It is, of course, understood that the Jew does not recognize Christ in any religious sense, and is a Deist, rather than a Socinian or Unitarian. The following abstract of their doctrinal creed, compiled from the Thirteen Articles of Maimonides exhibits, briefly, their views on religious subjects: "1. They believe that God is the

Creator and Governor of all creatures, and that he alone has made, does make, and will make all things. 2. They believe that He is only one, in unity to which there is no resemblance, and that he alone has been, is, and will be their God. 3. They believe that the Creator is not corporeal, not to be comprehended by an understanding capable of comprehending only what is corporeal; and that there is nothing like him in the universe 4. They believe that He is the First and the Last. 5. They believe that He is the only object of adoration, and that no other being whatever, ought to be worshiped. 6. They believe that all the words of the prophets are true. 7. They believe that all the prophecies of Moses, their master, are true, and that he was the father of all the wise men, as well of those who went before him, as of those who succeeded him. 8. They believe that the whole law which they have in their hand at this day, was delivered by Moses. 9. They believe that this law will never be changed, and that no other law will ever be given by the Creator. 10. They believe that God knows all the actions of men, and all their thoughts; as it is said: 'He fashioneth all the hearts of men, and understandeth all their works.' 11. They believe that God rewards those who observe his commands, and punishes those who transgress them. 12. They believe that the Messiah will come, and, though he delays, they will always expect him till He comes. 13. They believe that the dead will be restored to life when it shall be ordained by the decree of the Creator.

The Jews have not been very active in educational matters, but have several free schools of high grade, and, at Philadelphia, Maimonides College, founded in 1867, which though having a full course, and able instructors, is not well endowed. In matters of public charity, the founding of hospitals, asylums for orphans, the aged, and the widow, and the establishment of public libraries, and museums of art, they deserve very high praise. These institutions, and their gifts to them have not, in any case, been confined to their own people, but have been opened freely to all, and some of their liberal givers have won for themselves undying fame by their large handed charity. It is worthy of note that they provide always for their own poor. They have three or four well conducted periodicals.

II. THE REFORMED OR PROGRESSIVE ISRAELITES. This organization, which has a Rabbinical Conference, which meets annually, and has synagogues in the principal cities, while not disposed to relinquish their Jewish birthright and privileges, yet deem some changes necessitated, by the progress of the world, in their ancient faith. They do not look for the coming of a temporal Messiah, or a return to Palestine; they believe in having their exercises in the synagogues in the vernacular. They hold to the immortality of the soul, but not to the resurrection of the body; to God's grace and justice to pardon and bless the being created in his image, and not to expiatory rites and sacrifices. We have no means of estimating their numbers.

Efforts have been made, and with considerable success, by several of the Protestant denominations for the conversion of the Jews to Christianity. There are several congregations of these converted Israelites, and a still larger number who have connected themselves, as individuals, with other Christian churches. A considerable number of Jews said to be mainly from Germany, Poland, and Portugal, have, on coming to the United States, abandoned all religious worship and faith, and given themselves up wholly to the worship of mammon.

XIV. SPIRITUALISTS.

We can hardly call the Spiritualists a religious denomination, since its professed adherents belong to almost all denominations, and many of them to none, and their single bond of union is in their belief that somehow, and in some way, they hold intercourse with the spirits of the departed. That this belief is a delusion seems to be demonstrated by the most incontestable evidence; yet very many cling to it with the utmost tenacity. The Spiritualists, and especially the so-called "spiritual mediums," may be divided into several classes. Among these are: 1. Charlatans and impostors, who deliberately profess to hold communication with the spirit world, knowing that they are guilty of a gross and fraudulent deception, but doing so for the sake of gain. This class is numerous; to it belong most of the fortune-tellers and necromancers, the greater part (perhaps we should say all) of the healing mediums, clairvoyant doctors, and the like, the exhibiting mediums, rappers, table-tippers, &c., &c. 2. The self-deluded, who,

possessing a certain amount of magnetic, odyllic or reflex-nervous power, really suppose themselves to be in communication with the spirits, when they are only reproducing their own thoughts and conjectures or those of persons about them and with whom they are *en rapport*. 3. Genuine clairvoyants, very few in number, but really endowed with a greater or less degree of the clairvoyant or seer faculty, but mistaken in imputing their visions to a different source from that from which they really come. The supposed conversations held by these persons with angelic intelligence, or the spirits of the departed who were eminent for intellectual or moral power in this life, all give evidence, which whoso runs may read, that they are "of the earth, earthy." Not one of these messages professedly from the spiritworld, however exalted in intellect in this life were the persons from whom they purport to have come, has ever risen above the dead level of bald common place, and could the persons to whom they were attributed have come back to earth and read them, they would have repudiated them most indignantly. Much the same may be said of the professed revelations of the spiritual world by these professed seers. We have read many of them and have found them invariably sensuous in their descriptions, and giving ample evidence of having been borrowed without being improved from the Koran, the oriental fables, or the word painting of Moore, Byron, Southey, Beckford, or Johnson, and sometimes, perhaps, from the hallucinations of Emanuel Swedenborg. Too much of the flesh clings to the seer to make these visions in any respect representative of that glorious spiritual state which the natural eye hath not seen, nor can see; of those experiences, which are only discerned by the spiritual man when unrobed from the garments of flesh, and made pure even as God is pure.

Still this great delusion has its thousands of votaries. Beginning in this country about 1843 with some manifestations of power as a healing medium on the part of a lad of seventeen, named Andrew Jackson Davis, at Poughkeepsie; they were gradually developed into a high degree of clairvoyance on his part, which resulted in his dictating from 1846 to the present time numerous books professing to give revelations of the condition of the various spheres which he alleged envelope our earth, and communications with the spirits which inhabited them; descriptions of the climate, scenery and people of the various planetary bodies of the solar system, and eventually a theological system, with its pantheon of heroes and demigods which he professed to have received from the highest spiritual intelligences. That some portions of this system were rather the results of earthly study, than of heavenly inspiration, was evident to those who knew Mr. Davis's habits of study and preparation for his books. These numerous volumes have, however, had a very considerable sale, and though it would be difficult to say how many Spiritualists believed them either wholly or in part, yet they have unquestionably exerted considerable influence in forming the Spiritualist theology. Many Spiritualists repudiate them, wholly; others go far beyond them, to a gross and blasphemous infidelity. While Mr. Davis was beginning to dictate his revelations, another development of the Spiritualist mania appeared in Rochester, where a Mrs. Fox and her two young daughter's first made spirit-rapping profitable. This and table-tipping and table dancing soon became popular and lucrative exercises, and presently it was found that the spirits could spell (not always correctly) by the aid of an alphabet card. As time passed, their education improved till by the hand of a medium (their unconscious instrument, it was said) they wrote all manner of platitudes in prose and rhyme, though quite as often without sense as with it. Still later, they practised a species of phonographic writing which expedited matters for them, though not always for the unhappy mediums, who found great difficulty in putting it into readable English. Gymnastic and legerdemain feats followed, and though most of these were exposed, yet they made their impression on the minds of the gaping multitude. An adventurer named D. D. Home or Hume was the most adroit performer of these alleged Spiritualistic feats in Europe, and succeeded in deceiving many eminent though unphilosophic minds. The delusion reached its culminating point in 1858 or 1859, and has since that time been gradually waning. Both the Shakers and the followers of Swedenborg had at one time great expectations from it, of large increase to their numbers; but both have been greatly disappointed. Very many who were once deluded by it have long since abandoned it and now wonder that they could have been so grievously deceived; others not fairly con-

vinced of the delusion still entertain doubts, and will eventually shake it off; while of those who hold firmly to it still, some have become insane, some profess to derive comfort from their communication in hours of sorrow with the dear departed, and others have plunged into the abyss of infidelity or are on the high road thither.

The Spiritualists in 1858 and 1859 made the most extravagant statements in regard to their numbers; statements which must at that time have been conspicuously inexact, and are now too absurd for any one to believe. In the "Spiritual Register" for 1859 it is stated that the number of actual Spiritualists in America is 1,500,000; of those who have more or less faith in the doctrine, but do not openly espouse it, 4,000,000; public advocates, 1,000; mediums, public and private, 40,000; places for public meetings, 1,000; books and pamphlets, 500; periodicals, 30. If most of these figures had been divided by ten the quotients would have been nearer the truth at that time. At present, the number of periodicals (of which only two or three have a large circulation) is ten, the number of public advocates of Spiritualism not over 50, and the meetings mentioned about the same or possibly 75. The number of mediums of all sorts, we could not undertake to estimate; there must be several thousands; though some have unfortunately been sent to State Prison recently, and some others, who have been using their art, to aid them in their nefarious business as procuresses, ought to be. It would be difficult to find 150,000 persons who would avow themselves, to-day, Spiritualists; and equally difficult to find 200,000 more who would acknowledge any leanings in that direction. The number of books and pamphlets published *pro* and *con* may reach 500, indeed, considering the great number issued by Mr. A. J. Davis and Mr. S. B. Brittan, we think they probably will; but the sale of Mr. Davis's books, the most popular of all this class of literature, has not averaged over 20,000 copies of each.

XV. FREE THINKERS, OR ATHEISTS, DEISTS, RATIONALISTS, &c.

THE various forms of unbelief cannot fairly be called religious since they are rather the negative of all religion; nor can they be classified or numbered, since they are found under so many different names and forms and commingled with so many other doctrines and notions; yet it is true that they include many thousands mostly from three classes: 1. Speculative philosophers, whose learning is rather superficial than profound, and who from the desire to throw off control, which is natural to the depraved heart, seek to find arguments against the authenticity and inspiration of the scriptures, against a ruling and controlling Providence, and against any plan of salvation which admits the depravity of human nature. They draw their arguments from any and every source which they deem available; at one time they deride miracles as inconsistent with reason; at another they parade geological discoveries as proving the falsity of the Sacred Record; then they are very sure that they have discovered that man has lived upon the earth 800,000 or a million of years, and that he was developed from a monad or a monkey; if driven from these positions, they find fault with the numbers of the Bible, its genealogical records, its narratives of events; the slightest apparent discrepancy is magnified, and they either conclude the sacred book a tissue of fables, a book of riddles, metaphors, and conundrums, or a series of myths. Rout them from one class of arguments, and they fly to another, often in exact contradiction of what they had previously maintained; and in default of any ground of argument they will fall to abusing and cursing the life, ministry, and work of the Divine Redeemer, using the coarsest ribaldry, though previously given to only dainty phrases; thus demonstrating that it is the enmity of the heart against God which is at the bottom of all their unbelief. 2. A larger class than the preceding is composed of working men, mechanics, who in a crude and rough way do a good deal of thinking, but being soured by the neglect of their intellectual tastes and abilities, which they believe the educated class manifest, and having the idea that they are displaying a great deal of intellectual independence by avowing themselves free thinkers, plunge boldly into the discussion of questions which they are disqualified, for the want of both early training and positive knowledge, from handling. Without being conscious of it they are merely the echoes and mouth pieces of abler but worse men, uttering the falsehood, which their leaders know to be such, but which these poor men believe merely on their assertion. With them, too, the desire that

these views may be true, that they may be thereby freed from responsibility and the goadings of conscience, has much to do with their earnestness in endeavoring to believe them. 3. Another and still larger class of unbelievers, we can hardly call them free thinkers, for they do very little thinking of any sort, are the men and women utterly brutalized by a vicious life, who are without hope and without God in the world, and who stolidly conclude that no other life, if there is another, can be worse than the present; and that somehow they will be better off after death, since, as they express it, they have had no show or chance here. These need almost a new creation to bring them up to the plane of morally accountable beings. They constitute the dangerous classes of our large cities, the material of mobs, the gangs of thieves, dead rabbits, shoulder hitters, prize fighters, burglars, and if women, the shop lifters, prostitutes, and degraded women of the slums and back alleys of the great cities. We might name as recruits in this army of unbelief, those who under the influence of the worst phases of spiritualism have lost all faith in humanity, and those in higher circles of society who departing from their early training in sound doctrine have wandered and floundered through the mazes of German rationalism, transcendentalism, and at last merged in Pantheism or utter unbelief.

A very considerable portion of the educated German emigrants, and the English workingmen who migrate to this country are Freethinkers or infidels, and in many of our large cities as well as in the newer towns and settlements at the West they have organized Infidel or Liberal clubs, and seek to bring others into their way of thinking. They have united and brought out their full strength on several occasions in the effort to have all Sabbath laws abrogated in several of the Western cities. In some of the new settlements of the West they have been so largely in the majority that they have prohibited all effort for religious worship or Sabbath observance. Their periodicals vary in character according to the class whom they address. Some are decorous in tone but aim at subverting Christianity by appeals to reason and philosophy; others are ribald and blasphemous, and denounce incessantly all Christian organizations, and Christian men. Those conducted by foreigners and in German or French, are generally revolutionary in their character, and have much to say of priestcraft and restrictions upon the rights of the people. There are in all fifteen or twenty of these papers, but they give no indications of the number of the Freethinking class, since many of them do not read anything. There are no means of estimating with any approximation to accuracy their actual numbers. Men who have made religious statistics a study, and with equal opportunities of observations differ as widely as between 250,000 and 1,000,000; and the larger number is quite as likely to be correct as the smaller.

There are a number of small and minor sects which did not properly come under the classification we have adopted. With a brief notice of them we close this sketch of RELIGIOUS DENOMINATIONS IN THE UNITED States.

I. ADVENTISTS, a recent sect of Millinarians, owing its origin to William Miller of Vermont, from whom they are often called Millerites. He commenced his public teachings in 1833 and predicted the second advent of Christ in 1843. Among his disciples was one Joshua V. Himes who had been a Campbellite preacher and who surpassed Miller in earnestness and energy. After the failure of their first prediction in 1843, others were made but the adherents of the sect fell off. Himes however continued to advocate his doctrine in the *Advent Herald* and from the pulpit, and succeded in drawing around him a considerable number of followers, of whom, since Miller's death, he has been the leader and apostle. He is said to be inclined to Unitarian views in regard to the divinity of Christ, and with most of his followers to hold that the wicked will be annihilated at the second coming of Christ. There are no definite statistics of the numbers of the Adventists, but they are estimated at about 20,000. Their other views are generally those of the Evangelical churches, though inclining somewhat to Methodism; but they have no regular creed or form of discipline.

II. ANNIHILATIONISTS. The doctrine of the Annihilation of the Wicked is not confined to Adventists. Nearly forty years ago it was defended by Rev. Henry Grew, and since that time Dr. McCulloh of Baltimore, George Storrs (an Adventist) and Rev. C. F. Hudson have published works advocating the doctrine. They have not a

arge following aside from the Adventists, and most of those who believe in the doctrine remain members of Evangelical churches.

III. Catholic Apostolic Church or Irvingites, a small denomination which originated with the teachings of Rev. Edward Irving in London about 1830, but afterwards considerably modified through the influence of Mr. Henry Drummond, a member of Mr. Irving's congregation. They hold to the present existence in the Christian Church of the Charisms or gifts mentioned by Paul in Cor. xii. 27–31, Eph. iv. 11–13, 1 Thess. v. 19, 20, viz. healing, speaking with tongues, prophesying, &c. In their other doctrines they agree generally with the Evangelical churches though they make confirmation or sealing by the laying on of hands of the apostles a third sacrament or ordinance. In organization and polity, however, they differ from most of the churches in having four orders of the ministry, apostles, prophets, evangelists, and angels or chief pastors, and under the latter, a fourfold service of elders and deacons, together with under deacons and deaconesses. The deacons, under deacons, and deaconesses are ordained by the angel or chief pastor, all the superior ministers or servants by the apostles who are not themselves ordained but called of the Holy Spirit to their work. In their worship they use incense-lights on the altar, the full catalogue of priestly vestments, and a very imposing and impressive ritual. They celebrate the Eucharist, every Lord's day, as well as on other occasions, and receive tithes during the service. They also have auricular confession of sin with absolutions and prayers in fourfold form. At their meetings for extemporaneous prayer and confession they encourage the speaking with tongues and prophesying. The number of congregations of the Catholic Apostolic Church in the United States is small, not more than eight or ten in all.

IV. Brethren or Plymouth Brethren, a denomination which originated about 1830 under the leader-hip of Rev. John Darby, an English barrister of high social position, who became a clergyman of the Church of England and devoted himself to missionary labors in Ireland for several years, but being conscientiously opposed to the doctrine of Apostolical Succession he left that church and proceeded to found one which recognized no distinctive ministry and no formal organization. Mr. Darby was a Millenarian and thought it the duty of all true Christians to gather in small bands and pray, labor, and wait for the speedy second coming of Christ. The Plymouth Brethren recognize no other title except that of Brethren or Christians; they are Calvinistic (thoroughly so) in doctrinal belief; but believe that all the Lord's children are priests and kings in his service and that any one of them who feels that he is called to the work has a right to preach or to administer ordinances. They permit no licensure or ordination, and all preaching is voluntary and without salary or compensation. They baptize adults on a profession of faith (usually immersing them) though they do not consider this indispensable to membership. They do not allow infant baptism. They exclude persons from participating in the Lord's Supper, who have been guilty of gross sins. The Lord's Supper is celebrated every Sabbath morning. In the afternoon or evening of the Lord's day they preach to and pray for such as are not converted. They believe in the efficacy of prayer for special blessings temporal as well as spiritual, and one of the Brethren, George Müller has maintained an extensive Orphan Asylum and large missionary enterprises at Bristol for many years, solely by praying for the needed funds, which as they came in were most judiciously expended. The denomination has had a rapid growth in England and on the continent, and numbers many eminent men among its adherents. In this country they have a considerable number of congregations, but are very reticent concerning their increase and growth.

V. Sandemanians or Glassites. This denomination, which a hundred years ago was quite numerous is now nearly extinct. It derives its name from Rev. Robert Sandeman, who was not, however, its real founder, his father-in-law, Rev. John Glass of Dundee, having originated the sect. Mr. Sandeman, after preaching their doctrines for twenty years or more in Scotland, emigrated to the United States in 1764, and settled at Danbury, Connecticut, where he died in 1771, having established several Sandemanian churches in Connecticut and Massachusetts. Their distinguishing doctrines are: That faith is a simple intellectual assent to the teachings and divinity of Christ; that all mystical or double inter-

pretation of the scriptures is to be rejected; that none of their members must take part in any games of chance; that they are to abstain strictly from all blood and "things strangled;" that all collegiate training for the ministry is wrong; that no prayers should be made at funerals; that weekly love feasts in which all the members of the Church should dine together should be observed every Sabbath day; and the kiss of brotherhood should pass between all their members, male and female, at their solemn meetings; and that a plurality of elders is necessary in the church, two at least being required for all acts of discipline and the administration of ordinances and ritual. The ordinance of feet-washing originally practised by the sect has been discontinued. There are not more than two or three congregations of Sandemanians now existing in the United States.

VI. Church of the Messiah, a sect founded in Maine in 1863 by a person named Adams, who had previously been a Mormon elder. He claimed to have visions and special inspirations. Among the points of the new faith was, that its members were of the tribe of Ephraim and that the time had come for them to return to the land of their fathers, where the Messiah was to set up the throne of David. In 1866, 156 of the members of the sect sailed from Maine for Palestine under the leadership of Adams and landed at Jaffa, where through the efforts of the American Vice-Consul, land had been procured for them and where they erected houses and a hotel. Dissatisfaction soon occurred. Adams was accused of mismanagement, and through the kind offices of the United States government a considerable number returned in 1867, and the remainder in 1868. The sect is probably extinct.

VII. Perfectionists. I. Free Lovers, Bible Communists or Perfectionists, a small American sect founded about 1840 by John H. Noyes, in Putney, Vermont, but removed subsequently to Oneida, New York, where it is now known as the Oneida Community. Branches of it are also established under the same regulations at Wallingford and Brooklyn, Connecticut. This organization is a singular medley of Biblical doctrine and unholy practice. They profess to believe that a reconciliation to God is necessary for salvation, that this is accomplished through faith which is simply an intellectual belief, and that confessing this belief the man's sins are immediately washed away, and thenceforth he is above and beyond all law, being a law unto himself; though in practice he surrenders a portion of this liberty to the family or Community in which he lives. They hold to a community of goods, community of women, or as they term it, a complex marriage; no legal marriage being considered binding and the parties to it in the community being at liberty to make new selections at will, their liberty, however, being somewhat abridged by the necessity of making their proposals through a third party and their being subject to the approval of the family and in accordance with what they pronounce physiological laws. The Community or Communities now number in all about 600 members, that at Oneida having 300. They have prospered financially, having attained large wealth by their manufactures and agricultural productions. They are said to be harmonious and contented. The men dress like the citizens of the adjacent towns, but the women have adopted a sort of Bloomer costume and wear their hair short. The influence of these Communities can only be evil on the society around them. There are several other communities in various parts of the United States, practising a community of goods but not of wives. We have already described the Shaker Communities, which have all prospered; but there are others which do not find a new theology necessary to their success, such as the German Socialist Village of Economy, Pennsylvania, the Seventh Day German Baptist Community at Ephrata, Pennsylvania; the more recently organized one, near Brocton in Western New York, which from the past history of Rev. T. L. Harris, one of its founders, we suppose to be Spiritualistic, and one in Iowa, which admits only male members.

II. Another and more numerous sect of Perfectionists, though, perhaps, we should hardly call them a sect since they have very generally retained their connection with the denominations to which they had previously belonged, are those persons, who in connection with Methodist, Congregationalist, Baptist, and Adventist Churches, hold to the doctrine that it is not only possible to attain, but that they have actually attained to a condition of sinless perfection, complete freedom not only from sinful acts

and deeds but from all sinful thoughts or words and from any promptings to sin. This doctrine, sometimes called the doctrine of Perfect Holiness, sometimes Oberlinism, since it was strongly advocated at Oberlin, Ohio, has a considerable following; and under the names of "The Higher Christian Life," or "Complete Sanctification," has been largely preached and written about within a few years past. We cannot say that in our experience, those who professed it have generally given evidence of greater purity or real holiness than others who made no such exalted profession; but while conformity to the Divine model is a thing to be sought after and labored for, we do not believe it is often attained in this life.

With our notice of these believers in Perfection we close our sketch of Religious Denominations in America. We may have omitted some small sects, but if so, it has not been for want of careful search for them. We have not deemed it necessary to say anything of Mohammedans, Buddhists, or Sintauists, though we believe there are two or three congregations of each in California, and perhaps one or two in New York. The Russo-Greek Church has a chapel in New York City, one in San Francisco, and one or two in Alaska, but its adherents are probably less than 500 in all. The religious rites and ceremonies of the Indian tribes of the West, vary too much to be described within our limits. The Pueblo Indians of New Mexico, and the small remains of the Toltec tribes still found in New Mexico and Arizona, yet maintain some forms of that Sun and Fire Worship which so clearly fixes their origin in the plains of Mesopotamia. In some sections of the South, the Negroes, and especially those who were natives of Western Africa, still maintain in secret the Fetich or O-be-ah Worship. In considering the nearly one hundred and fifty denominations here enumerated with their widely varying creeds, we find it as true now as in olden times, that "God made man upright, but he sought out many inventions."

CHURCH ARCHITECTURE, PAST AND PRESENT, IN THE UNITED STATES.

In connection with the preceding history of religious denominations in the United States, it seems appropriate that we should touch briefly on the edifices devoted to religious worship. During the Colonial period, and indeed till about 1820, the church edifices making any pretension to architectural beauty, were very few. One or two in Boston, two or three in New York, perhaps two in Philadelphia, one or two beside the Roman Catholic cathedral in Baltimore, one in Charleston, and one in Providence were so far beyond the ordinary churches in style and ornamentation that they were regarded as marvels. In the country, especially in the newer settlements, the church edifice, like the rude dwellings, was of logs, and the seats of hewed slabs, thrust between the logs at one end and sustained at the other by a block or some rough wooden legs. The pulpit was a section of the butt of a tree dug out and sometimes had a hewn slab pinned on it with wooden pins. The floor was oftenest of hard beaten earth, but sometimes of split planks; the roof of bark or thatch and in rare cases of half-hewn logs with clay cement for the chinks. Glass in the windows was a rarity; oftener they were mere wooden shutters, admitting the light when thrown open but admitting, in their season, the wintry breezes also. There were no means of warming the house of God even when it was of better architecture than this, for two reasons: one that at this period stoves and furnaces were not in existence on this side of the Atlantic; the other that it was incompatible with the ideas of the fathers, that people should be allowed to take comfort in the house of God, except in the preaching of the Word. Was not the promise made on this very condition "If thou refrain thy foot from the Sabbath, from doing thine own pleasure on my holy day," &c., and did not that evidently mean that people should not go to a good comfortable church, nicely warmed and ventilated lest it should be a doing of their own pleasure?

They might get asleep if they were so comfortable. In the older settlements, the log cabin churches and school houses had given place to huge barn-like structures, lofty and bare and cold, with great square pews as large as the bed chambers of a modern dwelling, with high partitions, where each family sat by itself like the witnesses in a court, the jury in the jury-box, or, in many cases, like the criminal in his pen, when the judge is about to pronounce sentence on him. The mother or grandmother, in respect for their age and dignity, were allowed to bring their footstoves, little square boxes of perforated tin, having a little iron dish of live coals within them, and with these, while inhaling the charcoal fumes, they were fain to keep their feet from freezing in the winter; but the father, and the sons, and the little children were allowed no such foolish indulgence. After tramping through the snow perhaps for miles, they took their seats in their pews with the temperature anywhere from 32° to zero, and listened as well as they could, while the preacher read his discourse, going on often to seventeenthly or eighteenthly, while the children either played with the house dog, who was a regular attendant upon the church and had his place in the pew, or amused themselves with some of the few objects in which they could find occupation for their mental and physical activity. The number of panes of glass in the great windows were counted over and over again; the calculation was made with an elaboration of the doctrine of chances, worthy of a Babbage or De Morgan, how many weeks, months, or years would elapse before the huge sounding board over the pulpit would fall, and whether it would come down on the minister's head like an extinguisher on a candle, and whether the little tub perched on a post in which he preached would be crushed in the downfall. Occasionally a child of uncommonly quick perception would find some gratification, as the minister announced his "fifteenthly" and "sixteenthly" in computing how much time he would be likely to consume in the heads yet to come; but such an idea as a child's being able to understand what the minister was preaching about, never entered the heads of parent or minister. How should it? The sermons were mostly doctrinal, masterly expositions and logical arguments on the great points of the Calvinistic theology, but it required the matured minds of the sturdy thinkers of those days to comprehend their force and pertinence. The sermons of that time were long; not merely an hour, but often two and three hours in duration. We read of one of the worthies of that time, a shining light in the Massachusetts ministry, that "he was a most godly and *painful* preacher" (don't laugh, reader, painful in those days meant painstaking); and that on one occasion he preached to his people a good three hours, in the morning of a very wintry day; and after they had taken food, he belabored them for their sins and shortcomings, in the afternoon, by the space of four hours more." In the cities, the churches were mostly frame buildings, though a few brick and stone were put up. One or two of the Dutch churches in New York were built of small red and black brick imported from Amsterdam, but very few had any architectural beauty. The Old Brick Church in New York, (Rev. Dr. Spring's) on Park Row, was in its day considered one of the finest churches in the city; if standing now it would hardly be considered a respectable stable (the use to which abandoned churches are generally put in that city). Indeed as late as 1830, forty-two years ago, there were not in the whole country twenty churches which could be considered specimens of graceful architecture. The great fire of 1835, which destroyed the second church edifice which the corporation of Trinity church had erected, as well as several other churches in that part of the city, was incidentally the impulse to great improvements in church architecture. The present Trinity church, "a poem in stone," was erected on the ruins of its predecessor, and Grace church soon after. From that time New York began to be noted for the beauty of its church edifices, many of them erected at enormous cost. Other cities followed the example; some, indeed, had already commenced the erection of beautiful churches. The Gothic styles, Early, Norman, Spanish, Mediæval, and English, were the favorites for many years, and even now have their advocates. Of late years, however, there has been a greater independence of the forms of Ancient and Mediæval art on the part of our architects, and while the styles of the Renaissance, and the ancient classical, are found more frequently than formerly, there is a desire which now and then finds expression in stone, iron, or bricks and mortar, to origin-

ate designs more appropriate to our own time, our climate and the new materials for building which we have. Sometimes this leads to very singular structures, experiments, it would seem upon public taste and endurance. Under the name of Italian Renaissance we have particolored buildings of red and cream-colored stone, or black and white marbles, with a profusion of spires, turrets, and finials, and crowned with a massive dome; in one of the so-called American styles we have broad, squat iron buildings, low, but crowned in the center with a high, towering dome, reminding one of a huge foundry. Another American style studiously plain, and undoubtedly capacious and comfortable for accommodating an audience, seems intended for two towers, whereof one is cut short at the height of the ridge-pole of the church, and the other forgetting its original intent presently shoots up into a lofty spire (usually of wood, but covered with slate) so slender and fragile, that it seems most like a monster darning-needle, set up on end. But these partial failures only serve as waymarks to a more perfect architecture which shall in the end attract the attention of the world by its grace and adaptation to the purposes for which it is intended. City churches are not as yet all models of beauty, but they are improving in these respects very rapidly. In their interior arrangement there has been a great advance. The old-fashioned pew has been banished and the modern slip or cushioned seat, low, easy, readily accessible and attractive has taken its place. The pulpit is not now a perch or eyrie from which the preacher can get a bird's eye view of his congregation, but a simple reader's desk on a raised platform. Pillars are either entirely dispensed with or are so small as not to interfere with the view of the pulpit. Warming and ventilation have been the subject of anxious and protracted thought, and though we can hardly say as yet that either is perfect, yet we are so rapidly approximating to perfection in these particulars, that the present generation will probably be able to realize it. The Sunday School and Bible Classes have come to be such important agencies in religious progress, that special accommodations are required and provided for them, usually in a separate building, but attached to the church. And so strong are the demands for social life in connection with the church, that most of the newer church edifices have their parlors, retiring rooms, ante-rooms, committee rooms, and many of them pastor's studies and church libraries in connection with the church edifices.

The churches in the country come up slowly to these improvements, and those of the Southern and Western States more slowly than those of the Eastern or Middle States; but the progress in all is encouraging. Still great as has been the advance of the last forty years, we are, as a nation, far behind most foreign nations in the number, the splendor, or the costliness of our temples for religious worship.

ESTIMATED PROGRESS

OF THE

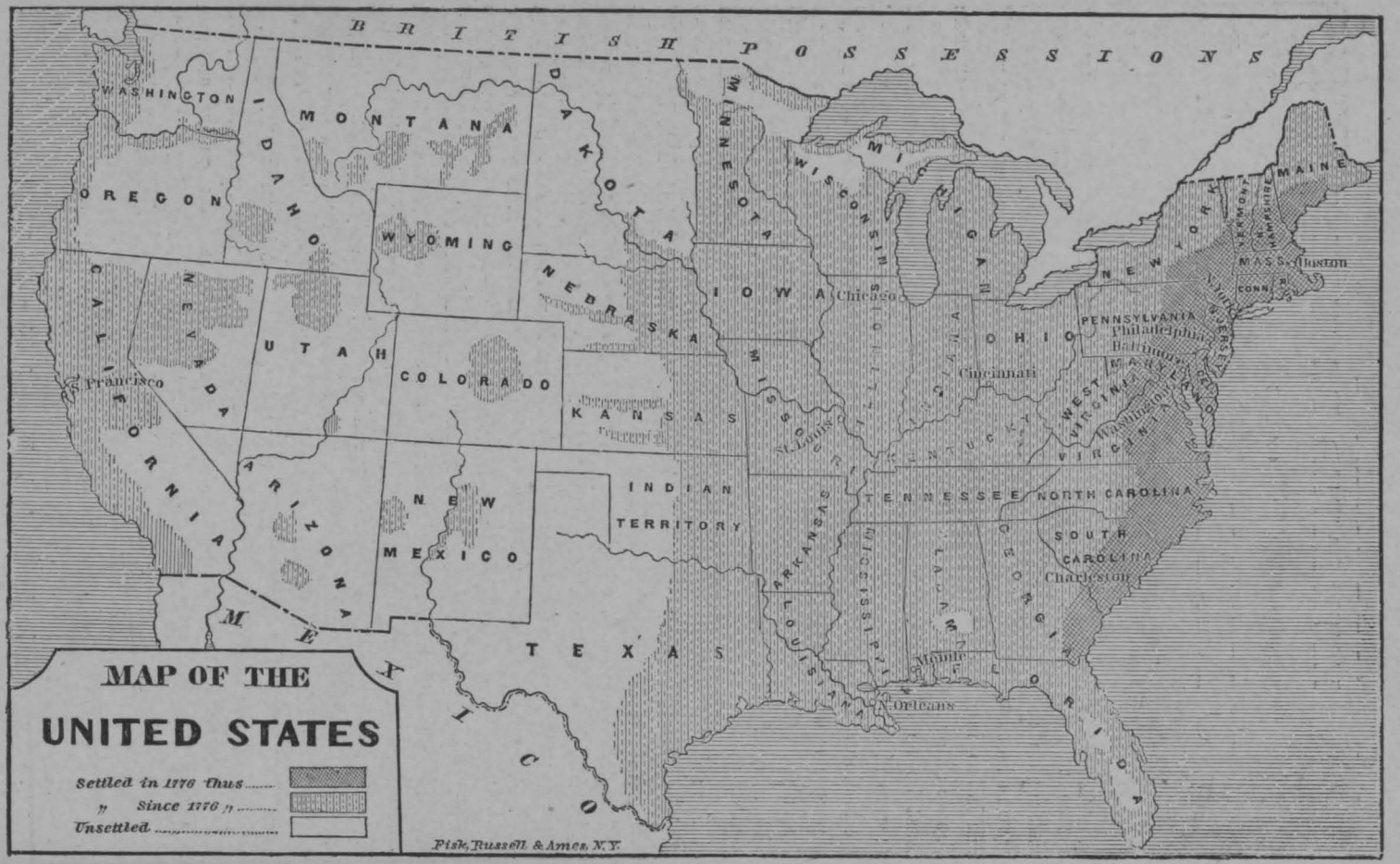
UNITED STATES.

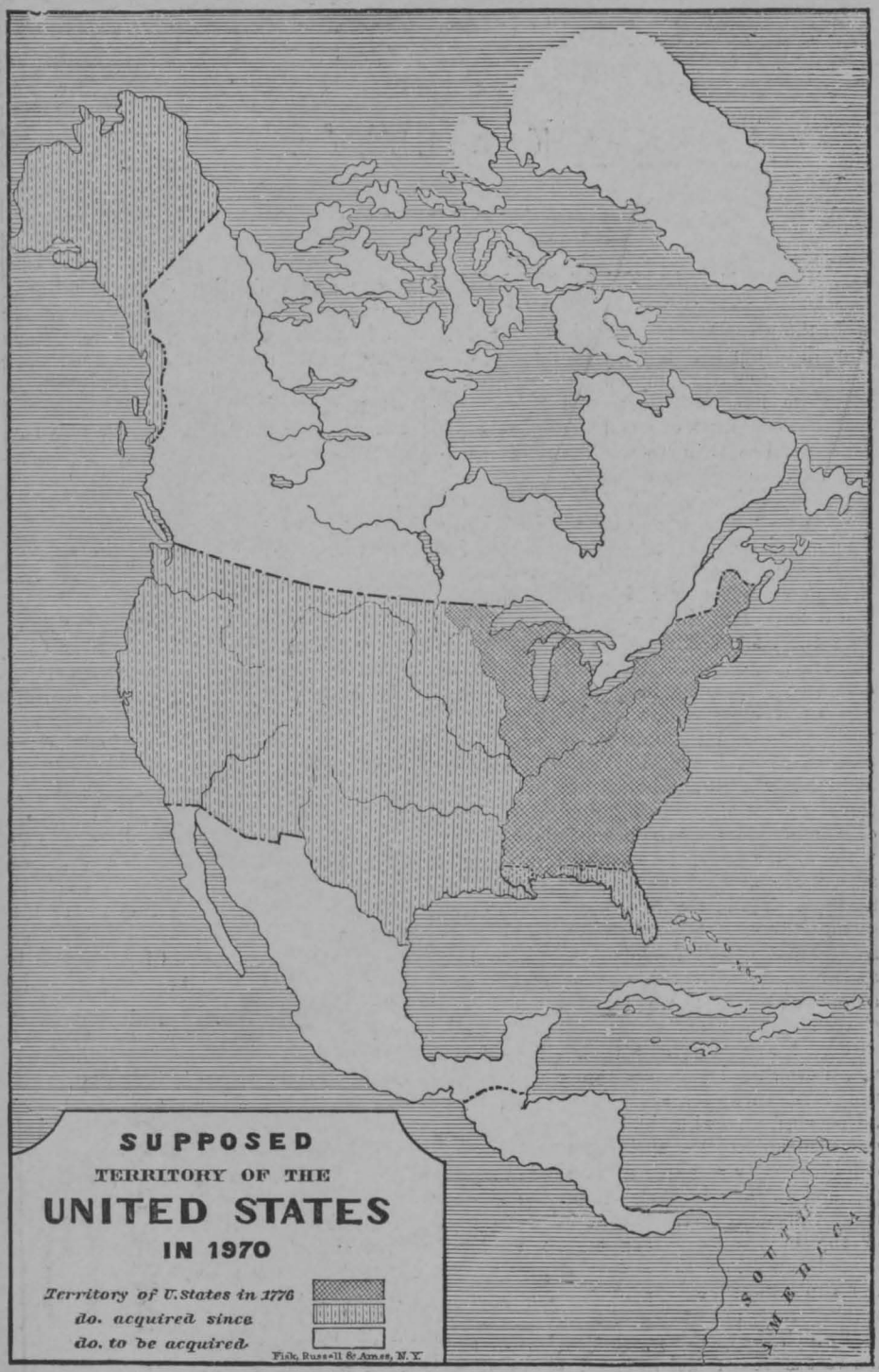
THERE is no pretense that we can tell what the progress of the United States will be for the coming hundred years, but there is no difficulty in making an estimate based on the progress of the past hundred years. We have reduced the percentage of the past by about twenty-five per cent.; whether this is too much or too little, every one is at liberty to judge for themselves. People enter into all kinds of business, risking their success on the future. It must be so of necessity; yet their success is vastly more uncertain than the success of the nation. While business enterprises fail by the tens of thousands, the business and growth of the nation move on with a good degree of certainty. If people would do away with their prejudices, we think by making a little study of the subject, they would conclude that an estimate of the progress can be made with some degree of probability. The subject is of immense importance, not only to the people of this country, but to those of the world; and a careful study of the subject as prepared will greatly assist the most intelligent.

There was no census taken until 1790. It is estimated that there were 3,000,000 people at the time of the Revolution. We estimate the number in 1770 at 2,750,000. On this basis the percentage of increase from 1870 to 1970, would make 100,000,000 more people than the percentage we have adopted. The average percentage of increase for each census from 1790 to 1860 was 34½ per cent. The average of our estimate from 1870 to 1970 is 26½ per cent. We think there is no reasonable doubt that the growth in population, wealth, national power, and influence for the coming hundred years, will exceed what any other nation has accomplished in a thousand years.

In relation to the advance in wealth, we should bear in mind that the facilities for acquiring wealth were very limited one hundred years ago. The great variety and perfection of labor-saving machinery have increased our facilities many fold, so have the facilities for transporting our productions. Then as a country becomes densely populated real estate increases in value immensely.

The vast extent of our country, its advantageous commercial situation about midway between the densely-populated countries of Europe on the one hand, and Asia on the other, are favorable to the idea of our becoming the great leading commercial nation of the world long before the termination of the second century of our national existence. No doubt unfortunate legislation will prevail, to some extent, and political differences and commotions continue as they have in the past, but we still exist, and probably shall for some time to come,—should the nation be divided into two or more governments, the country and resources will continue, and progress will go on, possibly at a less rapid rate.


BRITISH POSSESSIONS
WASHINGTON
OREGON
IDAHO
MONTANA
DAKOTA
MINNESOTA
WISCONSIN
MICHIGAN
WYOMING
NEBRASKA
IOWA
Chicago
NEW YORK
VERMONT
NEW HAMPSHIRE
MAINE
MASS.
Boston
CONN.
R.
PENNSYLVANIA
Philadelphia
Baltimore
NEW JERSEY
DELAWARE
MARYLAND
OHIO
Cincinnati
WEST VIRGINIA
VIRGINIA
Washington
CALIFORNIA
San Francisco
NEVADA
UTAH
COLORADO
KANSAS
Leavenworth
St. Louis
MISSOURI
KENTUCKY
INDIAN TERRITORY
TENNESSEE
NORTH CAROLINA
SOUTH CAROLINA
Charleston
ARIZONA
NEW MEXICO
ARKANSAS
MISSISSIPPI
LOUISIANA
GEORGIA
Mobile
New Orleans
FLORIDA
TEXAS
MEXICO
MAP OF THE
UNITED STATES
Settled in 1776 thus
" Since 1776 "
Unsettled
Fisk, Russell & Ames, N.Y.


SUPPOSED
TERRITORY OF THE
UNITED STATES
IN 1970
Territory of U. States in 1776
do. acquired since
do. to be acquired
Fisk, Russell & Ames, N.Y.

MARVELS, &c.

ESTIMATED POPULATION OF THE UNITED STATES FOR TEN DECADES TO COME.

In the preceding pages we have traced the growth of our nation from its infancy, from the time, now one hundred years ago, when, after the losses of the second French war, and the general poverty and depression which followed, less than two millions of people occupied the territory of the present Atlantic States and half a dozen years later proclaimed themselves "the people of the United States, free and independent." We have followed their growth, step by step, in population, till they now number over 38 millions of free and independent citizens, surpassing in numbers the United Kingdom of Great Britain and Ireland, of which they were then feeble colonies; surpassing in population France, which then stooped down from its powerful position, to lend them a helping hand; surpassing Italy, Spain, Prussia, and Austria, and inferior in the number of their people only to their great ally, Russia, among the nations of Christendom. We have followed, too, with ever-increasing interest, their advance in agriculture as they have hewed out homes for themselves in the wilderness, subdued the gigantic forests, reduced the vast prairies to fruitful fields, and made the desert to bud and blossom with the waving grains and abundant flowers; we have watched the growth of their commerce, till their sails whitened every sea, and their strong keels vexed even the icy waters that gather round the Northern and the Southern poles. We have seen, from the humblest beginnings, those great manufactories spring up, which give employment to so many myriads of our people, and include in their production almost every thing which the human hand can use, or the human heart can crave; we have looked down into those dark depths which the sun's light never penetrates, and have witnessed the unearthing of the hidden treasures which the earth's green mantle conceals; the vast stores of fuel reserved for the needs of our own and other days; the immense quantities of iron ores which now yield annually almost two thousand million tuns of that valuable metal; the copper, the lead, the zinc, the quicksilver, the silver, the gold, and the platinum, whose abundance has changed the value of money, the world over, within the past twenty years; the quarries, from whose depths come the walls of our city palaces and many of our rural homes. We have watched the great foundries, machine shops, and rolling mills, where ponderous machines, huge locomotive and stationary engines, iron bridges and buildings, and the rails for the railway, the wheels for its cars, and the machinery for its construction and repair, are wrought out, and have compared these with the little roadside blacksmiths' shops of our fathers.

We have followed the methods of travel and transportation, from the days of the slow-moving ox-cart, and the venerable and aristocratic "one-horse-shay," to the mail wagon, the canal packet, the two or four-horse stage coach, the railway train, and the steamship, until we have seen the long trains leaving our Atlantic cities and without change landing their passengers a week later at Sacramento, there to connect with the steamships which plough across the great Pacific for China or Japan, as the returning passengers would do at New York with the European steamers.

Nor has the advance in literature, science, art or religion been less remarkable; our authors, our scholars, our physicists, our painters, sculptors and architects, our musicians and our preachers, are the peers of those of any nation of the world, and the principles of Christianity and of a pure morality are taught and practiced as carefully as among any people on the globe.

A nation whose growth, during the first hundred years of its history, has been so vigorous and rapid, and its progress so unprecedented in all that constitutes national pros-

perity, can not but have before it a grand and glorious future; it is as yet but in the freshness of its youth, for nations count their age not by years like individuals, but by decades and centuries.

Let us then turn our eyes to the future of this people and endeavor, calmly and without extravagance, to predict their future for a hundred years to come. The historian, reasoning of things to come and predicating the events of the future upon the facts of the past, is a historian still, and not a prophet or mere theorist in the descriptions of the things which shall be, when he bases them upon the things which are. It will be our aim to deduce our history of the future strictly from the facts of the past.

Let us then consider first the POPULATION of the Country for the next hundred years. We are accustomed to talk of this in a loose way, and speak often of the hundred millions of people who will find their homes in the United States at the beginning of the twentieth century, and the guess is not so far out of the way; but very few have ever attempted to go beyond A. D. 1900 in their estimates of our future population, and even of those who have made vague estimates of the number of inhabitants at that time, not more than one or two have carefully considered all the influences which have a bearing on the true solution of the problem.

The ratio of increase in each decade since 1790, when our first national census was taken, has been: from 1790 to 1800, 35.02 per cent.; from 1800 to 1810, 36.45 per cent.; from 1810 to 1820, 33.13 per cent.; from 1820 to 1830, 33.49 per cent.; from 1830 to 1840, 32.67 per cent.; from 1840 to 1850, 38.57 per cent.; from 1850 to 1860, 37.75 per cent., or an average ratio for each decade of the past seventy years of 34.58 per cent. It is noteworthy that the lowest per centage was between 1830 and 1840, before the tide of immigration had fairly set in, and that the ratio of increase of the last two decades has been but little more than that of the first two.

Will this ratio of increase continue in the future? The question is one of great importance, and there are many considerations to be weighed before a correct decision can be made.

In favor of its continuance or increase may be urged, 1st, the constantly-increasing rate of immigration to the United States. The average immigration for the ten years 1855–1865 was but 165,000 a year; in 1866 the number of immigrants was 318,554; in 1867, 298,358; in 1868, 297,215; in 1869, 352,569. If we take account of the immigrants who came here between 1820 and 1860, we find that the annual arrivals averaged only 126,000. Of those who emigrated hither up to 1865, nearly three-fifths were from the British Isles, and almost one-half from Ireland. The emigration from Germany has been gradually increasing for twenty-five years past, and in the year ending June 30, 1869, exceeded, as it will be certain to do hereafter, that from the British Isles; the number of Germans arriving being 132,537, or nearly two-fifths; English and Scotch, 60,286; Irish, 64,938. The Swedes and Norwegians exceeded 45,000, and the emigration from these countries is rapidly and largely on the increase. But the immigration to the Pacific coast from China, Japan, India, and the Malay countries, is destined to exceed vastly that from Europe. Amounting to about 13,000 in the year ending June 30, 1869, it is likely to double in the year ending June 30, 1870, and in the ten years 1870–1880 will hardly fall below 500,000.

The emigration of two millions of people from any one of the countries of Europe in ten years would so diminish the number of producers as to force up the price of wages to a point which would check and possibly forbid emigration, and therefore we can hardly expect the European emigration to exceed two or three millions (it has never yet exceeded two millions) within ten years' time. But the emigration from China, Japan, India and Malaysia is controlled by no such law. The population of these countries is, in round numbers: China, 400 millions; Japan, 50 millions; India and Farther India, 200 millions, and Malaysia at least 100 millions more—making, in all, 750 millions. Of these, more than two-thirds are very poor, though at the same time very industrious; and under the arrangements now making or which will soon be made, the immigration of fifty millions of them to our shores within the next 20 years, would only relieve moderately the poverty of those who remain, while there will be ample opportunity for those who come to obtain a better living than they could possibly have obtained in those countries.

2. The vast extent of land as yet unoccupied is favorable to the rapid natural increase

of the population. In a new country, the births are more numerous and the children more vigorous than in older and more densely inhabited countries, and in general the progeny of the poor and laboring classes are more numerous than those of the rich. In a newly settled country, too, marriage usually takes place earlier, (where the disparity in the numbers of the two sexes is not too great,) and is usually more prolific.

3. There is a strong probability, almost a certainty, of the annexation of British Columbia, Canada, and probably also a part or the whole of Mexico, Central America, and the most important islands of the West Indies, before the close of the present century. The aggregate population of these countries would be fifteen or sixteen millions—an important addition at present, though a very trifling one if deferred for a hundred years. But these additions are not of moment only for the additions they will make directly to our population, but for the vast tracts of uninhabited or sparsely-inhabited territory they will add to us; much of it a rich and highly productive soil yet to be redeemed from its original condition. Much of this territory, and particularly Mexico, Central America, and British Columbia, is rich in both mineral and vegetable wealth. Gold, silver, quicksilver, iron, copper, zinc, and probably tin, abound in almost all parts of it. There are vast deposits of coal, and quarries of superior building stone. The immense forests of British Columbia and of some portions of Mexico will furnish timber, lumber and fuel for ages. These considerations all favor a rapid growth of population, and sustain the position that the ratio of growth will be an increasing rather than a diminishing one.

4. The great and constantly-increasing facilities of travel throughout all portions of the country tend to increase the ratio of growth of population. While the American Anglo-Saxons, those of our citizens whose homes have been on this continent for three or more generations, are inclined to congregate in the large cities, and the Celtic races to a very considerable extent manifest the same tendency, all the Teutonic and Scandinavian immigrants are full of the desire to buy land—to have a home of their own. The Japanese and most of the Chinese have the same disposition. Whatever means of transportation afford an easy and speedy transit to the new lands of the interior will greatly facilitate the growth of the population.

5. There is no probability of any widely-desolating war in this country, certainly for the next fifty years. State sovereignty and Slavery were both settled forever by our late war, and there is no other conceivable cause for another civil war. That one is likely to be fomented on religious questions, no one who has studied the future of the country can believe for a moment. A war with England or France might be possible, but hardly probable, and should it occur, though it might occasion loss of property from the blockading or possible bombardment of some of our ports, it could hardly make much difference with our population, and in the case of England would end in our possessing the entire territory now subject to that power on this continent. No other power could maintain war with us to any extent which would injure us. The loss of life due to a great war makes itself felt under ordinary circumstances for two or three decades, in the census; and where there is no immigration to make good the loss, materially reduces the ratio of increase. In France the great wars of the first fifteen years of the present century, and the drain which they made on the youth of the nation, being counterbalanced by no immigration, has hardly yet ceased to show its effect on the census; the increase of population being only from 3 to 5 per cent. in ten years, or only about one-tenth of ours. There can be no question that the late war has slightly diminished our ratio of increase from 1860 to 1870, but owing to the great influx by immigration consequent upon our improved national condition, this diminution will be comparatively slight. The improbability of any desolating war is an important item in the rapidity of our national growth in the future, for war, aside from its immediate destructive effect, deranges commerce, injures and often revolutionizes manufactures, and to some extent paralyzes all the ordinary industries.

We can not predict with any certainty that there will be no visitations of sweeping epidemics; these are always liable to occur; but the laws of health and the control of epidemics are so much better understood now than formerly, that we may safely conclude that if they occur they will not make such havoc with our population as has been made in former times and in other countries; and there is, besides, a law of nature in regard to epidemics, which does not exist in regard to other losses of population. The number of

deaths, in a well regulated and intelligent community, during the prevalence of an epidemic, (cholera, for instance,) is not materially greater than in other years, the epidemic apparently swallowing up most other disorders, and the number of fatal cases from them being nearly as much less as those from the cholera is greater. There is, too, a law of compensation, in the marked increase in the number of births in an epidemic year. There is, it is true, a loss; for those who die are mostly adults, and those who make up their place and number are infants; but the aggregate number of births and deaths bear about the usual proportion to each other. But, on the other hand, there are reasons why the ratio should be a decreasing or stationary one. Among these are: the aggregation of wealth in comparatively few hands, leaving the middle class small in numbers, and the dependent or laboring class large, and probably eventually very poor. This would tend to diminish the ratio of increase in the population, since, though the births may be proportionately more numerous than now, the number of deaths at one year old and under will also be greater. The monopolizing of the land in large estates, to which there is a strong tendency, will have a somewhat similar effect, though it will not manifest itself quite so soon. Again, as the population becomes more dense, the mortality increases from a variety of causes, such as vicious habits, crime, hereditary tainting of the blood, epidemics, foul air, starvation or defective nutrition, &c. &c. The laws of health are now so much better understood than formerly, that these causes do not exert so powerful an influence as they would have done, a hundred or even fifty years ago; but they must to some extent diminish the ratio of increase of the population. The intense excitability and tendency to overwork of the people of the United States, partly the effect of temperament and partly of climate, shortens the duration of human life and hence diminishes the growth of the population. The excessive use of alcoholic liquors, tobacco and opium, and licentious indulgence, exert a powerful influence in the same direction.

We have considered with great care these various influences and their effect upon the increase of the population, and in order to be on the safe side and underestimate rather than overestimate the growth of the nation, have made our tables of the population of each decade of the next hundred years, on a constantly though slowly decreasing ratio. We have in these estimates made no account of any accessions to our territory or to our population by annexation, for the obvious reason that it is impossible to say when such accessions would occur, and equally impossible to predict whether they would result, for some time after their annexation, in an increase or diminution of the population. The ratio of increase from 1850 to 1860 was, as we have already said, 37.75 per cent. But for the civil war, the ratio between 1860 and 1870 must have been considerably greater than this, in consequence of the great increase of immigration; but this disturbing cause must be taken into the account; and we believe we are making a sufficient allowance for it in reducing the ratio to 23.4 per cent.

POPULATION FOR 100 YEARS TO COME, ESTIMATED FROM THE INCREASE OF THE PAST 100 YEARS, WITH A GRADUAL DECREASE FOR EACH DECADE.

Population in 1870,	38,558,371
The ratio from 1870 to 1880 we have put at 33 per cent., though we believe it will exceed that. This would give the population in 1880, in round numbers,	51,282,633
Still diminishing the ratio of increase, we make it from 1880 to 1890, 32 per cent., which would make the population in 1890,	67,693,075
From 1890 to 1900 our ratio is 31 per cent., making the population in 1900,	88,677,928
From 1900 to 1910 we have assumed 29 per cent. as the ratio. This gives the population in 1910,	114,394,527
For the decade 1910 to 1920, the ratio is further decreased to 28 per cent., giving a population in 1920, of	146,424,994
From 1920 to 1930, the ratio is 27 per cent., and the population of the census of 1930 would be,	185,959,741
From 1930 to 1940, the proposed ratio is 25 per cent., making the population of 1940,	232,449,676

From 1940 to 1950, we make a reduction of two per cent. in the ratio, giving it at 23 per cent., by which rate of increase the population of 1950 would be, ...	285,913,101
From 1950 to 1960, a further reduction of the ratio to 20 per cent., gives a population in 1960, of	343,095,721
From 1960 to 1970, the increase is estimated on a ratio of 17 per cent., giving a population in 1970, of	401,421,993

Doubtless the public will be astonished at the result of our figures; they would be equally so should we cast the interest at compound on a thousand dollars for one hundred years. It may be said that emigration, a great source of increase, will not continue in the same ratio. The average percentage of increase for the four decades, from 1830 to 1870, is 33 per cent. per decade. The average for the four last decades, estimated from 1930 to 1970, is $21\frac{1}{4}$ per cent. per decade, allowing $11\frac{3}{4}$ per cent. for decrease in emigration from the average of 33 per cent. from 1830 to 1870.

Vast as this aggregate seems, being a little more than one-third the largest estimate of the present population of the globe, it is in all probability below the actual number of the inhabitants of the government of North America in 1970. It should be remembered that only small portions of the earth have a population approaching in density what the land is able to sustain, and those portions are often among the most sterile. Taking the whole of North America as the probable extent of our country in 1970, and this estimate would give but $70\frac{44}{100}$ inhabitants to a square mile, or if we reject the uninhabitable portion, which it would be excessively liberal to estimate at one-half, we should have a maximum density of $140\frac{88}{100}$ to the square mile. In 1855, Belgium had a population of 397 persons to the square mile, although its soil is generally sterile; and Saxony, England and Wales, Netherlands, Sardinia, Wurtemburg, and Ireland, each exceeded 200 persons to the square mile. Indeed, with the exception of Russia, Sweden, Norway, and Denmark, nearly all the States of Europe have a more dense population than this would be. With a more intelligent and skillful culture of the arable portions of the earth's surface, and a careful husbanding of much that is now recklessly wasted, there is no reason why six or even tenfold the present population of the globe might not be supported in far greater comfort than is at present the lot of many millions of its people; and the progress in agriculture, manufactures and the arts in the next hundred years will be such as to make a dense population of the globe possible without suffering.

It is a much more difficult matter to predict the future growth of cities than of a whole country; for there are so many things to disturb the uniformity of municipal growth, things which can not be foreseen, but which exert a controlling influence for a score or more of years, and where there is a strong rivalry between two cities, a simple and apparently insignificant incident may turn the scale toward one or the other, and its rival fall into decadence. In 1860, Chicago and St. Louis were bitter rivals, and St. Louis had decidedly the advantage in population, location, and capital. The three years which followed changed this position of things. St. Louis, from its proximity to the seat of war, and from the paralyzing influence of the war upon its industries, fell behind in the race, and its energetic rival seized the opportunity to lead in those lines of traffic in which St. Louis had been preëminent, and to secure those connections with the Pacific Railway and the Northwest, which gave it the trade and travel of an almost illimitable region. When, in 1864, St. Louis awaked to the consideration of her future, she found how greatly she had retrograded, and though she has, since that time, made desperate efforts to regain her prestige, and although she is unquestionably destined to become a great city, yet it will be long before she can retrieve those three lost years, and longer still before she can lead the way for the City of the Lakes to follow. Other examples of these epochs in the life of a city will occur to all. It is necessary, too, in predicting the future growth of a large city, to take into the account as really a part of its growth, the population of the region within a radius of from six to fifteen miles of its central point; for although this may not be technically within its corporate limits, it is, in all large cities, really a part of its actual inhabitants. This is particularly the case when, as in the case of New York or Boston originally, the actual corporate limits of the city are circumscribed by natural boundaries. It is probable that the population now inhabiting Manhattan Island is very little more than it was in 1860. There has been growth certainly in the upper wards, but not to the same extent as the diminution in the lower wards, where great

hives of population have been transformed into broad streets occupied by great warehouses, and where now there is hardly a family where once were hundreds. But the constant influx of population has overflowed into Brooklyn, East New York, Jamaica, &c., Staten Island, Bergen, Jersey City, Hudson, Hoboken, Newark, Paterson, Orange, Bloomfield, Montclair, and even as far as Plainfield, N. J., and toward the north has filled up the lower portion of Westchester county, till it is for many miles a continuous and dense village population. No estimate of the population which failed to take these suburbs of the city into the account would do justice to its advance. Yet this greatly complicates the question of future growth. With the present facilities for travel, the merchant or mechanic doing business in New York can reach his shop, office or store in an hour after leaving his home fifteen or eighteen miles away, or in from thirty to forty-five minutes if he lives four, five, or six miles away. Next year, with the improved methods of transit he may be able to come from these distances in half the time he now spends, and places twenty-five or thirty miles distant by the same improvements will be just as desirable for residences to those whose business does not require them to be too early at their work. Twenty years hence there may be such rapid means of transit that a man sixty miles distant can reach his place of business in fifty or sixty minutes. Must we then include in the city the population for a radius of sixty miles? Other things being equal, that city will be the largest in which concentrate the largest number of trunk lines of railways, ocean or lake steamers, canals, &c., and which by its abundant capital is able to accumulate the goods from all quarters which are requisite to supply the demands of the merchants, manufacturers, miners and mechanics who flock thither, on the best terms. But to retain this preëminence requires a constant struggle. With the increasing facilities and cheapness of travel, the merchant who has bought his supply of goods at Omaha will come to Chicago, if he can do enough better to pay him for the journey, or if he has bought at Chicago, he will come to New York; and if he finds that Liverpool or London or Paris afford goods materially cheaper than New York, and he wants enough to pay for the additional time or trouble, he will cross the ocean. At this very time, lines of railroad are nearing completion, the freight cars of which will lay down the flour and grain of the West, the coal and petroleum of the Central States, and the fruits and vegetables of the Northern and North-western tier of States at Boston, at about the same price, without breaking bulk, at which they are now brought to New York; and not only can these articles be shipped to Europe from that city at less cost than from New York, but goods can be brought from Europe in return sooner and cheaper than to New York. Boston has not all or even one-half the advantages for business which New York has, and hence can not probably compete very successfully with her; but it is in these constant struggles for the supremacy that the danger of decadence in our great cities lies. Yet with all these drawbacks to any very minute accuracy in our estimates, we have felt that it was necessary to prepare a tabular statement of the probable growth of our leading cities in each decade of the next hundred years. In this, acting upon the principle we have laid down, we give but one city where there are several so contiguous as to be really but suburbs of it, and include them in our estimates. We have been mindful also of the fact that a city will cease to grow when its distances become too great for convenience, and its cost of rents and living too great for its citizens to be able to make a profit on their business.

In the following tables we give the population of nearly one hundred cities, according to the census of the United States for 1850 and 1860, with the rates of increase; also the estimated population for one hundred years, beginning with 1870, with the average per centage of increase for the ten decades. It will be observed that the per centage in nearly all cases, except a few of the new cities in the West, is much below our estimate for the whole country, while the tendency of population is to concentrate in cities. The reason of this must be obvious to the intelligent reader. Throughout the Mississippi Valley and in the new States, there are hundreds of towns and villages, now too small to be included in this table, which within the coming hundred years will grow up into populous and flourishing cities. The routes of our great transcontinental railroads, the Union, Northern, Southern, and Kansas Pacific, will also be studded with cities where now there are only broad prairies. These estimates, at best, are but an approximation to the truth, but they will furnish some data for enabling us to comprehend the America of the future.

THE GROWTH OF AMERICAN CITIES FROM 1850 TO 1970.

Name and State of City.	Population in 1850.	Rates of increase from 1850 to 1860	Population in 1860.	Average per centage of increase per each decade from 1870 to 1970.	Population in 1870.	Population in 1970.
Albany, N.Y., including East Albany, Greenbush, &c., after 1860	50,763	22.86	62,367	19.64	78,000	465,000
Auburn, N.Y.	9,548	15.06	10,986	18.00	17,000	83,600
Alton, Ill.	3,585	104.67	7,388	30.00	10,000	135,600
Atlanta, Ga.			9,554	25.00	16,000	135,060
Baltimore, Md , and suburbs after 1860	169,054	25.65	212,418	19.77	275,000	1,625,000
Buffalo, N.Y., with suburbs after 1860	42,261	91 97	81,129	24.97	125,000	1,160,000
Boston, Mass., including Dorchester, Cambridge, &c., after 1860	136,881	29.90	177,812	21.67	250,000	1,720,000
Bangor, Me.	14,432	13.68	16,407	14.06	18,300	70,000
Burlington, Vt.	6,110	26.24	7,713	19.82	9,600	60,000
Burlington, Iowa	4,082	64.28	6,706	49.17	12,500	525,000
Charleston, S. C.	42,985	loss 5.60	40,578	15.00	49,000	196,600
Cincinnati, O , including Covington, Newport, &c., after 1860	115,436	39.51	161,044	26.20	250,000	2,600,000
Columbus, O.	17,882	3.76	18,554	15.00	31,000	125,200
Cleveland, O , with suburbs after 1860	17,034	154.88	43,417	22.00	97,000	583,100
Concord, N. H.	8,576	35.00	11,896	12.00	12,000	36,900
Chicago, Ill., with suburbs after 1860	29,963	204.65	109,260	31.33	300,000	3,700,000
Columbus, Ga.	5,942	61.91	9,621	23.02	12,000	90,000
Cairo, Ill			2,188	25.00	8,000	73,750
Carson City, Nevada, and suburbs.			714	48.81	5,000	220,000
Detroit, Mich., and suburbs after 1860	21,019	117.03	45,619	24.00	80,000	682,600
Dayton, O., and suburbs since 1860	10,970	83 05	20,081	25.00	31,000	266,250
Davenport, Iowa	1,848	509.68	11,267	26.00	20,000	199,000
Dubuque, Iowa	3,108	318.27	12,926	26.00	18,000	180,180
Erie, Pa.	5,858	61.40	9,419	22.00	20,000	141,510
Fall River, Mass.	11,524	21.71	14,026	20 00	26,500	162,700
Fort Wayne, Ind.	4,282	142 59	10,388	21.12	18,000	125,000
Galveston, Texas	4,177	74 93	7,307	24.00	14,000	125,600
Galena, Ill.	6,004	36.45	8,193	25 02	11,000	95,000
Golden City, Colorado			1,014	73.03	5,000	93,000
Hartford, Ct., and suburbs after 1860	13,555	115.08	29,154	19 77	43,000	260,000
Harrisburg, Pa., and suburbs after 1860	7,834	71.11	13,405	22.63	23,000	165,000
Indianapolis, Ind., and suburbs after 1860	8,034	131.65	18,611	24.00	49,000	344,700
Iowa City, Iowa	1,582	229 58	5,214	27.84	8,500	85,000
Keokuk, Iowa	2,478	228.32	8,136	26 00	13,000	127,000
Knoxville, Tenn.	3,690	62.80	6,000	20.00	9,000	53,000
Lowell, Mass., and suburbs after 1860	33,383	10.31	36,827	10.99	41,000	114,000
Louisville, Ky., and New Albany, Jeffersonville, &c., after 1860	43,194	57.50	68,033	18.00	100,000	590,000
Lynn, Mass.,	14,257	33 85	19,083	18.00	28,000	145,200
Lancaster, Pa.	12,369	42 31	17,603	20.00	20,000	122,400
Lafayette, Ind.	6,129	67.25	9,387	22.91	13,000	100,000
Lansing, Mich.	1,229	150.12	3,074	26.53	8,000	80,000
Manchester, N. H.	13,932	44.33	20,109	20.00	23,000	139,200
Mobile, Ala., and suburbs	20,515	42.61	29,258	19.44	35,000	205,000
Milwaukee, Wis.	20,061	125.54	45,246	22 94	75,000	580,000
Memphis, Tenn.	8,839	155.94	22,623	25.00	40,000	353,750
Madison, Ind.	8,012	1.47	9,068	23 00	11,000	98,400
Madison, Wis.	3,400		6,611	25.00	13,000	109,100

Name and State of City.	Population in 1850.	Rates of increase from 1850 to 1860.	Population in 1860.	Average per centage of increase per each decade from 1870 to 1970.	Population in 1870.	Population in 1970.
Montreal, Canada	57,715	56.22	90,323	17.65	130,000	660,000
New Haven, Ct., and suburbs after 1860	20,345	93.00	39,267	20 05	60,000	370,000
Norfolk, Va., with Portsmouth and Gosport after 1860	14,326	8 96	15,611	17.68	30,000	152,000
New York City, with adjacent cities within 20 miles radius from City Hall, after 1860	515,547	56.27	805,651	25.61	1,900,000	18,500,000
Nashville, Tenn., and suburbs after 1860	10,478	62.13	13 988	15 00	26,000	161,200
New Orleans, La., with Algiers, &c., after 1860	116,375	44.94	168,675	12.96	190,000	625,000
Nashua, N. H.	5,820	72.93	10,035	20.00	10,000	61,300
Newburyport, Mass.	9,572	40 00	13,401	19.00	13 000	71,900
Newburg, N. Y.	11,415	33.12	15,196	18.09	20,000	105,000
New Bedford, Mass.	16,448	36.60	22,300	15.00	21,000	81,650
Norwich, Conn.	10,265	49.00	14,048	21 42	18,000	125,000
Omaha, Neb.			1,883	28.00	16,000	168,960
Oswego, N.Y.	12,205	33 60	16,816	20.22	22,000	125,000
Ottawa, Dominion of Canada	7,760	89.00	14,669	18 47	21,000	120,000
Portland, Me., and suburbs	20,815	26.54	26,341	22.18	33,000	225,000
Providence, R. I., and suburbs after 1860	41,513	22.04	50,666	18.67	60,000	340,000
Philadelphia, City and County, and Camden after 1860	340,045	65.43	562,529	30.40	950,000	13,000,000
Pittsburgh, Pa., and Alleghany City after 1860	46,601	5.61	77,919	20.00	139,000	859,200
Petersburg, Va.	14,010	30.38	18,266	20 00	14,000	84,000
Poughkeepsie, N. Y.	13,944	5.61	14,726	21 62	18,000	88,000
Peoria, Ill.	5,095	175 66	14,045	21.29	24,000	150,000
Quincy, Ill.	6,902	97.51	13,632	18.00	24,000	117,000
Quebec, Dominion of Canada	42,052	21.56	51,109	15.12	60,000	245,000
Rochester, N.Y., and suburbs since 1860	36,403	32 42	48,204	19 60	62,000	360,000
Richmond, Va., and suburbs after 1860	27,570	37.50	37,980	20.00	51,000	300,600
Reading, Pa.	15,743	47.12	23,161	16.39	32,000	132,000
Raleigh, N. C.	4,518	5.80	4,780	15.00	10,000	37,900
Salem, Mass.	20,264	9.81	22,252	14.00	24,000	85,360
Springfield, Mass.	11,766	29.18	15,199	20 00	27,000	165,600
Syracuse, N.Y.	22 271	26.26	28,119	20.00	43,000	265,200
Savannah, Ga.	15,312	45.59	22,292	20.79	20,000	150,000
St. Louis, Mo., and suburbs after 1860	77,860	106.49	160,773	25.00	313,000	3,398,350
San Francisco, and suburbs after 1860	34,776	63.34	56,802	24 00	158,000	1,356,200
Troy, N.Y., and West Troy after 1860	28,785	36.29	39,232	17.07	50,000	270,000
Taunton, Mass.	10,441	47.27	15,376	19 37	20,000	115,000
Utica, N.Y.	17,565	28.26	22,529	17.21	28,000	137,000
Vicksburg, Miss.	3,678	24.82	4,591	30.14	7,000	81,000
Washington, D. C., with Alexandria and Georgetown	40,001	52.78	61,122	less	105.000	50,000
Wilmington, N. C.	7,264	31.50	9,552	22.85	9,500	78,000
Wilmington, Del.	13,979	53.36	21,508	18.00	28,000	148,000
Worcester, Mass.	17,049	46.40	24,930	20.00	41,000	248,400
Wheeling, West Virginia	11,435	23.16	14,083	19.86	12,000	104,000

It will be seen that we have given to New York and Philadelphia, with their suburbs of twenty miles radius, a much larger population in 1970 than any city on the globe now has; but when we consider that the territory allowed gives them 1,600 square miles, and that this provides for an average density of only from 7,000 to 12,000 persons per square mile, while portions of New York now have over 200,000 persons to the square mile, and parts of London over 400,000 to the square mile, the supposed population of these cities and their suburbs is seen not to be so very much out of the way. The Metropolitan District of London, which is now estimated as containing 3,600,000 inhabitants, has in the largest estimate only 116 square miles, only about one-thirteenth of the proposed territory to which we have assigned this seemingly large population, while its present number of inhabitants is one-fifth of that which we have supposed New York to possess in 1970. We have in all probability underrated the population of the Mississippi Valley a hundred years hence, though we have provided for some very large cities there; but one of the most intelligent and thoughtful of the scientific men of that valley, J. W. Foster, LL. D., of Chicago, author of "The Mississippi Valley, its Physical Geography, &c." regards it as absolutely certain that that valley will have over fifty millions of inhabitants before A. D. 1900, and if it has that number within thirty years, its natural increase and the vast flood of immigration pouring into it from East and West will inevitably give it three hundred millions by A. D. 1970. Of this great population by far the larger part will undoubtedly be concentrated in its cities and large towns. There will be enough, outside of these, to till the lands successfully, doubtless; for agriculture will be compelled to coax from the reluctant earth its utmost gifts in the way of crops, to feed such multitudes as will then call that fair valley their home; manufactures and mining will undoubtedly keep considerable numbers away from the great towns, but as it has always been in the past so it is always likely to be; the great cities have irresistible attractions for the masses, and in them they will congregate, often to their destruction.

There will be, of course, a great multiplication of the employments and avocations by which it will be possible to earn a livelihood, and very probably also a corresponding increase of the pauper and dangerous classes. When, as must by that time be the case, population begins to press close on the heels of production, so that there is a necessity for some measures to repress its too rapid increase, the number of the dependent classes will greatly enlarge, especially in the cities, and thousands will lie down at night with no knowledge of the source from which they are to be provided with bread for the morrow.

CHAPTER II.

GOVERNMENT AND LEGISLATION OF THE FUTURE.

What will be the form of the National Government a hundred years hence? The question is a difficult one to answer, and one which suggests perils of a serious character to free institutions. No republic of the past has retained its republican government long, after it had acquired great wealth, an extended territory, and a large population; while small republics have maintained themselves for ages, in part perhaps by virtue of their insignificance. A vast territory, made up of States of small or moderate size, of differing conditions of climate, soil, industries, origin and interests, is likely to lose its cohesiveness and fall to pieces by a natural process of segregation. History is full of examples of this. The great Babylonian monarchy; the Medo-Persian kingdom, with its hundred and twenty-seven provinces; the empire of Alexander, which did not survive its founder, the Roman empire, and in later times, the vast domain of Genghiz-Khan, and the still greater one of Timur-lane, the empire of China, the Saracen empire of the West, the great German empire, and the hastily-organized and as speedily disintegrated imperial domain of the First Napoleon, are all instances of this unwieldiness of a great State.

It may be said that these were not republics, but monarchies controlled and bound together by a single will. This is true; and it may be added that there were in none of them the capacity for free government, the intelligence, or the free institutions which are our strongest safeguards.

It would seem that the strength of our government and its stability could be put to no severer test than that which it has so triumphantly sustained in the late civil war.

There were arrayed not only the differing interests of two sections of the country, settled at first by different classes, and whose climate, soil and productions were unlike; the one composed of an active, industrious, and homogeneous population, the other having mainly but two classes, the aristocratic and the servile, and the latter without hope of advancement or of liberation from slavery. The war was bitter, and at times the result seemed doubtful, but in the end the nation and its government were stronger than before. The destruction of slavery, and the strong bonds, moral, social, political, and physical, which bind all the different sections of the country together, forbid for fifty years to come any serious probability of another civil war. If it comes, soon or late, it must be from one or other of the following causes: the introduction in vast numbers of an inferior laboring class, such as the Chinese or Hindoos, and their discontent with the treatment they receive, or the rights and privileges of which they are deprived. Should the Chinese, for instance, emigrate to the United States to the number of say twenty millions, and be refused suffrage and political rights, and at the same time be oppressed and kept in a servile position, we might expect a protracted civil war and very possibly as a result a change in our forms of government. If, again, the Hispano-American races, (the Mexicans, Central Americans, Cubans, &c.) of whom there seems a probability that the greater part will be annexed during the coming twenty-five or fifty years, with their old proclivity for revolutions and *pronunciamentos*, should feel themselves aggrieved and lift the standard of revolt, there would follow a civil war, which would be "short, sharp, and decisive," but would be likely forever to prevent any farther aspirations in that direction.

A more reasonable cause of concern in regard to the stability of our present form of government, may be found in the tendencies to an oligarchy of wealth and political power in our great cities and the fearful corruption of the ballot, which even now exists. If a man possessing large wealth and devoid of moral principle, can, by alien votes, repeating, fraudulent naturalizations, or fraudulent canvass of votes, attain to power in the city, county, or State; if he can bribe the legislatures, purchase influence or control the judiciary, and put his own creatures in all places of trust, he may not, at some unexpected moment, find it difficult to reach the Presidency, and by the aid of his servile tools and dupes, effect a *coup d'état* and make himself President for life, King, Emperor, or Autocrat. How long he would be able to maintain himself in such a position would be questionable; our people in general have no great fondness for crowned heads, or for usurpers of any degree; but there is a considerable class who would be attracted by the pomp and display of royalty, and if they could attain to honors, places or preferments through the royal villain, would willingly give him their homage. We do not believe that it would be possible for such a usurper to long enjoy his ill-gotten power, but the great danger would be that the barriers which now hedge in our Constitution and our republican form of government being thus broken down, would lose so much of their sanctity in the eyes of the nation that a second aggression would be less difficult than the first, and a third more successful than either. Our greatest danger as a nation is to be found in the knavery of those railroad kings and chiefs of rings who will employ money to corrupt electors, to make fraudulent canvasses of votes, to buy judges and legislatures, and to secure to themselves as nearly as possible irresponsible power.

The tendency of our government before the war was toward state sovereignty; by slow degrees the central or federal power was weakened and the power of the States strengthened, till even a man of stronger will and more earnest patriotism than Mr. Buchanan might have been justified in doubting whether the Federal Government actually possessed the power to coerce a rebellious State. The State sovereignty heresy was so inwoven into the hearts of the Southern people through the mischievous teachings of Calhoun and his disciples, that they never regarded themselves as citizens of the United States; they were South Carolinians, Virginians, Marylanders, Georgians, &c., and intelligent citizens of Great Britain and France had learned to distinguish between the people of the North and the South who visited Europe, by this very trait; the Northern man always called himself an American or a citizen of the United States, the Southerner never did so, but always named his State.

The war broke down these distinctions and State sovereignty with them. As was natural, the pendulum swung at first too far in the other direction; the Federal power was

exaggerated, perhaps, a little beyond its just claims; but there is, even now, a reaction which needs to be guarded against. Yet the checks and balances of our system are so admirable that we may fairly hope that our present form of government, the best, all things considered, which man has yet known, will be continued for the next hundred years. The President of that time will have a hundred States or more under his sway, and will be the chief ruler of a mightier empire than ever was subject to one man in the world's history. The cares of such a position will be such as few men will be able to endure, and while the number of his cabinet officers must be greatly increased, and they must be more fully responsible to the National Legislature for their respective departments, his own labors will be herculean. It will make his task somewhat easier, as well as conduce greatly to the national quiet, if his term of office is extended to six years, and a reëlection is prohibited at least until one term has intervened. Among the other changes which will be forced upon the nation by the great increase of population and enterprise, will be the establishment of distinct departments for Agriculture, Manufactures, Mining, Commerce, and Education; the division of the present Treasury Department into sub-departments, of Finance, Currency and Coinage, Internal Revenue, Foreign Revenue, and Debt —the simplification of all revenue systems, whether home or foreign—the addition of a postal telegraph system to our present post-office system, the Government directorship and supervision for its mail and transportation purposes, of all the principal railway and steamship lines;* a department of the public lands, which shall be able to facilitate their sale to actual settlers; the payment of all pensions in monthly or semi-monthly instalments; a reorganization of the Patent Office, to facilitate and encourage useful inventions; the protection and aid of immigration, and such freedom of intercourse with the countries of Europe as may enable us readily to adopt any of their improvements or methods of cultivation, manufacture or mining which may prove advantageous to us, and to reciprocate these advantages with them.

Were all the nations of the earth, or even all our own people, governed by the law of love, we might, even with our vast increase of population, administer our affairs without any considerable enlargement of our army or navy, which, small as both are, would be sufficient for national police duty; but unfortunately we have not attained, and probably shall not in the next hundred years attain to that blissful condition. Our isolation and our numbers will render a large standing army unnecessary; but the increasing admixture of races in our population, and the reckless character of some portions of it, will require a steady though not a rapid increase of the army to maintain peace in all quarters. The necessities of our commerce and the advancement of science will require the maintenance of an efficient navy, not so much for warfare, offensive or defensive, as for the promotion of the interests of peace and good order.

Our foreign relations will require the best abilities of the foremost statesmen of the nation for their successful management, not because we shall be in any special danger of war with foreign powers; our great population, our ample resources, and our somewhat isolated position will render that improbable; but a great nation must set an example to the smaller powers of moderation, of justice, of honorable dealing, and of dignity. It must not be so easy and careless, as to tempt imposition upon its good nature, nor so sensitive and jealous, as to be too ready to take offense where none is intended. As our population will be drawn from the four quarters of the globe, it will be needful for our Foreign Secretary or Minister of Foreign Affairs to see to it that none of those who have become citizens shall fail of receiving that protection in all their lawful enterprises to which they are entitled; and to this end a watchful care must be kept against any attempted aggressions or oppressions on our immigrants when they revisit their native lands; as well as against the commercial frauds which are so often practiced under our consular system. Wrongs there will undoubtedly be against our commerce and our citizens, as there have been in the past, and these wrongs it will be the office of our Secretary of Foreign Affairs to redress, always being mindful of the will of the people, as expressed through their representatives in Congress. The negotiations for further accessions of territory will also be a part of his duty, if by that time we are not already the possessors of the entire North American Continent and the islands

*We desire to be distinctly understood as expressing no opinion in regard to the propriety of these measures. We are not speaking of what *ought* to be, but of what *will* be.

adjacent, which seems probable. At all events, we are not likely to find it necessary to purchase territory otherwise than, perhaps, by the assumption of the debts of the republics or colonies which desire to unite with us, if these debts are not too large; the smaller States will gravitate toward us in due season, and will be seeking the privilege of annexing themselves to us.

We must give a separate chapter to the "Finances of the Future," and hence will not consider now the duties or the policy of the cabinet officer who may a hundred years hence preside over the Treasury.

The functions of the Minister of the Interior will be somewhat changed. He has now under his care the Bureau of Public Lands, the Bureau of Pensions, and the Bureau of Indian Affairs, with a *quasi* responsibility over the Patent Office, the Agricultural Department, the Department of Education, and a supervision of the Census Bureau during the years while the census is being taken and prepared for publication. The General Land Office will probably exist a hundred years hence only for the care of its archives, or the superintendence of such lands, should there be any, as the General Government has reserved to itself the right of controlling for national purposes aside from those in charge of the War and Naval Departments. No available lands will then remain for settlement in the hands of the government, unless possibly some in Northern Alaska, among the highest mountains of Mexico, or on the shores of Labrador or Greenland. The Pension Bureau may still exist, for even if we have no other wars, there will be a few children or other relatives of the heroes of the War of 1861–5, who will still claim the nation's bounty, and the veterans of the army or navy service may by that time have a retiring pension. The Bureau of Indian Affairs will be a thing of the past, for except such of the Indians as have adopted the habits of civilization and the responsibilities of citizenship, the red men will have entirely disappeared. The Patent Office, the Agricultural Department, and the Department of Education, will have each become separate and independent branches of the government, and the Census Bureau will have been merged in a general Department of Statistics. There will remain, however, to the Department of the Interior, the superintendence of the government buildings and lands, a Bureau of Labor, which shall have a general oversight and care for the millions of immigrants, especially from Asia, who, but for some such care, would be in danger of suffering grievous wrongs; a Bureau of Travel and Transportation, which shall control in the interests of the government the great routes and means of locomotion, which by that time will have come into the hands of the government, as the Erie Canal has become the property of the State of New York, the government owning the roads and routes, and renting for terms of years the privilege of running steam-cars, caloric cars, electro-motive cars and engines, or cars, spheres or cylinders driven by compressed air or other motive power, upon them, by the payment of a fixed rate per mile. It will have also a Bureau of Mines and Mining, in which those connected with that great interest can be brought directly in communication with the government, and all questions relative to the government mineral lands can be solved. If there shall remain any forest lands appertaining to the government domain, the preservation of the forests, and the restoration of such as have been cut off, with reference both to the government interests, and to their effect on climate, humidity, and capacity for restoring needed elements to the soil and lands about them, will form another bureau of great importance. There will therefore be ample work for the Department of the Interior, though of a different character from that which now occupies it.

The whole subject of Revenue, whether from excise, stamps, income-tax, licenses, customs or tonnage duties, should and probably will be assigned to a single department of the government; and it will not be difficult, when one competent man has virtual control of the whole subject, to so adjust these taxes as to derive from them the greatest amount of revenue with the least possible annoyance or injury to the tax-payers. There is much to be done to simplify these matters so as to make them bear justly on all descriptions of property and vested interests, and not unduly upon any.

Commerce and navigation will also soon require a distinct cabinet officer, who can devote himself, without the distraction of other duties, to the promotion and extension of our mercantile enterprises and to the proper management of our commercial relations with other nations. The time must come, within the next thirty or fifty years, when our commerce shall have regained more than its

old prestige before the war; when England shall not be able to boast, as she now does, that in consequence of the war of 1861–5, she has been able to drive the greater part of our ships from the ocean, and that the amount of American shipping is now inconsiderable. The revival of trade, the greater development of the immense iron interest, and the impulse which will be given to the carrying trade by the pressure of Asiatic goods on our markets and of Asiatic emigrants to our coasts, will render the commerce of this country, both foreign and coastwise, greater in extent than that of any other country in the world. The abstraction of commerce and navigation as well as of customs and internal revenue from the Treasury Department, will not materially diminish the vast amount of labor which belongs to that department of the government. The management of the National Finances, the diminution and it is to be hoped the final extinction of the National Debt, the organization and judicious investment of the Sinking Fund, the auditing of all the accounts of other departments prior to their payment, and the control of the currency, coinage, and banking affairs of the whole country, will be sufficient to make that department, even after the bureaus indicated have been taken from it, the largest and most important of the government.

It is in the highest degree probable that by some modification of the newly-devised system of sphero-locomotion, the transmission of our mails may be accelerated till within twenty-four hours from the time of their mailing, the letters dropped into the post-office in San Francisco will be ready for delivery in New York City, and their transmission across all but the largest oceans by a similar process is not an impossibility. This rapidity of transmission, as well as the great increase of population, must of necessity multiply many fold the quantity of the national correspondence, and the transmission of newspapers and periodicals also. While this must greatly increase the labors of the post-offices, it is to be hoped that contrivances for the more expeditious sorting and delivering of letters will be devised, which shall greatly increase the efficiency of the Post Office Department. The money-order system, which is destined to have an almost indefinite extension, and the postal savings bank system, will undoubtedly become leading features in its work, facilitating greatly, as they will, the transaction of all business requiring the remittance of money in small sums. Should the government, as now seems probable, take into its own hands the transmission of telegraphic despatches, and perhaps also the forwarding of parcels below a certain weight, the Post Office Department will require a very considerable enlargement to enable it to perform its numerous classes of duties.

The law officer of the Executive Department of the Government, the Attorney-General, is with us a member of the Cabinet, though no other nation having a representative form of government makes him so. His duties will of course increase with the growth of the nation, but hardly to the same extent as those of the other cabinet officers.

Turning to the other coördinate branches of the government, we foresee some great changes, both in the constitution and customs of the two houses of Congress. The Senate was intended to be a grave, deliberative body composed of the ablest men—the representative men—of each State, and a sort of counterpoise to the light weights of the other branch of the National Legislature. It did not long come up fully to this high standard, and for a score of years past it has steadily degenerated. The highest deliberative body in the country, some of its members have not been ashamed at almost any session for the last twenty years to enter its stately chamber in a condition of the grossest intoxication, and even to attempt to participate in its debates in that disgraceful state. There are indeed many noble and honorable men among its members; but they should know that the dishonor of such misconduct reflects upon the whole Senate, and should have been prompt to punish such offenders with expulsion. But it is not drunkenness alone which dishonors the Senate. The violent denunciation, the reckless abuse, and the constant imputation of base and unworthy motives in the debates of the Senate, assimilate it too closely to the unseemly wrangling of the House of Representatives. It were to be wished that the Senators could have been chosen without reference to party; but as that seems now impossible, it is certainly not too much to hope that no State will disgrace itself by sending to that exalted position, a low blackguard, a drunkard, a gambler, or an unprincipled demagogue. Yet, unless there is some change or check in regard to the election of Senators, when the time comes,

as come it will within the century, when two hundred Senators, the representatives in that body of a hundred States, shall take their seats there, there will be reënacted on the floor of the Senate chamber, the scenes of folly, depravity and brutality which have hitherto been confined to the Lower House. How indeed can it be otherwise? We might hope that the several States would select their best men for their representatives in the Senate, but the experience of the past twenty-five years forbids the belief that the moral character of State Legislatures will be sufficiently high to prevent them from sending, sometimes, bad, base, unprincipled demagogues to the Senate on partisan grounds. Among these two hundred there will be such a mixture of races, religions and civilizations, as have not been seen together elsewhere. The States of the Atlantic coast and the Mississippi Valley may retain their representatives of the Anglo-Saxon race, with perhaps some slight admixture of the Celt, the Teuton, and the African, but from the north will come French Canadians, Celts, and half-breeds; from the Rocky Mountains, Chinese and civilized Indians; from the Pacific coast, Chinese, Japanese, Malays, and perhaps Hindoos; the stalwart Indian of the northern portion of British Columbia, and the Esquimaux of Alaska. From Mexico and Central America, those mixed Spanish, Indian, and Negro races, in which most of the bad traits of all three predominate; from the West Indies, the diminutive Cuban Creole, whose hot blood makes him always ready for strife, and the Negroes and Mulattoes of Hayti and St. Domingo, with all their worst passions in the ascendancy from a hundred years of anarchy and bloodshed. From these diverse races and peoples must our Senators be chosen, unless some plan can be hit upon for selecting the best men of the nation without reference to locality, for its Grand Council. There could be no hope of any great measures for good being originated or promoted in such a motley assemblage.

As to the House of Representatives, we must confess that its present character gives very little ground of hope for the future. Within a few years past it has had among its members, murderers, gamblers, prize-fighters, swindlers, and thieves, (the names of representatives of each of these classes will occur at once to every intelligent reader,) and it has, not inappropriately, been named "The National Bear Garden;" when it shall come to have nearly seven hundred members from these diverse nationalities, elected by universal suffrage, and in the mad scramble for office or place, the worst demagogue having the best chance of election, how can it be other than a motley horde which will include many of the worst men of the nation? There might be, there probably would be, some good men even in this collection of

"Black spirits and white, blue spirits and gray,"

but they would be utterly powerless for the accomplishment of any good purpose. The only hope for a better National Parliament or Congress lies in three measures: a restriction of suffrage by a standard of intelligence, education, and morality; a reduction of the number, by largely increasing the ratio of population for a representative, and their election by general instead of local ticket, with a provision for the representation of minorities. "To this complexion it must come," sooner or later, and the sooner the better for the country. This is a matter of greater importance than is generally supposed, for upon the character of our national legislation will largely depend the future welfare of our country.

The other coördinate branch of our government, the Judiciary, will probably undergo less change than any other department of the government. There will be of course a larger number of judges, and it is to be hoped sound discretion will prevail in their selection. It would be a sad thing for the nation if the Justices of the Supreme Court should ever come to be brawling political partisans and demagogues, or men who would take bribes, or degrade their high positions by any unworthy act or motive. They should be, as they have been in the past, men learned in the law, capable of comprehending its great principles, of understanding its broad generalizations; not too much cramped and fettered by its letter, but grasping the spirit that underlies the letter; men thoroughly versed in the principles of equity; men who, like John Marshall, the first and noblest of our Chief Justices, were sure to *get at the right* of any question, though they might not be able always to give chapter and verse of the precedents for it. It might be well, too, that they should not be disposed to adhere too slavishly to precedents, but in the consideration of the great national questions occasionally brought before them, incline to remember that there were cases where it was

the duty of the judge to *make precedents* for others to follow, rather than to follow those of others. Our nation is a great one and is rapidly growing; its situation, its population, its political character, and its government, differ materially from those of all other nations, and require a different application of legal principles in many cases. This rigid adherence to precedents laid down in other countries at other times, and under other circumstances, has been a great defect of all our higher courts, State and National. As to the State governments, while all will probably be on a republican basis, since without a most radical change in the National Constitution they could not be admitted into the Union with any other, there will be, doubtless, a greater diversity than now exists in their details of law and government.

As yet the Anglo Saxon element is predominant in the constitution and government of every State. In some it is modified to some extent by other influences; as for instance in Louisiana, where the French element permeates many of the constitutional provisions and State laws, and in some of the newer States of the Northwest, where the Teutonic element has introduced some laxity in regard to the observance of the Sabbath, and other questions of ethics and good morals.

But the Anglo-Saxon element has nearly exhausted its capacity for State-building in this country. We shall in the future receive, it is true, some accessions of immigrants from England, but more from Ireland, Germany, the Scandinavian countries, France and Italy, and the immigrants from Germany and Scandinavia are coming to a large extent in partially organized colonies, prepared to take up large tracts of land and to exert a formative influence on the new States yet to be formed. This influence will differ somewhat, though not very widely from that of the Anglo-Saxons, and there is perhaps little to fear from it. The Celtic races are not so much inclined to colonize, but they will congregate in our large cities, and through their greed for office, and their slight conscientiousness, partly perhaps the result of ignorance, they will form fit tools for designing knaves, and by false naturalization papers, fraudulent voting and repeating, will accomplish more toward subverting good government than ten times their number of honest men could do toward maintaining it.

But there are other elements of population which will gain the ascendancy in some portions of the country, whose influence may be far more potent for good or evil than any of these we have named. We do not refer to the Negro, for it is doubtful whether even now he has a majority of voters in any State of the Union; and if he has, it will be but temporary and productive of no serious mischief; for he is readily controlled by white men in whom he trusts, and has so much of the childlike, imitative propensity, that he will copy perhaps even too closely the constitutions and laws of the Anglo-Saxon States. With the Chinese and the Japanese, on the contrary, there is very little disposition to imitate our institutions or laws. In the States in which, fifty years hence, they will predominate, they will, doubtless, organize a professedly republican form of government in order to their admission to the Union; but in all other respects, the Chinese forms will be copied, for John Chinaman, beneath all his apparent humility and teachableness, has an innate conviction that China is the only country that has a perfect government and laws, and that he himself is better qualified than any man of another nation, any "outside barbarian," can possibly be, to establish a government and laws according to that infallible pattern. We shall be likely to have, then, Chinese and possibly Japanese States; of different forms, purposes, religious, civilizations, from our own; and with these we must constantly be brought in contact. Another form of government and system of laws differing materially from our present ones will be those of the Hispano-American States, which are fast preparing to be annexed to us, and the two Negro republics, which, sooner or later, will also be thrust upon us. The Spaniard in his best estate is singularly ill qualified for a democratic form of government, and his American half-brother inherits all his disqualifications, with a host more which are specially his own. Pride, haughtiness, contempt for others, an overweening self-conceit, jealousy, intolerance and cruelty, are his chief sins, and the really numerous virtues which partially compensate for these vices, are not of a character to help much in his efforts at republicanism. No Spanish and indeed no Celtic nation has ever maintained for any considerable period a well-ordered republican government. Chili has come nearer to it than any other State, but her revolutions have been numerous, and her republicanism is a very different thing from our idea.

Should we, as we probably shall, admit

these States to the Union, it must be with a material modification of their present forms of government, and a provision that will prevent their uprising and issuing pronunciamentos at the beck of any aspiring demagogue. There must also be an entire abolition of all the requirements of a state church, and the hindrances placed on education.

The Canadians, the citizens of the Eastern Provinces, the people of Labrador, Winnipeg, and British Columbia, will require some modifications in their views and organizations before they can enter the Union as States. The French creole population of Canada, the half-breeds of Winnipeg, and the loyalists of Ontario, have all something to learn and much to unlearn before they will become qualified for a truly republican form of government. Whether the pressure of population upon the Pacific coast will drive or draw a sufficient number of hardy adventurers and their families into Alaska to make it possible to erect that forbidding territory into one or more States, within a hundred years, is, perhaps, a question. We are inclined to the belief that it will, and that the influence of kindness and good management will draw enough of the Innuits or Esquimaux into the lower portion of the territory to make them a large fraction of its population. The Esquimaux are a gentle, harmless race, but their capacity for self-government is, to say the least, problematical.

We are doubtful, too, of the ability of the semi-savages of Hayti and St. Domingo, and of the Mosquito coast, ever to become good citizens of a republican government, much less to rule in or legislate for it, not so much on account of their race, though these admixtures in all grades of servile and degraded races, give little promise of excellence; but mainly because for nearly three-fourths of a century their history has been one of anarchy, rapacity, revenge and blood-thirstiness, and the worst passions of the human heart have attained such a predominance that it will take a full century of a strong but paternal government and the influence of intellectual culture and an active Christianity, to bring them up to the level of the other nations of Christendom in self-control, civil order, and capacity for self-government.

The outlook, then, for the government of our country in 1970 is not without its dark clouds and threatening storms. The bow of hope, in the general diffusion of education and Christianity, may span the sky as we look toward the far-distant evening; but its radiant beauty is hidden in part by the gloomy shadows of overhanging clouds. It remains to be seen whether the experiment, which is to be tried here on a grander scale than ever before in our world, of reducing so many different races, in such vast numbers, to a homogeneous mass, under one government, and that, one in which they themselves shall be the rulers—can prove a success. All the experiments of the past are against it; but they never embraced the principle of self-government. The despot, who gathered nations under his sway and used them for his own purposes of self-aggrandizement, held them by his own personal will and magnetism, and when that was gone, they fell back naturally into their original elements. If the union of these diverse nations can become a *fusion*, and from that fusion there can grow up a homogeneous nation with a singleness of aim and purpose, and an intelligence and principle sufficient to enable it to govern itself, then indeed will the great experiment prove a glorious success; but is this possible?

CHAPTER III.

THE FINANCES OF THE FUTURE.

In the matter of finance we have to consider, 1st. The National or Governmental receipts and expenditures; 2d. Those of States and cities; 3d. The individual incomes and extravagance.

Under the first head we may remark that while it is altogether probable that our present national debt will be substantially wiped out before or by the close of the present century, there is no good reason to suppose that we shall ever again be without a national debt of considerable, though probably not of oppressive amount. There is no absolute necessity for this, for so great and so constantly increasing are our resources that a very moderate rate of taxation ought to be sufficient to pay off the existing debt and supply the means for all indispensable expenditure. As we have said elsewhere, there is little probability of another great war for the next hundred years. But so great will be the pressure for the acquisition of new territory, that the government will inevitably be led into more foolish bargains like that of Alaska, or into the purchase of islands or

colonies already saddled with heavy debts of somewhat indefinite amount, which will be sure to grow larger as the prospect of their payment increases; and when we have made one purchase of this kind, we shall have to make another of some adjacent island or mainland, because that which we have just acquired will not be complete without it, or will be in peril in some remote contingency unless we buy other lands which we do not need. And in this way the work of purchase will go on till we shall have absorbed the entire continent and the adjacent islands. It is evident, to be sure, that if we will sit still, and be contented with what we now have, all these adjacent states and countries will gravitate toward us, and before long be begging us to annex them without a consideration; but what nation was ever content to sit still and let the adjacent nations come and ask to be taken in?

These various adjacent states having been absorbed in our country, will demand, and the demand will be granted, that they should have the same facilities and grants for internal improvements as the states and territories now in the Union have received. Canada will require a railroad to the Pacific, and roads stretching northward to Winnipeg, to Hudson's Bay, and to the eastern provinces. The Saguenay will become a favorite summer resort, and there will be a necessity for a railway in that direction. What is now British Columbia will require railroads and telegraphs and tubular bridges to facilitate communication with Vancouver's Island, and the Frazer River country; the argument will be urged and probably prove irresistible, that if we are ever to make anything out of Alaska, we must have railroads and subsidized steamer lines and telegraphs to develop the country and facilitate communication with Russia *via* Siberia. The valleys of the Rocky Mountains and of the Sierra Nevada must each have a railway running through them to open the country and enable the settlers to reach the great East and West lines, and send their bullion, their minerals, their cattle and their grains to market. New Mexico and Arizona and Western Texas must be gridironed with railways, to drive away the Indians and aid in the development of their rich mines, and with these railways there must be Artesian wells bored, not more than a mile apart, to furnish water for the roads, and to irrigate these waterless lands. Mexico will need a host of railways, not only to occupy her valleys running from North to South, but to climb her lofty plateaus and to cross her mountain slopes; and if perchance some fine morning an earthquake should interfere with the grade, depressing or elevating portions of it, or a stream of molten lava should prove a slight obstruction to the progress of the iron horse, why, it will be so much the worse for the road, and the government will be called upon to make it all right. Central America will require not only railroads but ship canals, two or three probably, to enable her to draw toward her shores the commerce of the East; and here again the government will be expected to insure against losses by earthquake or volcano.

The West Indies will need railroads, artificial harbors, breakwaters, and navy yards, dry-docks, public buildings, &c. &c. And each of the hundred or more States composing the Union of 1970 will feel specially aggrieved unless the government expends from six to ten millions for river and harbor improvement, buildings for courts, post-offices, custom-houses, &c. &c.

We regard and with some justice our present taxation, state and national, as heavy, not really oppressive, but onerous, and should hardly be willing to bear burdens as heavy for a very long time in the future; yet our taxes are really much lighter than those of the British people. Their valuation of real and personal property, is, it is true, about five times what ours was in 1860, and perhaps two and a half times our present valuation, but when we add to the national revenues, which average about three hundred and seventy millions of dollars, the educational taxes, county, borough, city, and above all the poor rates, the grand aggregate is more than one thousand millions of dollars to be paid by a population less than three-fourths of ours. The resources of our people are multiplying more rapidly than those of any other nation in history, but our expenditures will, unless jealously guarded, multiply quite as fast.

The expenditures of the General Government for the year ending June 30, 1869, were $321,490,596. Of this sum, $130,694,243 was for interest on the public debt. The expenditures of the year ending June 30, 1870, will not, it is said, be quite so large, though including the payment of nearly seventy millions of the public debt, but a greedy horde of claimants are tugging at the public purse, and it is hard to shake them

off. For a time the railroad companies will be partially satisfied by large donations of the public lands, and some of them have already received enough to make a half-dozen European duchies, but ere long the public lands will be exhausted, and then the clamor for money will be renewed. Can we suppose it will be ineffectual?

It is estimated by those who have given special attention to the subject, that a fair valuation of the taxable property of our people, real and personal, in the year 1870 will show an amount of thirty thousand millions of dollars, and possibly a little more than this. We are just entering upon a period of far more rapid development of our resources than anything we have yet seen, and if we have thirty billions in 1870, we shall certainly reach forty-five billions in 1880, and one hundred billions at least by 1900, or nearly twice the present wealth of the British Empire, the richest of modern States. That by the year 1970 we should attain to a valuation of little short of $400,000,000,000, seems not only possible but probable. The sum is indeed so large that we can not comprehend it, and it makes but little impression on our minds; but it represents an amount much greater than the aggregate wealth of all of Europe to-day. Our present revenue is just about one per cent. on our supposed valuation; if it continues to hold the same relation, the revenue of the country for 1970 would be $4,000,000,000, or double the amount of our national debt, and as much as the national debt of Great Britain. We must bear in mind, however, that, by that time, the purchasing power of money will have materially depreciated. A dollar in gold will not now purchase as much of most commodities, especially of articles of food, as it would have done in 1848; and when all the gold fields of our own continent, and those of Europe, Asia, Africa, Australia, and the islands of the Pacific, are yielding their maximum quantity of the precious metals, one dollar in gold will hardly purchase as much as one dollar will now. There will be then necessarily a great increase in the salaries paid by government, and a corresponding increase in all its expenditures. The ruler of a realm of four or five hundred millions of people will hardly receive a salary of less than $250,000 for the expenses of the Presidential household, (one-eighth the allowance now made to the Royal Household of Great Britain,) while a cabinet minister's salary will probably not be less than $20,000. So vast a population will necessarily require a great number of officials, though many things will then be accomplished by machinery which now require the labor of human hands. In nothing, perhaps, will this be more conspicuous than in the dispatch of the mails, now requiring on all the larger routes the attendance and personal service of a route-agent, but which, then committed, at the great distributing office, to their spherical or elliptical receptacle, and closed by a spring-lock, will be rolled into their tubes and dispatched with perfect safety and almost lightning speed to their several destinations, secure by their very speed from depredation while in transit. But with all the aid of machinery, there will still be probably a hundred thousand or more officials, all eager for government pay. Should the government, as is possible, become the proprietor of all the principal railroad routes of the country, not running its own cars, but leasing to all responsible parties at fixed rates the right to run trains upon the roads on certain conditions, thus abolishing the hateful railroad monopolies, there would be a small army of officials necessary for the superintendence of this work. The adoption of a system of compulsory education, which will become an admitted necessity within a few years, will also require a very large force of teachers, whose pay must come directly or indirectly from the government.

When we add to these items the various subsidies to lines of transportation by land and water, a principle which has already, perhaps necessarily, been established; the construction and maintenance of new routes of communication, for which there will be a constant demand; the support of the army, navy, and revenue services; the endowment of institutions of higher education in art, literature, physical science and practical technology, and the other myriad demands for governmental expenditure which a hundred years of active energetic national life will develop, and a hundred years of practice by the cormorants upon the public purse will crave, we think we are not predicting a larger revenue than will be required when we put the income of the government in the year 1970 at 8 thousand millions of dollars.

But the local expenditure of States, counties, and especially of great cities, will

in the aggregate largely exceed that of the National Government. This is inevitable. When single States of the Republic exceed, as several of them will, the population of some of the present important empires of the Old World; when, for instance, New York has a population of fifty millions, and Illinois, Missouri, Nebraska, and California, as many or more, we can hardly expect that their expenditures of State, counties and cities will be less than those of France, Great Britain, or Austria now are, while their present number of inhabitants is considerably less than the prospective population of these States of the future. The tendency of great cities in which large wealth is accumulated, to lavish expenditure, is well known. The public expenditures of the city and county of New York for all purposes, exceeded thirty-two millions of dollars in 1869. When there shall be included within a single metropolitan government and jurisdiction, a territory of twenty miles radius from the present City Hall, and a population in that territory of eighteen millions, with a valuation of $14,000,000,000, (its present valuation is $872,000,000, and this is probably not more than one-half of the true valuation, while that of Kings, Queens and Richmond counties is over two hundred millions more,) its expenditures for all public purposes will hardly be less than two hundred millions per year. We might go on with these estimates, but this single illustration will be sufficient to show that the public expenditures will undoubtedly increase to an extent fully commensurate with our future population and wealth.

In the matter of private expenditure it is less easy to predict what will be the future course of our people. That there will be a considerable and constantly-increasing proportion of the population who will be possessed of vast wealth, is certain. In our own time many of those who have rapidly acquired fortunes, and are without the culture, education and refinement which would prompt them to the best use of their money, expend it most extravagantly in dress, equipage, or pretentious and tasteless dwellings; and there is no surer indication of newly-acquired wealth than is to be found in the profusion of gaudy and costly dresses, jewelry, horses and carriages, or so-called palatial residences. A better education, more thorough art-culture, and the cultivation of a more refined taste, which usually accompany the possession of wealth in the second or third generation, may and probably will modify somewhat this passion for display; but as there will be in the future, as in the past, constant accessions to the class of the vulgar rich, we may expect that there will be violations of good taste in this reckless extravagance of dress, equipage and houses in the future. We can only hope that there may be a prevalent feeling among the wealthy against this gorgeous barbarism, which will to some extent control and subdue it. Still when we see, as we have in our own day, the heir of one of the oldest princely houses of Europe, the Prince Paul Esterhazy, seeking to surpass the other princes of Europe in the splendor of his equipage, the number of his carriages, the vast collection of his jewels, the extravagant adornment of his person and dress, and the variety and elegance of his palaces and estates, while the culture of his intellect, the furnishing of his mind and the development of his moral nature, were wholly neglected, we can hardly hope for much either from our railroad kings and great landed proprietors or their descendants.

The cost of living among our middle classes has rapidly advanced within the past ten years, and has been doing a serious amount of mischief in contributing toward the destruction or material reduction of the middle class in society. While we do not believe that this class will be entirely obliterated in the next hundred years, we have no question it will be greatly diminished, and that a century hence our population will consist mainly of a very considerable class of large wealth, a small middle class, and an overwhelming number of the poor, who may perhaps be subdivided into the *poor* and the *very poor*. The class of professional men, artists, small merchants, and others living on a moderate income, before the war, found in our larger cities an income of $1,200 to $2,000 sufficient to supply their moderate requirements, while in the smaller cities or rural districts, from $500 to $1,200 was about the limit of annual expenditure. Now, the same classes in the large cities find an income of from $3,000 to $7,000 absolutely indispensable for their expenses, and in the country from $1,200 to $2,500 is as necessary. This is not owing wholly to the advance in the prices of commodities or the reduction in the purchasing power of money; the requirements of society, at the present day, will not tolerate as inexpensive dress, food, or household conveniences as would

have been considered amply sufficient fifteen or twenty years ago, and every step of advance in this direction has augmented the cost of living. Six years ago a bankrupt merchant, turned editor, in New York, expressed his belief that no one could live respectably, hardly decently, on any thing less than five thousand dollars per annum; and illustrated his faith, by living himself at the rate of more than ten thousand dollars a year. This increased cost of living will go on, till the middle class will find that their only alternative is to live at an annual cost of from four to ten thousand dollars a year, or sink into the poor class, who lack the means, and soon the disposition, to maintain the comforts and amenities of refined life, and the requirements of fashion. We deplore such a result, but it will come, within the century.

We conclude, then, that the vast production of wealth which will flow in upon us in the next hundred years will be attended with some disadvantages as well as advantages; that it will prove mainly beneficial to a comparatively limited class, whose vast accumulations will enable them to expend large sums for the maintenance of their families, while through their lavish expenditure, and their influence, the middle class will be ruined in the effort to follow their example, and the poor be separated by a wide gulf from the classes above them in social position.

CHAPTER IV.

THE COMMERCE OF THE FUTURE.

That our commerce, which, since it was so largely driven from the seas by piratical privateers, built, manned, armed and equipped in Great Britain, during the late war, has been in a state of depression, is destined to regain its ascendancy and to make us the greatest commercial nation on the globe, does not admit of a doubt. The boast of English writers within the past year that our shipping did not amount to one-third of what it was before the war, may be true now, but it will not be so long, and the great disproportion which now exists between the number and tonnage of our vessels engaged in the carrying trade, and those of Great Britain, will be rapidly diminished. The present is, however, a transition period. Not only are we compelled to submit to the rivalry which British vessels already built and eager to obtain cargoes, can exercise in our own ports, but at a time when it has been demonstrated that iron vessels are cheaper, safer, more easily handled, and capable of carrying larger freights in proportion to their tonnage than wood, we find ourselves almost wholly without these vessels, and unable to build them at the rates at which they can be constructed in English ship-yards, owing to the greater cost of iron and labor. These disadvantages, severe as they may be, are however but temporary. We have the iron and the coal as near each other as they are in England, and both convenient to good river and marine ports. The new processes of making iron and steel, and our resort to machinery for doing that better which is done in Great Britain by hand, will soon enable us to build better iron ships than the English, and build them cheaper. The building of wooden ships, which has been so large a business in Maine for many years past, must give place to some other form of industrial enterprise. Iron ships driven by steam are now the great desideratum for our commerce. There seems little likelihood of a change in the material for ship-building, for iron has the advantage of great strength, lightness, stiffness, and cheapness, and can hardly be surpassed in these requisites by any other material. There may be a change in the motive power; compressed air, or electricity, or the condensed and carefully-preserved solar heat; and it will be a great triumph for American invention when this can be accomplished; but we shall never go back to wood again as our chief material. We have a sea-coast and navigable river line unsurpassed by any nation in the world, with hundreds of excellent ports and harbors, and nothing can prevent our becoming the greatest commercial nation of the globe. With the Darien ship-canal to facilitate the transit from ocean to ocean, the improved navigation of the Missouri, the Mississippi, the Red River and the Arkansas, the completion of a ship-canal from Lake Michigan to the Mississippi, and another around the Falls of Niagara, the improvement of the St. Lawrence, the enlargement and strengthening of the Erie and Northern Canals, and the dredging of the Hudson, all works sure to be accomplished in a few years, our internal and our marine commerce will assume an importance of which we can now have but a very imperfect comprehension. The total registered, enrolled and licensed

tonnage of the United States in 1861, was 5,539,813 tons, of which 877,204 tons were steam vessels; this was reduced in 1865 to 4,310,778 tons, in consequence of the depredations of the privateers. In 1868, the tonnage had risen to 4,351,758 tons, of which 1,199,315 tons were steam vessels. This included barges and canal-boats, as well as the small coasting and fishing vessels of the seaboard, and the steamboats of the river navigation. In all there were 28,118 vessels, giving an average tonnage of only 155 tons per vessel. The British shipping of all grades, which, in 1861, was about 1,200,000 tons less than ours, had increased in 1868 to 5,516,434 tons, nearly what we had in 1861, and this amount was in 22,250 vessels, giving an average tonnage of 250 tons to each vessel, but only 824,614 tons were steam vessels, showing that even with our diminished commercial marine we had 300,000 tons more of steam vessels than Great Britain. There has been, up to the present time, a great depression in the commerce by ocean steamers of American ownership; but this is destined to be speedily remedied, and while in 1868 there were 39 American to 106 foreign steamers plying on the Atlantic and Gulf, we are assured that the next ten years will see the proportion reduced. The river and lake commerce of the country is only at the threshold of its development, for while the multiplication of railways will stimulate emigration and production, all the more bulky crops and mineral products can be moved far more cheaply by water than by land. The improvement of the navigation of the rivers and lakes by means of canals, locks, and slackwater dams and locks, and the introduction of improved engines and new motive powers will, within twenty years to come, bring the 1,200,000 tons of lake and river vessels of 1868, up to 2,000,000 tons, and by the year 1970, our internal navigation will reach 25,000,000 tons. The sea-going vessels, propelled by some efficient motive power—steam, or hot or condensed air, solar heat, or some application of electricity—will sail daily by scores from all our principal ports to all the great ports of the world, and either by reducing the friction or increasing the power or rapidity of action of their propellers, they will reduce the time of the trip across the Atlantic to four days, and that across the Pacific to nine or ten. Our traffic with Europe, with the Mediterranean and Asia by way of the Red Sea, with some of the West African States, which we may hope will ere that time have become stable and civilized communities, and with South America, will be very large, amounting to many millions of tons, but this will be dwarfed into insignificance in comparison with the immense commerce of the Pacific, which is now in its infancy, but which, bringing its millions of immigrants from China, Japan, Malaysia, and India, will bring also the silks, cottons, teas, hemp, jute, rice, spices, lacquered wares, and other goods of the Orient, for which a vast demand will be found among our four or five hundred millions of people. From the Australian republics and New Zealand, as well as from the numerous islands of the Pacific, we shall receive cargoes of the fruits and products of those tropical and fertile lands, and to all these countries in return our own manufactures and productions will be welcome. We can hardly err, except in the way of under-statement, if we put the ocean tonnage of our country in 1970 at fifty million tuns, and the tonnage of lakes, rivers, and internal water communications, at twenty-five million tuns. For our foreign commerce, New York, Norfolk, Baltimore, Charleston, Mobile, New Orleans, Vera Cruz, and at the North, Boston, Portland, St. John's, and Halifax; and on the Pacific, San Francisco, Acapulco, Manzanilla, Guaymas, San Diego, Monterey, Astoria, Portland, Port Townsend, Victoria, and New Westminster will be the principal ports. There will be also two very large ports at the termini of the Darien Canal, on the Atlantic and Pacific. Of these ports, in the nature of things, New York and San Francisco must be by far the most important. While much of our commerce from Australia, New Zealand, the Southern Pacific Islands and the Malay Archipelago, will pass directly through the Darien Canal, not taking San Francisco or indeed any of the Pacific ports in its way, very little of it will fail to pay tribute to New York. Long before that period, the great money-centre of the world, which even now shows symptoms of the coming change, will be transferred from London to New York, and where that centre is, thither the world's traffic will come. But aside from its importance as the great money and exchange centre of the world, the improvements now projected or in progress will make New York the greatest maritime port on the globe. With a land-locked bay of sufficient capacity and depth to permit the entire commercial

marine of Christendom to ride at anchor in safety; with the broad and noble Hudson washing its western shore, and the strait known as the East River pouring the waters of Long Island Sound into the bay; and both rivers spanned by lofty suspension bridges at various points,* and capacious tubular railways crossing both rivers by a newly-contrived tunnel; with the difficulties of navigation at Hurlgate all surmounted, and a channel deep enough for the largest ships, enabling the city to make Long Island Sound another bay; with a ship-canal 350 feet wide and 60 feet deep, connecting Newtown Creek with the beautiful Canarsie Bay, and thus giving full sixty miles of wharves and piers, accessible at all times, and all its suburbs as well as all parts of the city itself connected by swift railways in arcades, in tunnels, elevated upon iron pillars along its streets, or running in a belt outside the piers and above the height of the vessels which throng the wharves; with its costly and beautiful warehouses, churches, banks, public institutions and residences, it will be the grandest city the world has ever seen, and worth a journey round the globe to see.

* *Description of the East River Bridge, New York.*

Length of river span from center to center of tower,	1,600 feet.
Length of each land span,	940 "
Distance anchor walls,	3,480 "
Length of New York approach,	1,441 "
Length of Brooklyn approach,	941 "
Total length from terminus to terminus,	5,862 "
Ascent of New York approach per 100 ft.,	$3\frac{44}{100}$ "
Ascent of Brooklyn approach per 100 feet,	$1\frac{87}{100}$ "
Deflection of cable in summer,	150 "
Elevation of grade in center of space in summer above high tide,	138 "
Elevation of bridge in the clear,	135 "
Elevation of floor in center of tower,	118 "
Elevation of floor at anchorage,	$85\frac{64}{100}$ "
Elevation of New York terminus,	36 "
Elevation of Brooklyn terminus,	63 "
Height of tower above floor,	150 "
Total height above high-tide, balustrade not included,	268 "
Foundation of tower below water level, New York side,	110 "
Foundation of tower below water level, Brooklyn,	40 "
The weight of superstructure of the central span, as far as supported by the cables and stays, and including the weight of four *steel* cables, is equal to	3,483 tons.
The maximum transitory weight which can at any one time come on the bridge by crowds of people on the road and footways, and the railway trains fully loaded, will be	1,270 "
Making an aggregate of	4,753 tons.

But as a port of entry for China, Japan, and all Northeastern Asia, San Francisco will maintain her preëminence. Into her Golden Gate will enter the emigrant ships with their millions of Orientals, who will find their homes on American shores, and thither, too, the ships laden with all the products of the East will come to deposit them for distribution over our own country and Europe. The commerce of Southern Europe, the Mediterranean, and the African Coast, will find in Norfolk a convenient and excellent port, and one of the finest harbors in the world, and that city will have a large and prosperous growth from its facilities for foreign commerce and internal communication. As the entrepôt of the vast riverine commerce of the Mississippi Valley and the port from which the mineral, vegetable, and animal products of that region are sent to all parts of the globe, New Orleans, with her recently-improved means of exit into the Gulf, will always command a commercial position second to no city on the Atlantic slope except New York. The trans-continental railways which are soon to terminate at San Diego, and its fine harbor, will call thither a large and constantly-growing traffic from Australia and the West Coast of South America. As to the ports now in Mexico, their growth will depend very much upon the greater stability of their government which will follow their annexation, and the infusion of American enterprise and energy into the languid and apathetic Mexican. Should the West India Islands become a part of the Republic, there will be two or three commercial ports of considerable importance there. Havana will of course retain its position, and Kingston, Jamaica, St. Thomas and Port au Prince or St. Domingo, all lying in the direct route between New York and the Darien Canal, will have the opportunity of becoming important seaports.

CHAPTER V.

THE AGRICULTURE OF THE FUTURE.

That Agriculture has made great progress in the past twenty-five years, in the United States, is undeniable; but there have been two serious obstacles in the way of such progress as should have been attained; the facility of bringing new land into cultivation whenever by repeated cropping and wasteful,

New York approach

VIEW OF THE EAST RIVER BRIDGE N.Y.

Brooklyn approach

marine of Christendom to ride at anchor in safety; with the broad and noble Hudson washing its western shore, and the strait known as the East River pouring the waters of Long Island Sound into the bay; and both rivers spanned by lofty suspension bridges at various points,* and capacious tubular railways crossing both rivers by a newly-contrived tunnel; with the difficulties of navigation at Hurlgate all surmounted, and a channel deep enough for the largest ships, enabling the city to make Long Island Sound another bay; with a ship-canal 350 feet wide and 60 feet deep, connecting Newtown Creek with the beautiful Canarsie Bay, and thus giving full sixty miles of wharves and piers, accessible at all times, and all its suburbs as well as all parts of the city itself connected by swift railways in arcades, in tunnels, elevated upon iron pillars along its streets, or running in a belt outside the piers and above the height of the vessels which throng the wharves; with its costly and beautiful warehouses, churches, banks, public institutions and residences, it will be the grandest city the world has ever seen, and worth a journey round the globe to see.

* *Description of the East River Bridge, New York.*

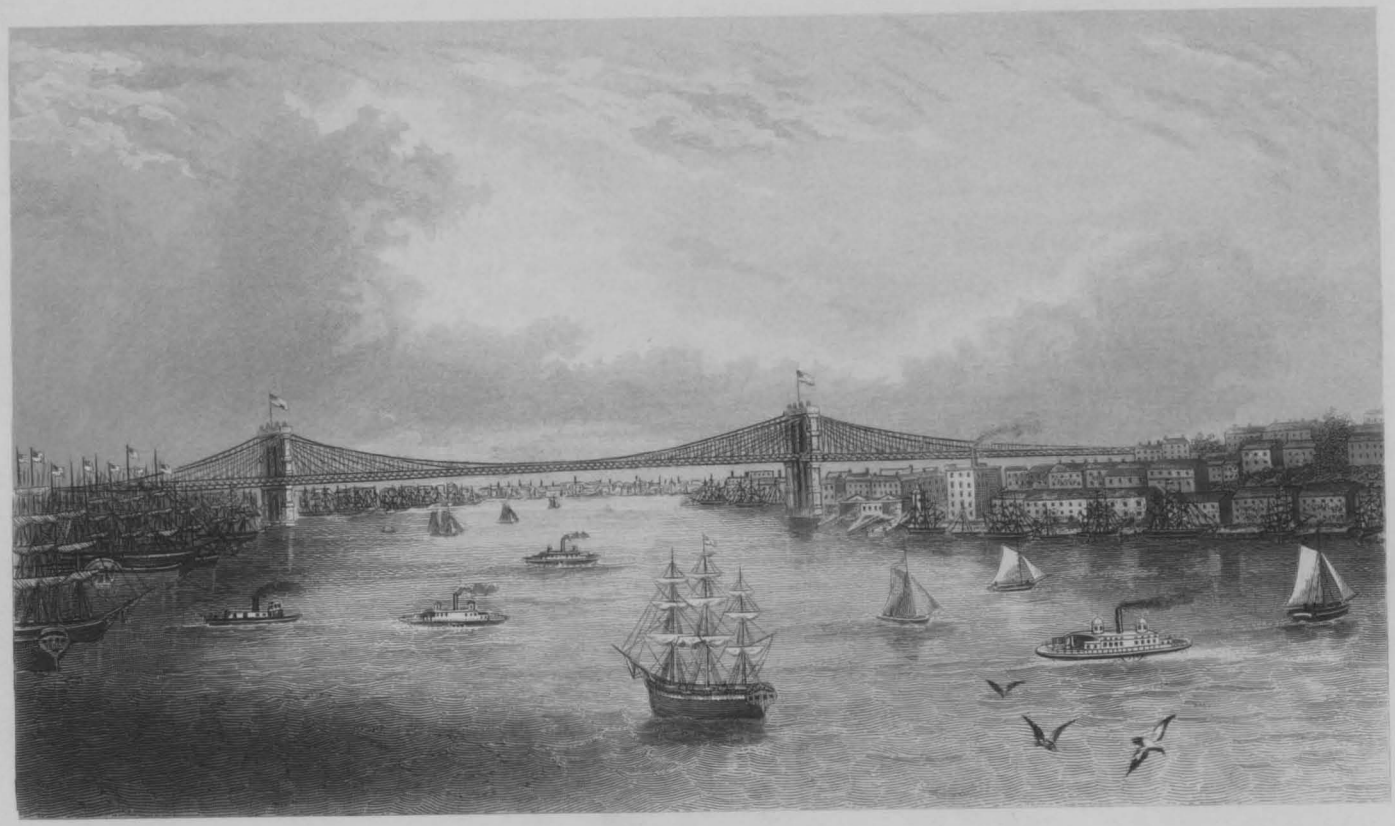
Length of river span from center to center of tower,	1,600	feet.
Length of each land span,	940	"
Distance anchor walls	3,480	"
Length of New York approach,	1,441	"
Length of Brooklyn approach,	941	"
Total length from terminus to terminus...	5,862	"
Ascent of New York approach per 100 ft.,	3.44	"
Ascent of Brooklyn approach per 100 feet,	1.67	"
Deflection of cable in summer,	150	"
Elevation of grade in center of space in summer above high tide,	138	"
Elevation of bridge in the clear,	135	"
Elevation of floor in center of tower,	118	"
Elevation of floor at anchorage,	85	"
Elevation of New York terminus,	38	"
Elevation of Brooklyn terminus,	63	"
Height of tower above floor,	150	"
Total height above high tide, balustrade not included,	268	"
Foundation of tower below water level, New York side,	110	"
Foundation of tower below water level, Brooklyn,	40	"
The weight of superstructure of the central span, as far as supported by the cables and stays, and including the weight of four steel cables, is equal to.	3,483	tons.
The maximum transitory weight which can at any one time come on the bridge by crowds of people on the road and footways, and the railway trains fully loaded, will be,	1,279	"
Making an aggregate of,	4,762	tons.

But as a port of entry for China, Japan, and all Northeastern Asia, San Francisco will maintain her preëminence. Into her Golden Gate will enter the emigrant ships with their millions of Orientals, who will find their homes on American shores, and thither, too, the ships laden with all the products of the East will come to deposit them for distribution over our own country and Europe. The commerce of Southern Europe, the Mediterranean, and the African Coast, will find in Norfolk a convenient and excellent port, and one of the finest harbors in the world, and that city will have a large and prosperous growth from its facilities for foreign commerce and internal communication. As the entrepôt of the vast riverine commerce of the Mississippi Valley and the port from which the mineral, vegetable, and animal products of that region are sent to all parts of the globe, New Orleans, with her recently-improved means of exit into the Gulf, will always command a commercial position second to no city on the Atlantic slope except New York. The trans-continental railways which are soon to terminate at San Diego, and its fine harbor, will call thither a large and constantly-growing traffic from Australia and the West Coast of South America. As to the ports now in Mexico, their growth will depend very much upon the greater stability of their government which will follow their annexation, and the infusion of American enterprise and energy into the languid and apathetic Mexican. Should the West India Islands become a part of the Republic, there will be two or three commercial ports of considerable importance there. Havana will of course retain its position, and Kingston, Jamaica, St. Thomas and Port au Prince or St. Domingo, all lying in the direct route between New York and the Darien Canal, will have the opportunity of becoming important seaports.

CHAPTER V.

THE AGRICULTURE OF THE FUTURE.

That Agriculture has made great progress in the past twenty-five years in the United States, is undeniable; but there have been two serious obstacles in the way of such progress as should have been attained; the facility of bringing new land into cultivation whenever by repeated cropping and wasteful



New York approach

VIEW OF THE EAST RIVER BRIDGE, N.Y.

Brooklyn approach

slovenly culture, the old lands were exhausted; and the want of intelligence and practical education among the great mass of cultivators. Both these obstacles are likely very soon to be removed.

At the beginning of 1869, the area of the States and Territories containing public lands was 1,834,998,400 acres; of this amount, 225,628,501 acres had been either sold, entered under the homestead law, or granted for military services; and 204,000,000 acres in round numbers had been granted for railroads, wagon roads, internal improvements, universities, agricultural colleges and schools, leaving 1,405,366,679 acres, the greater part of it as yet unsurveyed, as the entire amount of public lands owned by the government. Much less than one-half of this will ever be available for settlement or for agricultural purposes; the greater part of Alaska, the Rocky Mountains, the Sierra Nevada, the Colorado desert, the great Llano Estacado or staked plain, and the *Mauvaises Terres*, or Bad Lands of Nebraska and Dakota, are all to be deducted, together with hundreds of lakes, swamps, and soda-covered lands, some of which, by irrigation, may possibly bear crops. There are not at the outside over 600,000,000 acres of these lands available for agricultural purposes, and of these, patents were issued to railroads, &c., for more than 50,000,000 acres in 1869, and 100,000,000 acres more are asked for at the present time by the various railroads and other schemes before Congress.

It follows from this that the time is coming speedily, probably before the end of the present century, when there will be no more new lands to be purchased except at very high rates, and when agriculturists will find it necessary to bring their farms up to the highest condition of productiveness and keep them there, or there will ere long be a lack of food for the supply of the scores of millions of non-producers. To accomplish this, more thoroughly scientific farming, careful cultivation, rotation of crops, and profuse manuring, will be necessary. The Japanese and Chinese agriculturists have cultivated the same fields for nearly 2,000 years, and they yield as large crops now as they ever have done. The secret of their success is their thorough tillage, and the extraordinary care with which every description of fertilizer is preserved and applied to the soil. The garbage and sewage of their great cities does not go to waste, and every where the husbandman treasures up the materials for maintaining the fertility of his lands, as zealously as if they were so much gold. We have much to learn from these natives in this respect, and when we have, as we soon shall have them largely engaged in the cultivation of our lands, it is to be hoped that they will bring with them their thrift and carefulness, though we might perhaps dispense with some of their customs of gathering fertilizers, as offensive to our refined tastes.

As it is, we drop down altogether too soon from thirty or thirty-five bushels of wheat to the acre to ten or twelve bushels; and our lands, which, when new, yielded their fifty to seventy-five bushels of corn or their three or four hundred bushels of potatoes to the acre, come much too readily to a crop of twenty-five or thirty of the former and eighty or ninety of the latter. Even the rich prairie lands of Illinois or the still deeper and richer soil of California speedily ceases to respond liberally to the slovenly cultivation which merely scratches the surface and does not return to the soil any of the elements which it has taken from it. Yet, so wide is our territory, so fertile our lands, and so various our climate, that it will be perhaps a half century before, even with the careless and indifferent tillage of the present time, we should find our population trenching upon the boundaries of subsistence. If we will but be wise in time, this need never be; but if we keep on taking the elements of plant-food from the soil and returning none of them to it, we shall find with each year a constantly-advancing barren desert; we shall be compelled to draw our food from greater and greater distances, till finally the whole breadth of the continent will become desolate like that broad waste which now extends from the Jordan eastward to the Syr-daria and Amoo-daria in Central Asia, comprising what were for ages the most fertile lands of the earth.

To avoid such a fate, it is necessary not only to drain, till and manure the soil bountifully, irrigating it where necessary, but to restore the forests as far as possible. Especially on the prairies and wide, treeless plains of the central basin should trees be planted by millions; trees of quick growth, and trees which will attain a lofty height. By means of these the rains may be restored to those now parched and desolate lands, and they will be enabled now, as they did eight hundred or a thousand years ago, to sustain a vast and prosperous population. "The old wastes will again be inhabited, the cities of a

hundred generations," and the thirsty soil, drinking in the rains and dews, will become like Eden for beauty and productiveness. In regard to the crops to be grown, there is no reason to suppose that there will be much that is new in the hundred years to come. A few new textiles, perhaps, the ramie, the new silky fibre, which yields such enormous crops, and possibly on the plains some of the cacti, or Agave tribes of fibres, such as the Ixilotl or the Sisal grass, some of the new nettles, which may prove more profitable as crops than our common hemp, and possibly some improved species or variety of cotton; among grains, improved varieties of wheat, oats and barley, possibly the African dourra or millet, other and more productive varieties and species of maize, including perhaps that remarkable deep blue corn which Professor Newberry found among the Moquis; new and better varieties of the sorghum and imphee; hardier varieties of the sugar-cane, which will bear a more northern climate; tea, coffee, the pomegranate, the banana or plantain, the olive and other tropical and semi-tropical plants, of which already there are plantations in Southern California; several of the new and productive grasses, and all the varieties of the mulberry, as well as other plants which will furnish sufficient food for the silkworms. The culture of the grape, the production of silk, the rearing of the olive for its oil, and the cultivation of both tea and coffee, are destined to become marked features in our agricultural industry in the near future. So, too, will be the sugar culture. The cane, the sorghum, the sugar-beet, and not improbably also maize, and some of the more saccharine melons or squashes, will all be laid under contribution for our supply of sweets. Sixty-two millions of dollars' worth of sugar were imported into the United States in 1868, beside all that was produced in the country. The time is not distant when, instead of importing, we shall export our sugars, and though the consumption of hardly any article of food increases so rapidly, yet the increase of production, especially if we annex, as we probably shall ere long, some of the West India Islands, will keep pace with it. The production of silk in the raw state, as well as its manufacture, is another form of agricultural industry which will become prominent in a few years. Our Pacific States are favorably situated for the rearing of the silk-worm, as well as some of the Territories east of the Rocky Mountains. The cultivation of textile fibres, cotton, ramie, hemp, spartina, &c., will for a hundred years to come continue to be an important part of our agricultural products, though probably they will never again so entirely engross the labor of any section as cotton did before the war. Viniculture, or cultivation of the grape for wine, has already attained a magnitude which promises within a few years to make us independent of Europe in the production of wines and brandies. That it will reach its highest point within twenty years is probable, though it can not fail to be always a great and powerful interest. The culture of the grasses and the traffic in them is an interest of greater importance than is generally supposed. The hay crop of the country is one of its most valuable, perhaps the most valuable of its vegetable products. Its sale and consumption away from the place of its growth, is bad husbandry, only to be partially atoned for by the most bountiful use of fertilizers from abroad; but without it our cattle, horses and sheep could scarcely exist. California and several of the Territories of the great plains have no natural grasses, or at least none which form a sod. The long dry season parches them and kills their roots. The wild rice, wild oats, alfalfa, and other introduced grasses and grains, make up for the deficiency, and as the domestic animals of these countries seldom require shelter, there is not much hay needed. The introduction of some foreign grasses within a few years to come is probable, though not many of them are really superior to what we now have.

Stock-raising is likely to be for some years to come a favorite occupation with many of our farmers. Montana, Idaho, Wyoming, Colorado, Utah, New Mexico, and portions of Arizona, Texas, the Indian Territory, and much of Kansas and Nebraska, as well as the greater part of Oregon and Washington Territory, and California, are well adapted to this pursuit. It is, however, the lowest form of agriculture, and tends so greatly to a half-nomadic life and to the barbarisms connected with it, and requires, moreover, such vast tracts of territory for its successful prosecution, that as the population becomes dense, it must gradually diminish in importance. We are, as a nation, the greatest meat-eaters in the world, with the exception perhaps of the *Guachos*, or half-civilized hunters of the South American pampas, who subsist entirely on animal food. Even our poorest classes

navo meat once or twice a day, while the peasants and lowest classes of Belgium, France, and Sweden, hardly taste meat once in six months. Whether this fondness for a meat diet will continue to prevail, is somewhat doubtful. The Chinese, Japanese, and indeed the Oriental nations generally, are more abstemious than we are. With most of them, rice, with some condiments, is the principal article of diet, though occasionally they eat the flesh of the smaller animals, if able to pay for the luxury. Should they preserve their present habits, the demand for beef, mutton and pork would not keep pace with the increase of our population, and this would be well, for we should not be able to spare from cultivation the immense tracts which would be required for the rearing of these great herds.

The live stock of the United States in 1869 was, according to the report of the Commissioner of Agriculture, 6,332,793 horses, valued at $533,024,787; 921,662 mules, valued at $98,386,359; 21,433,095 beeves, valued at $667,964,149; 37,728,279 sheep, valued at $82,139,979; and 23,316,476 swine, valued at $146,188,755. We can hardly be far out of the way if we estimate the numbers in 1969, as 67,000,000 horses, 10,000,000 mules, 336,000,000 beeves, 400,000,000 sheep, and 268,000,000 swine. It will be borne in mind that though these numbers might be in excess of what would be required for supplying the needs of the four or five hundred millions of our own people, the export demand would unquestionably be large, and would undoubtedly consume whatever we had to spare. We have purposely estimated the increase of sheep as less than that of the other animals, for two reasons; the other textile fabrics coming into use will considerably diminish the consumption of wool, and the increase of flocks of sheep is, when unrestrained, so great that to avoid a glut in the market, it is often necessary to take special measures to reduce it; thus in Australia, where the facilities for grazing are very similar to those of Texas, Arizona and New Mexico, the increase of sheep had been so greatly in excess of the demand that the settlers have found it necessary to erect immense vats heated by steam, in which they boil down hundreds of thousands of carcasses of sheep simply for the tallow. Such measures would soon reduce the number of sheep within reasonable bounds.

The production of machines, driven by steam or horse-power, for agricultural purposes, though already an interest of great extent, is destined to receive an astonishing development. The vast plains, prairies and plateaus of Nebraska, Kansas, Dakota, Colorado, Wyoming, Idaho, Montana, Utah, New Mexico, and Arizona, will be broken up by the steam-plow, doing the work of fifty men and a hundred horses at once, and never tiring till the arable lands are all furrowed, pulverized and harrowed by its agency. The steam-sower, steam-cultivator, and steam-mowers, reapers, binders, threshers, and diggers, will garner the crops with a celerity and certainty which could never have been accomplished with hand labor. But we need not confine ourselves to steam. Other motive powers, more compact, more manageable, less expensive, and less dangerous, may and probably will take the place of steam for these and other purposes, and it will thus be possible to cultivate these vast regions thoroughly and easily, when, if they had been explored and settled twenty-five or thirty years ago, they must long have remained untilled from the scarcity of labor.

The agriculture of the future is destined to be a grand success. The 900,000,000 bushels of Indian corn, our most distinctively American crop, which were produced in 1868, will have increased to 12,000,000,000 in 1970; the 225,000,000 bushels of wheat will have multiplied to 3,000,000,000; and 2,000,000,000 bushels of oats will be necessary to supply the wants of the 97,000,000 horses, and the other animals and human beings with whom it is an article of food. Barley, already becoming a favorite grain on the Pacific coast, will yield not less than 400,000,000 bushels, and buckwheat, relished alike by oriental and western palates in its season, will hardly fall behind barley in quantity. Rye will not probably increase so fast, but may attain to 250,000,000 bushels. Of the root crops, potatoes, the most important of our esculents, will average 1,500,000,000 bushels and possibly more; the beet, including its use for sugar, will perhaps attain to 1,000,000,000, and the different varieties of the turnip, to 500,000,000 or 600,000,000. Hay, of which our average product is now about 26,000,000 tons, will not increase in quantity so much as other crops, since, in most of the Central and Southern regions, the live stock does not require shelter. Tobacco will, in default of more potent stimulants, continue to be the beloved but noxious

weed of the millions of our inhabitants, though there is danger that the Chinese may substitute the far more baneful opium for it. It is difficult to estimate the tobacco crop of 1970, because we can not be certain how many tobacco-producing countries may be annexed by that time. If we state it at 5,000,000,000 pounds, we shall be undoubtedly below the quantity which will actually be produced. The quantity of cotton then grown is still more doubtful, since it remains to be seen what proportion of our new lands can profitably be devoted to cotton, and what other textiles may take its place in the manufacture of dress goods. We should not be inclined to fix the production of 1970 above 20,000,000 bales, and probably this quantity would be consumed at home.

Of minor crops, it is impossible to speak with any certainty. Some of them may and probably will, attain to a magnitude which will enable them to rank with the great staples of our present agriculture. Others may fall off to the most insignificant proportions. But as a whole, there can be no reasonable doubt that the agriculture of a hundred years hence will more than keep pace with the population in quality, quantity, and excellence.

CHAPTER VI.

MANUFACTURES IN THE FUTURE.

There is more difficulty in determining definitely what will be the increase and progress of manufactures in this country for the next hundred years than in predicting the progress of any other form of national industry. Manufactures are so much stimulated or depressed by tariff regulations, so much influenced by popular taste and demand, and so much controlled by new inventions and discoveries, that apart from stating the general fact that there must be in most branches of manufacture an enormous development, it is hardly safe to make any specific predictions. We might illustrate these fluctuations by a reference to the manufacture of iron in the past; in 1842, 800,000 tons were produced in the United States; in 1852, 564,000 tons; in 1856, 874,428 tons; in 1861, 731,564 tons; in 1865, 931,582 tons; and in 1869, 1,950,000 tons. These fluctuations were produced, in a very large degree, by the varying duty on foreign iron of the classes which came most directly in competition with the products of our own foundries. There was a time when blanket shawls of American manufacture were in great demand, and our woolen manufactories could not make enough of them; that demand has now ceased, and the manufacturer who should attempt to revive it would find himself swamped very soon by the accumulation of his stock. Twenty years ago, the mowing, reaping and harvesting machines, the horse-rakes and hay tedders, were just struggling into existence, and the sale of them did not exceed a hundred or so a year. Now the harvests of the Western prairies as well as of many of our Eastern farms are wholly gathered by machinery, and though this manufacture is yet in its infancy, and is destined to become a hundred-fold what it now is, the sales already amount to many millions every year.

In 1860, the manufacture of coal oil had reached an annual production of $478,695—kerosene oil and its cognates were hardly heard of. In 1868, 74,774,291 gallons of petroleum oils were exported, of a value of $30,000,000, while the home consumption of this and the other products of the crude petroleum must have amounted to as much more. Here was a manufacture which had multiplied its products one hundred and twenty-five times in eight years. Sewing-machines, invented in 1846 by Elias Howe, had not attained to a noticeable amount of sales in 1850; in 1860 the annual product was $276,235. In 1869 the three companies known as the "Combination;" the Singer Co., the Wheeler & Wilson Co., and the Grover & Baker Co., report sales amounting to over $8,000,000, and the whole business approximates very nearly to $20,000,000. Here again is an increase of eighty fold in nine years. The development of the trade in reed instruments, melodeons, harmoniums, cabinet organs, &c., is nearly as great in proportion, and that in pianos but little less.

The manufacture of American watches, which in 1860 was not of sufficient magnitude to find a place in the census report, had in 1869 become so important as to supply a little more than one-half the demand, in value marketing nearly $5,000,000 worth a year.

The direct manufacture of iron and steel in their various marketable forms, including all articles made solely of iron in this country, was, in 1868, $147,621,251. With the finest iron ores in the world, and in close

proximity to mines of coal admirably adapted for smelting purposes, we shall be much to blame if within the next ten years we do not manage to supply our home demand for iron and steel, which is increasing with unprecedented rapidity. The demand for steel rails for the railroads already in operation, and those to be built in the next two years, will, the railroad men say, be 150,000 tons, worth not less than $12,000,000, and of iron rails in the same time, 1,200,000 tons, worth over $60,000,000. The iron and steel for locomotives, car-wheels, trucks, and cars for these railroads, will consume not less than $60,000,000 more, making at the very lowest estimate $132,000,000 worth of iron in two years, or $66,000,000 per annum for the next two years for railroad purposes alone. Add to this our annual consumption of iron and steel for other purposes, amounting in 1868 to $132,000,000, and increasing every year, and the consumption of American iron in 1870 can not fall short of $200,000,000. A writer in the Boston *Commercial Bulletin* estimates from existing data that our consumption of American iron for all manufacturing purposes (including railroad bars) in 1900 will be $600,000,000. The estimate is certainly much below the truth; but adopting it as a basis, we should have our manufactures of iron in 1920 of an annual value of $1,200,000,000; in 1940, of an annual value of $2,400,000,000; in 1960, of $4,800,000,000, and in 1970, of $7,200,000,000. We shall certainly do better than that, but the estimate itself is large enough to startle us.

The manufactures of cotton will not in all probability increase in any thing like so rapid a ratio, unless some new uses should be discovered for cotton which would greatly stimulate both its production and consumption; yet in view of the probability that it will continue to form the basis of the clothing of the great mass of the nation, and its use for bedding, for sails, and for so many other purposes, we are justified in believing that the manufacture will keep very nearly an even pace with the increase of the population. It was about $120,000,000 in value in 1860, and can not well be less than $1,500,000,000 in the amount of its annual products in 1970, or somewhat more than the entire annual value of all our manufactured products in 1860.

In *woolen goods* there has been a greater variation than in cottons. Many of the descriptions of woolen dress goods, or those composed in part of wool and part of cotton, silk or linen, are now manufactured successfully here, while ten years ago we were dependent upon Great Britain, France or Germany for them; others are still beyond our present ability to manufacture successfully. In the articles of woolen underwear, and in delaines, broadcloths, doeskins, cheap poplins, blankets, &c., there has been a fierce struggle between American and foreign manufacturers, and the foreign manufacturers, in order to drive our goods from the market and break our manufacturers, have sent their goods to the United States in immense quantities at less than actual cost, in the hope of being able to make a large profit when they had defeated competition. Heavy losses have been inflicted on both sides by this policy, but for the most part, though at the cost of individual failures, the American production has been kept up, and the foreign goods driven from the market. The production of woolen goods in 1860 was reported by the census as about $70,000,000. The production of army clothing during the war greatly increased it, so that at one time our production of woolen goods must have amounted to nearly $300,000,000. The depression since that time has reduced the annual product, according to the best estimates, to about $160,000,000 in 1868, and possibly to not more than $150,000,000 in 1869. For the future, notwithstanding some fluctuations, we may confidently hope that our constantly improving machinery, our higher attainments in chemical knowledge for the coloring of these goods, and in the principles of taste, and advance in artistic skill in designs, will enable us soon to command our own market by the production of goods whose quality, durability of color, and taste in design, shall satisfy the most fastidious buyer. If we can do this, we may be assured of a demand for more than $2,000,000,000 worth of these goods in 1970.

The manufacture of *clothing* has been largely developed within the past ten years. In 1860, it was reported at about $88,000,000. Since that time, not only has the cost of most articles of clothing more than doubled, and the amount of work on them greatly increased, but the manufacture of underclothing for both sexes, of collars, cuffs, and fine shirts, for men, and the entire production of walking suits, and dresses of all descriptions, cloaks, children's clothing, &c., been

almost created. The war stimulated production in these directions, and once established, it has maintained itself. This trade at the present time produces not less than $300,000,000 worth of goods annually, and as the proportion of these goods to the population must, both from the requirements of life and the depreciation in the value of money, be much greater than now, we are warranted in believing that the annual product of *clothing* in 1970 will be above rather than below $4,000,000,000.

The *silk* manufacture is just obtaining a foothold here. We have, it is true, for nearly twenty years, manufactured a considerable portion of our sewing silk, producing in 1860 $3,600,000 worth of that indispensable article; we had done something also in the way of silk gimps, fringes, and trimmings, and perhaps a little in the way of ribbons, but our production of all these was less than $3,000,000 in 1860. Dress silks, piece goods, beltings, and the finer ribbons, had not at that time been produced in any appreciable quantities. Now there are about 1,500,000 yards of dress silks manufactured here, perhaps half a million pieces of ribbons, and most of the dress trimmings, hat bands, braids, serges, bullion trimmings and carriage trimmings, as well as the silk plush for hats and bonnets required in our markets. The sewing silks have nearly driven the foreign article out of our markets. The manufactures of silk and of mixed goods partly of silk in the year 1870 will not fall below $25,000,000. For the first time in our history we are, on the Pacific coast, producing, on a considerable and rapidly-increasing scale, our own cocoons, and the influx of Japanese, accustomed to rearing the silkworm, will make this in a few years, in that climate and soil, a favorite pursuit. Our facilities for obtaining the raw silk from China and Japan are now superior to those of any of the European manufacturers. We may then feel justified in predicting for 1970 a production of silk goods of not less than $500,000,000.

The *hat* manufacture has had great vicissitudes in the past ten years, at some times in the full tide of an unexampled success, and at others remarkably depressed. It amounted to about $17,600,000 in 1860, and in 1863 or 1864 had more than doubled that amount. Since that time it has undergone great depression, and is still far from prosperous. Yet its present annual production can not well be less than $30,000,000. As in all probability the men of 1970 will require some sort of head-gear, for we can not well suppose that, like the Abyssinians, they will butter their hair and go bareheaded, we may conclude perhaps that the increase in the business will keep pace with the population, and put it at $480,000,000. This may very possibly be an under-estimate, as the only hats now imported in any quantity, the "Panama," or as they are sometimes called, "Guayaquil" straw or grass hats, may then be very largely made in our own territory.

One of the most extensive industrial operations in our country is the tanning or preparation of leather and the manufacture of boots and shoes. These two branches of manufacture in 1860 produced an annual amount of about $170,000,000, viz., $78,000,000 of leather, and $92,000,000 worth of boots and shoes, to which may be added over a million more for leather gloves. The old proverb says, "There is nothing like leather," and though a great variety of other substances have been tried for the various purposes for which leather is used, yet nothing thus far has taken its place permanently or to any very great extent. Yet the price of leather is advancing steadily and pretty rapidly. It is worth now double what it was before the war, and the fall in gold does not reduce its price materially. There may be no falling off in the supply of hides, but the materials necessary to the proper tanning of them are diminishing in quantity and increasing in price. It is a question whether leather enough can be produced a century hence to supply the various demands for it of a population of 407,000,000; if it can, it will be at a great advance on present prices. We are justified in believing that the leather product of 1970 will not be worth less than $1,500,000,000, and the boots, shoes, and gloves of the same year as much more.

The manufacture of *india-rubber goods* is one of those branches of industry which has made immense progress within ten years past. The whole history of vulcanized rubber is comprised within less than thirty years; its practical adaptation to any thing except shoes and clothing within less than twenty, and its use in almost every department of the useful arts belongs to the last ten. The "hard rubber" has been found admirable for every purpose for which ivory, bone, the ornamental woods, leather, *bois durée*, or most of the metals had been pre-

viously used; while the more flexible soft rubber has an infinitude of applications for which other materials had been used with less advantage, as well as to very many for which nothing else would answer. In 1860, the annual production was stated at $5,642,700, a sum even then considerably below the truth. The production of vulcanized rubber and gutta percha in the United States at the present time, (aside from the very large foreign manufacture under the Goodyear patents,) is above rather than below $25,000,000, and as new sources of supply of the raw material have been discovered recently, there seems no reason why it should not continue to increase as rapidly as the population, and reach $400,000,000 in 1970.

Clocks, watches, and jewelry, though distinct branches of manufacture, are usually classed together. The manufacture of the better class of clocks, those of the grade corresponding to the French parlor clocks, has been first brought to perfection within the past five years. The watch manufacture, as we have already observed elsewhere, has made great strides since 1860; and many descriptions of jewelry are now, by the aid of machinery, brought to a perfection which would not have been deemed possible ten years since. As belonging to the same general class of manufactures, we may mention also solid silver and gold plate, and silver-plated and Britannia ware, and the manufacture of gold pens. In 1860 these various branches of manufacture produced annually about $24,000,000. Their present production would be understated at $45,000,000, and they are articles for the most part of luxury, which will be in demand to a greater and greater extent as the nation increases in wealth. We estimate their production in 1970 at not less than $600,000,000.

Carriages are, to a considerable extent, objects of luxury, and in the abundance and constant multiplication of our other means of locomotion, we might expect that they would not increase in their production as rapidly as articles of necessity; but the fact seems to be otherwise. The annual value in 1860 was $27,265,000, of which about $375,000 was for children's carriages, dolls' carriages, &c. This branch of the business alone now produces annually more than $5,000,000 worth, and the aggregate production is about $50,000,000. We can not tell how soon the steam locomotive or some new motor may take the place of the horse before our pleasure carriages, but we think we are warranted in the opinion that in 1970 the value of the pleasure carriages of all sorts will not fall below $600,000,000.

The manufacture of *furniture* for dwelling houses, churches, halls and schools has made great advances in the past ten years. More costly woods, more elaborate designs, and more skillful inlaid and ornamental work, have greatly enhanced the price of the better qualities, and the demand for showy and cheap furniture has led to the manufacture of vast quantities of trash, which found a ready sale to those who buy a thing because it is cheap. The census of 1860 gives the value of the furniture manufactured that year as $25,632,293, and we are assured by the most intelligent men in the trade that it has more than doubled within ten years. The growing scarcity of choice woods, and the increasing labor of the finish justify an estimate of $600,000,000, as the annual product a hundred years hence.

Furnaces, ranges, heaters, grates, and steam or hot-water heating apparatus, with their accompaniments of registers, ventilators, and hot-air pipes, have within a few years past become necessities of modern and fashionably-constructed dwellings, as well as of churches, schools, halls, theaters, and hotels. This class of manufactures have increased in importance very rapidly during the past ten years, and the annual product, which in 1860 was a little below $2,000,000, can not now be less than $16,000,000. Some simpler and less expensive mode of heating and ventilating our dwellings and public buildings may be devised, accomplishing the desired result by electrical, philosophical, or chemical means; but whatever that mode may be, it will not in all probability dispense with much of the apparatus now in use for these purposes, and we are clearly below the probable truth when we estimate the annual product of these and other apparatus for effecting the same purpose at $200,000,000 in 1970.

From heating and ventilation the transition is easy and natural to the manufacture of *illuminating fluids and gases*, and the pipes, fixtures, chandeliers and lamps, by means of which the illumination is effected. The annual product of these various industries in 1860 was about $24,000,000. Since that time, gas has been introduced into almost every city or town of 5,000 inhabitants, and its use has become far more general than ever before: the manufacture of gas fixtures

and gas-pipe, as well as of chandeliers and brackets of the costliest description, has become a leading branch of manufactures; kerosene oil, in the peculiar lamps and stationary burners for its use, has become the staple illuminating article for all towns, villages and country hamlets not large enough to have gas-works, and the present annual production of all can not be less than $60,000,000. Here again, it is difficult to predicate with any certainty in regard to the future. We may be, we probably are, on the eve of great discoveries in regard to illumination; the electric light, the magnesian light, or some yet undiscovered illuminator, may replace very shortly our present expensive and unsatisfactory means of illumination, and enable us to dispense with costly burners and chandeliers, and satisfy ourselves with some simple and inexpensive fixture. Without something of this sort, our annual production, to keep pace with the increase of population, would have to be about $1,000,000,000 in 1970.

But while we have been stocking, furnishing, heating, ventilating, and illuminating our dwellings in the future, we have paid no attention to the manufacture of the materials of which the houses themselves are composed. The annual product of *brick and brick machinery* in 1860 was $27,228,746. The invention and application of better processes, the greatly-enhanced price of the product, and the rapidly-growing demand, have given to this manufacture a wonderful impulse during the past ten years. Its two branches, the making of bricks, and the making of brick machinery, now yield an annual product of more than $65,000,000, and as there is little probability that our successors for a hundred years to come will substitute any thing else for them, in building, we may safely conclude that the annual product of bricks and brick machinery in 1970 will not be less than $1,200,000,000.

Marble and stone work in 1860 yielded an annual product of $16,244,044. With the increase of luxury and wealth, there is a much greater demand for these costly materials for building, and new quarries are constantly opening. The use of various kinds of artificial stone is also slowly increasing, and when processes, now imperfect, shall have been brought to perfection, it will undoubtedly be far greater than it now is. Judging from the developments of the last ten years, we should say that the annual product of natural and artificial stone for building purposes in 1970 would not be less than $500,000,000.

The manufacture of *sawed and planed lumber* in 1860, produced for that year the value of $104,928,342. To this is to be added a little more than $7,000,000 for ship timber, shingles and lath, making a grand total of $112,000,000, and this exclusive of large imports of lumber from Canada. The product in 1869 was more than $200,000,000 in value, partly from the enhanced price and partly from the greatly increased consumption. This can not last, however, for our forests are perceptibly diminishing, and our people are awaking to the fact that the destruction of our forests must lead to the depopulation of large tracts of country. For many purposes, iron and papier mache are now taking the place of wood, and necessity will increase these applications. We can hardly suppose that the great population of the country in 1970 will use more than 4 times the quantity of lumber that is used at the present time, but they will have to pay at least two times as much for it, so that the money value of the lumber product of that year will not be less than $1,600,000,000.

But we have not yet done with the dwelling-houses and public buildings. The nails and spikes for fastening, produced in 1860, were of the value of $9,857,223; the sash, doors and blinds were worth $9,601,607; the lime and plaster, $4,959,359; the builders' hardware, $10,903,106; the slate and other roofing, $1,313,000; and other small items, such as sewer pipe, copper boilers, faucets, mantels, &c. &c., an aggregate of $1,500,000 more, making a grand total of $38,134,295. The production of these articles in 1869 was certainly not less than $70,000,000, and in 1970 will not fall below $1,000,000,000. Houses built of such costly materials can not be considered as furnished without one or more *musical instruments*. We find that in the year 1860 there were $7,548,300 worth of musical instruments manufactured in the United States. In the ten years that followed, the piano manufacture had more than doubled in quantity, and there was also a material advance in prices. The cabinet organs were first made within the past ten years, and the melodeons, cottage organs, and harmoniums, had multiplied both their numbers and their good qualities many times. The value of the production of musical instruments in 1869 was over $18,000,000, of

which nearly $13,000,000 was in pianos, and about $4,000,000 in reed instruments. The piano or cabinet organ, or both, are now regarded almost as a necessity in every decent house, and the demand for them is growing with great rapidity. That $300,000,000 worth of these instruments will not more than supply the demand for 1970 may be considered certain.

The *sewing machine*, ten years ago a luxury in the private family, and but just beginning to be fully appreciated by the manufacturer, is now the cherished servant of almost every family. The production of 1860 was valued at $4,247,820; that of 1869 exceeded $18,000,000, a single manufacturer selling over 100,000 machines. The sewing machine of 1970 will doubtless be a great improvement upon that of to-day in its ability to do a greater variety of work, and will certainly reach $240,000,000 in the value of its annual production.

Let us proceed next to manufactures of articles of food. Of these, *flour and breadstuffs* occupy the first place, and form the largest single item of our manufactures. In 1860, though flour was at a moderate price and the wheat crop unusually large, the value of the flour and meal produced was $248,580,365. In 1869, also a year of moderate prices, the value of the production of breadstuffs was over $400,000,000. In 1970, while they may possibly include the flour of some new cereal, the total product will hardly be of less value than $5,500,000,000, including starch, farina, and corn starch, which together in 1860 yielded a value of nearly $4,000,000, and rice flour, which amounted to $775,000 the same year.

The manufacture of *provisions*, such as cut, smoked, dried, and pickled meats, sausages, head cheese, &c., is one of very considerable amount, and is increasing. In 1860 its value was $31,986,483, and in 1869 it had increased to nearly $50,000,000. Allied to this is the preparation of canned vegetables, fruits, meats, and fish, and of concentrated and desiccated vegetables, meat essences, milk, coffee, &c. These goods have been prepared almost wholly within the last ten years, and the traffic in them has attained a great magnitude. The value of them in 1869 was estimated at somewhat more than $18,000,000. What other devices may be resorted to for preserving meats and vegetables, can not now be foretold, but in all probability the annual amount of manufactured provisions of all sorts, in 1970, will be at least $1,000,000,000.

Butter and *cheese*, from being home products, have come to be largely produced in factories. There are said to be between thirteen hundred and fourteen hundred of these factories now in the United States, producing butter and cheese to the value of over $10,000,000 annually. The home manufacture is probably nearly or quite double this. The aggregate value of these useful articles in 1970 will not probably fall below $350,000,000.

The manufacture of the *means or vehicles of locomotion* come next in order. We have already spoken of pleasure carriages and children's carriages, but locomotives, railroad cars, omnibusses, car-wheels, wagons and carts, of which in 1860 there were produced $19,869,800, have increased in a most extraordinary ratio within the last ten years. The great development of railroads has kept up a demand for locomotives and railroad cars which has tasked the ability of the largest manufacturers to supply; the manufacture of car-wheels, in its infancy in 1860, has now grown to be a prominent interest; the building of cars for the city or horse railroads, now employs the entire time and resources of six or seven large firms; and the railroad building, the war, and the exigences of trade, have given great activity to the manufacture of wagons and carts. The production of velocipedes and other vehicles of self-propulsion has had its rise and growth almost wholly within the past five years. The production of these articles in 1869, though the year was one of moderate business, exceeded in value $60,000,000. The uncertainty in regard to our means of locomotion in the future makes an estimate of the production of 1970 somewhat difficult; the steam locomotive may then be entirely superseded, the ponderous railroad car may be replaced by a carriage combining extreme lightness and strength, and this may be propelled under the earth in tubes or above it on elevated railways, or through the air; heavy freight may be sent to its destination, in spheres or by some other more rapid and easy mode than the heavy lumbering cart, while the emigrant's wagon, the "prairie schooner," will only be remembered by the "oldest inhabitant," or perpetuated in the paintings of Darley and Bierstadt and Johnson. But however this may be, there will be a demand for some means of locomotion and propulsion,

and probably of cost proportionate to those now in use, and we think $750,000,000 is not an extravagant estimate for the production of 1970.

The manufacture of *machinery* has been for many years a constantly-increasing business, but it has attained a magnitude during the past ten years in the United States greater than in any other country in the world. In 1860, its annual production exceeded $53,-600,000. In 1870, it is more than $125,-000,000. The great development of railroads, and the means of locomotion, of cotton, woolen and silk manufactures, agricultural implements and machines, of the paper-trade, of stationary and marine steam-engines, of fire-arms, sewing-machines, iron buildings, mining enterprises, petroleum wells, grain elevators, suspension and other bridges, and a thousand other enterprises, all requiring machinery for their prosecution, has given a vast impulse to this branch of business. That its progress in the future will be rapid is certain, and $2,500,000,000 is the lowest estimate of its annual production in 1970.

Fire-arms, from the tiniest pistol to the twenty-inch cannon, have been unfortunately in great demand during a portion of the past ten years. This manufacture was not fairly represented in 1860; the value of the fire-arms made that year in 239 establishments, stated in the census at $2,362,681, was really exceeded in the manufactories of the city of Hartford, Conn., alone. During the war the business attained a magnitude at one time of over $75,000,000 of annual production; it subsequently fell off materially, but taking the government and private manufactories together, it probably does not fall below $35,000,000, if we include under the same head what are known as military goods, swords, epaulets, sashes, equipments, and munitions of war. The multiplication of deadly weapons, though a necessity, is not so desirable as some other branches of manufacture, but its increase will probably pretty nearly keep pace with that of the population, and may attain to an annual product of $400,000,000 per annum.

The putting up of spirituous liquors, wines, malt liquors, distilled, rectified, and cordials, and too frequently their manufacture from spurious and poisonous materials, has always been a very large business. In 1860 it was reported in the census at about $53,000,000, which was unquestionably far below the truth. At the present time the actual production is of the value of not less than $300,-000,000 annually. That its future increase may not keep pace with that of the population, every good citizen will most earnestly desire, but that it will reach $2,500,000,000 by 1970, is altogether too probable.

The manufacture of *paper*, an important interest for many years past, and producing in 1860 an annual amount of $23,450,000, has rapidly increased within ten years past, while its price has been materially enhanced. The great use of it for paper collars and cuffs, for the manufacture of papier mache, for cartridges, for stereotyping, and the enormous increase of books, periodicals, and newspapers, have led to a very marked advance in its production. We are not aware that there are any very accurate statistics of the amount produced in 1869, yet it could not well have been less than $64,000,000. Six or seven establishments used nearly $1,000,000 worth a year each, and so many thousands were using large quantities, that the aggregate consumption must have been enormous. This consumption of paper is likely to increase faster than the population, and we do not overstate in making the production of 1970, $1,200,000,000.

Printing and publishing, with their allied branches of industry, engraving, lithographing, book-binding, type and stereotype-founding and electrotyping, have attained a wonderful development within the past ten years. In 1860, the annual product of these connected manufactures was $39,092,348. The war and the prosperous times which followed for three years, stimulated production to the utmost. Newspapers and periodicals attained a prodigious circulation, and books "about the war" sold by hundreds of thousands. In 1865 and 1866, the annual production of these branches of trade went up to nearly $150,000,000. In 1868 and 1869, there was a material falling off, but there is no probability that the production has or will fall below $100,000,000. The power of the press is realized to a far greater extent than it ever was before; and the more general diffusion of education has not only stimulated the sale of school-books beyond all former precedent, but has opened a new and great demand for general literature. Another feature of the progress of the publishing business is, that apart from the general periodicals, whose circulation has materially increased, every profession, trade, and department of industry, as well as every consider-

able benevolent enterprise, has its own special organ, published weekly or monthly, (and many of them more than one,) and in almost every case these special periodicals find a liberal support. Most of these professions, trades and occupations, too, have their own special literature, books prepared especially for them and intended to throw light on their duties and labors. The conviction that there were some processes by which the sun pictures or copies could be utilized for the reproduction, without much additional labor, of engravings, old manuscripts, or printed books, drawings, designs, &c., has led during the past year to the invention and perfecting of processes of photolithography, heliotypy, and other plans of accomplishing this purpose. These have now come into a position where they can produce excellent work with great rapidity and at a low price. The practice of the art of chromo-lithography, in this country, dates wholly within the last decade, and it has already attained a high degree of excellence, and its products are in great demand.

The arts of printing and publishing, and those manufactures and professions directly connected with them, must continue to grow certainly *as* rapidly as our population, and, we think, *more* rapidly. We are not inclined to put their annual production below $1,600,000,000 in 1970.

Chemicals, paints, dye-woods and dye-stuffs form a very important department of trade, and one stimulated into extraordinary activity by the events of the past ten years. The discovery of new chemicals of world-wide use; of new manures, chemically prepared; of new paints and painting materials, and of the whole class of aniline dyes, and compounds now numbering about one hundred and fifty distinct preparations; the forceful and destructive fulminates and explosive preparations devised, some of them for torpedoes or shells in the war, and now used for blasting and mining purposes, the new anæsthetics, and a thousand other recent chemical inventions, indicate the activity which pervades the whole body of chemical technologists. New chemical writers are springing up every where, and all find abundant work. In 1860, the annual production of chemicals, paints, dye-woods and dye-stuffs, was stated at $14,190,446. The estimate was even then too low, but in 1869 it had attained a magnitude of over $30,000,000. In 1970 it will not be less than $400,000,000.

Intimately connected with the manufacture of chemicals is that of drugs, patent medicines, perfumery, and mineral waters. These, in 1860, reported a production of $6,240,914. The introduction of many new chemically-prepared drugs into medical practice, the successful advertising which has created a vast demand for many proprietary medicines, often of little or no intrinsic value, the introduction of numerous new mineral waters to the public, and the skillful compounding of artificial waters having the same ingredients and proportions with the most celebrated European mineral springs, and the invention of new perfumes, have greatly enlarged the business within ten years past. Single houses in the trade have sold from one to two million dollars' worth of their own preparations within a year, and the aggregate sales of 1869 were not less than $16,000,000. We can not expect that men will need, or at all events will take, less medicine in the future than in the past; nor that they will be less gullible and disposed to swallow the nostrums which are largely advertised; nor is it probable that the toilet perfumes will ever go out of fashion; so that we may predict with considerable certainty that the production of these will about keep pace with the increase of the population. We shall have, then, a production in 1970 of about $240,000,000.

Another and somewhat coarser manufacture, that of *soap, candles, paraffin wax, and glycerine*, is also intimately connected with the production of chemicals. Some of its processes are cleanly and delicate enough, while others are dirty and repulsive. In 1860, the annual product was reported as $18,464,574. Since that time new varieties of soaps and new uses for them have been invented, such as the carbolic and cresylic soaps, for healing, disinfecting and bleaching purposes, and as a sheep dip, the medicated soaps largely used for cutaneous affections, the glycerine soaps for toilet purposes, the emery soaps for cleaning and polishing metals, &c., &c. The manufacture of glycerine has become very important, and that of paraffin wax has largely taken the place of spermaceti. The soap and candle manufacture now yields annually over $30,000,000, and its increase is sure and will be steady. We may put it down at $380,000,000 in 1970.

The manufacture of *saddlery and harnesses*, and that of *trunks, carpet bags, portmanteaus and reticules*, which is often associated with

it, is an important industry. In 1860 the annual product of these two manufactures was $17,494,797. During the war, and since, in the construction of railroads and emigration to the plains, the demand for these goods, especially the saddles and harnesses, has greatly increased, and it must continue a steady and healthy increase for a hundred years to come, reaching by 1970 an annual production of not less than $350,000,000.

The production of *glass and glass ware*, *porcelain*, *stone china*, *pottery*, and other *fictile wares*, has become a very important industry within a few years past. In 1860 the annual production of these wares was $11,515,836. Since that time the production of the better sort of porcelain ware has been greatly increased, and plate glass, as well as very superior cut-glass, has been produced. Within two or three years past, a new class of goods, known as "hot cast porcelain" have been largely manufactured, combining the mellow translucency of china with the other good qualities of glass, and a toughness and strength much greater than that of either glass or porcelain, while its price is marvelously low. It has at once attained to a large sale. The present production of fictile wares is not less than $20,000,000, and in 1970 will not fall below $300,000,000.

Another important industry is that of the production of *edge tools*, *axes*, *cutlery*, *surgical and dental instruments*, *joiners' tools*, *scythes*, *saws*, *shovels*, *spades*, *hoes*, *pickaxes*, &c., &c. Of some of these we have almost the monopoly, sending our Collins axes, Ames shovels, and our picks, scythes and spades, to all parts of the world, and completely occupying the markets. In 1860 we made these goods to the value of $8,632,149, and the necessities of the war, the Pacific and other railways, and the new mining regions, have greatly increased the demand. The annual production is not less than $14,000,000 now, and in 1970 will probably be about $225,000,000.

The cooper's art is the only other large manufacture of which we have space now to speak. In 1860 the manufactures coming under the general head of cooperage amounted to $11,352,321. The great expansion of the trade in petroleum and petroleum oils in the five or six years that followed, and the constant complaint of large loss by leakage from the casks, led to the invention of a cask which, having the staves as well as the joints saturated with a peculiar cement, made a vessel practically air-tight and oil-tight, and at a low price. The further extension of this process to wooden tubes of any required length, has led to the development of the plan for pneumatic tubes for railways and sphero-locomotion, which seems destined to revolutionize our modes of transportation and, possibly of travel. The $11,000,000 of cooperage goods in 1860 have grown to a production of $20,000,000 in 1869, and with the impulse they are likely to receive from this new mode of transportation in the not distant future, will certainly attain to $250,000,000 in 1970.

The subject of manufactures is a boundless one, and we might easily fill many pages more with the prospects of manufactures now of minor importance, but destined perhaps to a grand development in the not distant future. We prefer, however, to close the present chapter with a few words in regard to *coöperative manufacturing*.

The coöperative principle will find its largest and best development in manufacturing. In commerce, in agriculture, and in mining, it will be successful only in exceptional cases. The views, aims and capacities of the individuals composing a coöperative association will be so diverse that it will hardly be possible for them to carry on business peacefully and successfully together where there is not and in the nature of the case can not be a place which each man can fill as well or better than any other. In almost every branch of manufactures it is possible to organize a body of workingmen (not too large) where each will have his duties for which he is specially fitted, and in which he will not come in collision with any one else. Then, as it will be for his interest that his work shall be done in the best possible manner and as promptly as possible, he will do more and better work than he would have done if employed on wages by another. The tide is setting strongly toward coöperation now, and many will go into it in some form who would do much better to stay out. As a rule, coöperative associations are too large; only the best workmen, temperate, prudent men of sound judgment, clear head and good temper, will succeed well in it; and in manufacturing, which furnishes the best field for it, the coöperative association should employ a considerable number of persons who are not members, hiring them in the ordinary way, but giving them, after a period of probation, the opportunity, if they are qualified,

to become members, but still hiring constantly non-members. All the most successful coöperative manufacturing associations, both in this country and Europe, have adopted this plan, and it has its advantages. The persons so hired do not receive, taking every thing into account, so large a compensation as the members; while they are stimulated by the example of those around them and the hope of eventually becoming members, to do as much work and do it as well; and thus their labor in turn acts as a stimulant to the members. Much, too, will depend upon the skill and business ability of the foreman or superintendent of the manufactory. A wise selection here, of a man with a capacity for leading and controlling men, with a thorough knowledge of his business, good financial and executive talent, and a power of ready adaptation to any circumstances which may arise, will insure success, while the opposite qualities will most certainly lead to failure. Coöperation will play a large part in the enterprises of our country in the next hundred years, but the great masses neither can nor will be brought to participate in it.

CHAPTER VII.

MINING IN THE FUTURE.

No nation in the world, not even Russia, whose mineral treasures stretch across half of Europe and the whole breadth of Asia, possesses one-half the mineral wealth which is deposited within the present territory of the United States. The great development of this wealth has been made within the past twenty-five years, and much of it within the past ten or fifteen; and as yet we have hardly made a beginning in the work of bringing to light the hidden treasures of our mountains and valleys. Gold has been found in twenty-three of our thirty-eight States, with a fair prospect for it in at least three or four more, and in all the ten Territories. In thirteen of these States and all the Territories, the production is known to be sufficient to admit of profitable mining. Silver, either in a nearly pure state or combined with gold, lead, or copper, is found in at least sixteen States and most of the Territories in profitable quantities. That the older gold mines and silver lodes have reached and passed their maximum of production is undoubtedly true, but it is equally so that there are so many placers, quartz leads, and silver deposits yet unknown and undeveloped, that for a hundred years to come not only will the present rate of production be maintained, but it will be greatly increased. The gold production of 1869 was, in round numbers, $63,000,000, and for the first time in the last eight or nine years there was an advance on the amount mined the previous year. With the completion of canals and other improvements, and the opening of new gold fields, this production is likely to increase steadily for some years to come. Silver mining has two special reasons for a large development in the near future; the speedy completion of the Sutro tunnel, which, tapping the silver lodes in succession at their richest point, by level adits will drain them as well as make them readily accessible, and will lead to other similar enterprises; and the development on a large scale, which can not be long delayed, of the rich silver mines of New Mexico and Arizona. Colorado has also large quantities of silver with its gold, and though its ores are somewhat refractory, they are very rich. The newly-discovered silver lodes at White Pine, Enterprise, and the Base Metal range, in Nevada, are also yielding large amounts. We are not sanguine of such a vast development of the gold and silver product of our country as of some of its other industries; nor do we deem it desirable; for if there should be a great annual addition to the amount of the precious metals, it would necessarily depreciate their purchasing power, and make a gold dollar the representative of but one-half, one-third, or one-fifth the quantity of food or staple muslins, cloths, or other articles of fixed value, that it now is. There is danger of this result even now, from the greatly increased production of these metals in all parts of the world. We believe, however, that it is not impossible that the yield from all the mines in 1970 may reach $100,000,000 or even $125,000,000. The present gold and silver product of the world, including, beside our own mines, those of Mexico, Central America, the South American States, Australia, Eastern and Southern Asia, the mines of Siberia and the Ural mountains, and the various rudely-worked mines and gold washings of Western and South-eastern Africa does not much exceed $200,000,000 per annum. If it should rise to $300,000,000 per annum, a hundred years hence, its quantity would be so greatly increased (for it is to be

remembered that but a small proportion of it is actually lost or used up) that its purchasing power would be greatly lessened. A bushel of wheat, the most accurate and unvarying perhaps of all our standards of value, which is now worth, say $1.40 in gold, would then not be purchaseable below $4 or $5 in gold; and so with other articles; not that the wheat was intrinsically worth any more, but that the gold would be worth less. At the present time we will say that the day's wages of an average journeyman mechanic are equivalent to two bushels of wheat. They would be worth the same a hundred years hence, but expressed in money value they would be $8 or $10 a day, instead of $2.80 as now, yet the $8 or $10 would purchase no more food, clothing, house-rent, or other things needful, than the $2.80 will now. A nation's highest mineral wealth does not consist, however, in the amount of gold and silver beneath its soil. The iron and coal, the copper and tin of Great Britain, are worth more to her than gold or silver mines would be. Judged by this standard, we are rich in mineral wealth. *Copper* and *lead* abound at various points in our territory, as the readers of this work already know. The vast beds of *copper* ore in the upper Michigan peninsula; the extensive deposits of the same material in California; the cupreous ores of Colorado, New Mexico, and Arizona, where gold and silver are blended with the copper; the copper deposits of the lower California peninsula, and the smaller but rich deposits found at various points near the Atlantic coast, and the copper mines of East and Middle Tennessee, insure our supply of this important metal. *Zinc*, with which it is so often alloyed to make the important and useful compound, brass, is scarcely less abundant, and for the most part of excellent quality. *Lead* ores, and especially the galena, more or less argentiferous, are found in immense quantities throughout the greater part of the Mississippi Valley, especially in Illinois, Iowa, Wisconsin, Missouri, Arkansas, and Tennessee, and in equal abundance all over the Southern and Central portions of the great plains, the Rocky Mountain plateau, and the valleys beyond, even into California. Its deposits stretch northward also into Idaho and Montana, Oregon, Washington, and British Columbia. *Tin*, of which Great Britain and the East Indian Archipelago have been for ages the only considerable producers, undoubtedly exists both in Maine and in California, and has been mined to a small extent on the Pacific coast. It is too soon yet to determine whether it can be made to supply any considerable portion of the national demand.

Quicksilver, which is indispensable in gold mining as well as in many processes of the arts, is now produced in quantities nearly or quite sufficient for the demand, in the New Almaden and New Idria mines of California, and the existence of large deposits of cinnabar and perhaps other ores of it in New Mexico and Arizona is well known. It would be of no use for us to predict what quantities of these metals will be produced in 1970, for there are no means of knowing what the demand will be for them. Other metals, and particularly *aluminium*, which is now being produced cheaply and in large quantity, (and being the metallic basis of our common clay, can always be procured,) may take the place of copper or zinc or possibly of lead in many of their applications to the arts and mechanism; this much, however, we may regard as certain, that with the possible exception of *tin*, we shall not in all probability have occasion to import any of them from other countries.

Of *iron* and *steel* we may speak more accurately and confidently. No State or Territory of the Union is without its deposits of some of the ores of iron. These, as our readers already know from the earlier chapters of this work, are very numerous, and the very best of them for producing the best qualities of iron and steel are in close proximity to the best deposits of anthracite and bituminous coals of excellent quality for smelting them. The vast iron ore deposits of Pennsylvania, Ohio and Missouri, the rich ore-beds of the Lake Superior region, of New Jersey, Connecticut, New York, Virginia, West Virginia, Tennessee, Arkansas, and several of the newer Territories, supply all the needed varieties, and will enable us within a few years to become the greatest producers of iron and steel on the globe. The new processes for making steel and semi-steel direct from the ore will enable us to turn out during the present year, between one hundred and one hundred and fifty thousand tons, and by 1880, our annual production will reach two hundred thousand tons of steel. The production of pig iron in 1869, as we have stated elsewhere, was, in round numbers, one million, nine hundred and fifty thousand tons, an increase of eight hundred and forty-seven thousand tons on the previous year. With our facilities for its manu-

facture, and a tariff sufficiently high to protect our manufacturers at the start from disastrous competition, there is no reason why we should not in 1970 produce over thirty million tons of iron and four million tons of steel per annum. The practical uses of these metals must, necessarily, increase with each year. We are only beginning to find out to what purposes both iron and steel can be applied. It is but about twenty years since iron was first used to any extent in this country for building houses and warehouses; now, in our large cities, most of the warehouses and a very considerable number of railroad stations, ferry-houses, churches, and even private dwellings, are constructed wholly or in part of it. It is hardly ten years since an iron ship was so great a rarity that it was worth going miles to see; now the steamships, propellers, and many of the sailing vessels, are almost entirely of iron, and the vessels of war are almost wholly either of iron or iron-clad. It is hardly half a dozen years since we began to lay our first steel rails upon our railroads, and now we are using one hundred and fifty thousand tons a year, and very soon shall use five hundred thousand tons. So of other applications of these metals. Books have been made with leaves of steel as thin as tissue paper, and beautifully flexible. Furniture of all kinds, toys, buttons, jewelry, articles of dress, type, engraving plates, glaziers' diamonds, cordage, tassels, inkstands, and wigs, are a few of the latest applications of this wonderful metal.

We have already spoken of *aluminium*. When the processes for its reduction shall have been still further simplified and the price brought down to such a point that its universal use shall be possible, there can be no doubt that a metal so light and at the same time so ductile and malleable, nearly as white as silver and even less subject to oxidation, and which can be produced almost every where, will come to be of as general service as copper, lead, and zinc.

The other rarer metals are some of them found in our country, and will undoubtedly most of them prove sufficiently abundant for the demand, which is not large for many of them. Potassium, sodium, iridium, rhodium, cæsium, zirconium, and one or two more, have some use in the arts, but the reduction of the first two is rather a work of the laboratory than of the mining works, and the material from which they are to be reduced is always at hand. Iridium and rhodium are found nearly pure on the Pacific coast, and also at one or two localities east. Cæsium, zirconium, rubidium, and several other of these rare metals, are found in localities in New York and some of the New England States.

The elementary bodies, chlorine, iodine, bromine, &c., are not strictly minerals, but are usually procured by the distillation of sea-water or from the kelp or ashes of sea plants, and the livers of some fish. Some mineral springs and two or three land plants also contain a small percentage of them.

The most abundant and valuable of our minerals, after the metals, and perhaps even including them, is *coal*. The area of the known and worked coal-fields of Europe, Asia, Africa, and Australia, does not exceed twenty thousand square miles. The two great coal-fields of North America, the Appalachian and the Rocky Mountain, contain coal deposits of one million, three hundred and seventy-six thousand square miles. Of this vast area, six hundred and thirty-nine thousand, two hundred and sixty-six square miles, viz., one hundred and twenty-six thousand, two hundred and sixty-six in the Eastern or Appalachian coal-field, and five hundred and thirteen thousand square miles in the Rocky Mountain coal-field, are within the present limits of the United States, without counting the very extensive deposits known to exist in Alaska, or those of California, or the Lower peninsula and its vicinity. The great bulk of these deposits are of bituminous or semi-bituminous coal, varying in quality, but much of it very pure and rich in carbon and hydrogen. The Eastern anthracite coal-field is small in extent, not exceeding five hundred square miles, though some of its veins are very thick. The coal mined and consumed from this field in 1869 was fifteen million, seven hundred and twenty-one thousand, three hundred and eighty-six tons. There are some other small anthracite coal-fields in Rhode Island and Massachusetts (of inferior quality,) a small one, we believe, in Iowa, a considerable anthracite bed in the Queen Charlotte islands, off the coast of British Columbia, and in Lower California. The recently-discovered coal in the vicinity of Carbon Station, Wyoming Territory, on the Union Pacific Railroad, is said to be a semi-anthracite. The production of anthracite coal, a hundred years hence, unless new anthracite coal-fields are discovered, can not much exceed twenty-five or thirty million

tons per annum, since these fields will be so nearly exhausted, and the price will be so high as to limit the consumption.

The production and consumption of bituminous and semi-bituminous coals, on the other hand, is in its infancy. The production of 1869 was estimated at fifteen million, eighty-six thousand, nine hundred and thirty tons, including four hundred and twenty-three thousand, eight hundred and ten tons imported, and largely used for the manufacture of illuminating gas. The recent discovery of extensive beds of coal in Illinois, Indiana, and Kentucky, and the opening of the great deposit of coal along the line of the eastward base of the Rocky Mountains, will stimulate its use in all sections, and ere long all our locomotives, steamships, and steamboats, and all our stationary engines, will use bituminous coal only. Some descriptions of this coal are well adapted to the smelting of iron, and the reduction of lead and copper; others are capable of furnishing the best of illuminating gas and the most admirable of lubricating oils. Great Britain produced, in 1869, one hundred and three million tons, all bituminous coal, an increase of thirty-one million tons in ten years. Before 1880 it is probable that our consumption will rival hers, and that it will reach five hundred million tons by 1970.

Of the other mineral products, the most important is *petroleum*, of which we have spoken somewhat at length under the "manufactures of the future," most of the oil undergoing a refining process to fit it for market. The aggregate product of petroleum, crude and refined, the lubricating and illuminating oils, paraffin, &c., was about two hundred and fifty million gallons in 1869. When we consider the various uses to which it is likely to be put, the probability of its adaptation to the purposes of fuel for steamships, and the vast extent of the lands in which it is found, both in British America and the United States, we can hardly doubt that in 1970 its consumption will reach three thousand million gallons, or one hundred million casks.

Lime abounds in almost every section of the country; and the demand for it is generally supplied without any very long transportation. The limestones of the Mississippi Valley furnish both lime and a fine building-stone. *Sulphate of lime* (plaster of Paris) is found in several of the Atlantic States, in Iowa, Nebraska, New Mexico, Arizona, Texas, and California. *Salt*, both in brine springs and in the form of solid rock salt, is found in New York, West Virginia, Kentucky, Ohio, Michigan, Iowa, Missouri, Tennessee, Arkansas, Texas, Arizona, New Mexico, Utah, Nevada, and California, and is also made from sea-water, both on the Atlantic and Pacific coasts. Its production and manufacture are capable of almost indefinite extension, and there can be no doubt that long before 1970 we shall produce all the salt required for our own consumption, which will not probably be less than two hundred and fifty million bushels.

We have referred briefly to building-stone, and marble, granite, free-stone, slate, sienite, Scotch granite, &c., used for statuary and monumental purposes. That we possess all these, of quality fully equal to the best that can be imported from Europe, does not admit of a doubt; we are gradually importing the marble, sienite, Scotch granite and Caen stone in smaller quantities; the other building and statuary stones are not now imported to any extent, and when the time comes that this department of national production shall receive the attention it deserves, we shall have no occasion for foreign material. In all departments of mining industry, there must in the nature of things be a stupendous development, and no small proportion of the wealth of the nation, a hundred years hence will be derived from its mineral products.

CHAPTER VIII.

MACHINERY AND INVENTION IN THE FUTURE.

The production of some classes of machinery, such as locomotives, stationary engines, sewing-machines, agricultural machines and machinery for their manufacture, both in the present and future, have been considered under the heads of Manufactures and Agriculture. There are other descriptions of machines, however, which deserve some notice. The invention of printing machines of all descriptions has taken a great advance within a few years past. From the huge ten-cylinder machines, which will tumble out their 30,000 newspapers of the largest size, printed on both sides, per hour, to the little flying imp that rattles off 5,000 to 10,000 handbills or cards per hour, and the slower,

though still comparatively rapid book-printing machine, whose tireless fingers pick up and throw off their 2,000, 3,000 or 5,000 sheets per hour, all exquisitely printed—all of them are marvels of mechanical skill and of the adaptation of the principles of natural philosophy to the arts. That these mechanisms will continue to be improved is a law of our nature and of our national genius, and when at no distant day a printing machine shall be required which shall print 100,000 newspaper sheets per hour, it will be forthcoming, though it may require another St. John's Park to house it. But it is not alone in printing machines that the inventive genius of our people has displayed itself; the past decade has witnessed the completion of a more perfect composing and distributing machine than had before appeared, one which seems almost endowed with the capacity of thought. This has not yet attained to full perfection, but it will ere long be rendered capable, under the hands of a skillful operator, of doing the work of twenty, possibly of fifty rapid composers, in a given time, and doing it with an almost infallible accuracy. Of course such a machine is destined to be largely in demand in the future. Machines for adding, for making logarithmic tables, for a variety of mathematical calculations, are also among the recent inventions of our time, and the plan of self-registration is applied to a great variety of machines and instruments of practical and scientific purpose. By this ingenious combination we can read the time of a clock 4,000 miles away, can have delineated for our inspection the rhythmical or unrhythmical pulsations of our hearts; can ascertain what was the range of the thermometer and the barometer, the past night or the past month; can tell how many miles a carriage has gone in its last trip, how many passengers have entered or left a railroad car; whether a night watchman has performed his whole duty in the order and at the times required of him; what is the rate and course of travel of any particular star in the heavens, and what was the exact duration of the last eclipse. Among the latest scientific inventions is a machine for recording sounds, as the photograph records objects, taking advantage of the vibration of the sound-waves in the atmosphere. By means of this "sonograph," as its inventor has named it, it is hoped to be able to record in characters readily legible by the initiated, a speech, however rapidly-delivered it is uttered. New discoveries are constantly making, too, in the adaptation of the photograph, the telegraph, and the spectrum analysis, and by means of machines already invented or soon to be invented, we shall undoubtedly be able to learn more, daily, of the history of the earth and of its present and past inhabitants, and of the condition and habitability of the heavenly bodies, than ten or twenty years ago we could have acquired in a lifetime. In an age of such intense intellectual activity as that on which we are now entering, what to-day seems a miracle in invention or discovery, will to-morrow be regarded as an every-day occurrence, and the mind will be constantly startled with new and unexpected developments and combinations, till we become as impassive and incapable of surprise as the Indian now is.

No nation on the face of the globe ever possessed the inventive faculty in the same degree that it is manifested by our people, and though the admixture in the future of Mongol blood may deprive us of some of our originality in invention, the aptitude of that race at imitation and their patient faculty of automatic labor will, on the whole, increase still further our inventive powers. In 1869 there were, in round numbers, 18,000 patents, caveats, and renewals, issued from the Patent Office. Of these, perhaps 12,000 were new inventions, many of them, of course, worthless, but a few of decided value and importance. The gradually-increasing cost of procuring patents may restrict somewhat their issue, but the practical limit seems to be in the finding room for models, and skillful experts to make the examinations and report upon them. If it should be decided to dispense with the models and rely upon photographs and drawings of the inventions, the number of patents issued annually in 1970 may be 260,000 or more.

In such an infinitude of possibilities in the way of invention and discovery, it is idle to attempt any definite prediction of what even the most remarkable may be. We may conclude, however, with safety, that a new motive-power, or the application to practical motor purposes of some agency already known, will be one of the great discoveries of the coming age, and the thousands of applications of it will form the subject of more than as many patents. For the rest, they will probably concern one or other of the following topics: Improvements in locomo-

tion, transportation, and travel, including, possibly, some practical mode of æro-locomotion; the introduction of new textile fibres, and new methods of preparing and manufacturing them; the invention or adaptation of new materials to take the place of wood, leather, stone, or some of the metals now in use; the adoption of new materials for, and new combinations in, fictile wares, pottery, china, &c.; new or greatly-improved machines for agricultural purposes, and specially plows, cultivators, reapers, mowers, threshers, hay-tedders, corn-gatherers, huskers and shellers, &c., driven or drawn by steam or some other and newer motor; processes for multiplying and adapting fertilizers; improvements and new machines for joiner, carpenter and cabinet work; for the manufacture and laying of brick; for railroad and bridge construction; new or improved machines for every description of needlework, accomplishing it with greater perfection, certainty, and speed; improved machines for weaving carpets, goods of mixed colors and peculiar figures, and in connection therewith, improvements in all departments of the manufacture of woolen, cotton, and linen goods; the perfection of machinery for the manufacture of all the finest descriptions of cutlery, needles, files, steel and gold pens, watches, clocks, jewelry, and the setting and mounting of precious stones; new discoveries, inventions and improvements for the setting and distributing of type and the production of printing, engraving, color and fac-simile printing, by some processes at the same time cheap and perfect; new and better facilities for bookbinding; improvements both in the manufacture of paper and the production of paper-pulp; inventions for facilitating the copying of manuscript, and reducing the manual labor of writing; improvements in the construction, models, and motive-power of ships and sailing vessels of all sorts; and in this connection the production of armor-plated ships of war, combining lightness of draught, impregnability, and excellent speed and fighting qualities; the great improvement and perfection of fire-arms of all descriptions and especially of the larger classes; improvements in explosives, both in regard to their safe use and their bursting and propelling qualities; discoveries and improvements in anæsthetics, both in their character, safety, and more convenient preparation and administration; inventions and improvements in medical and surgical apparatus, instruments, appliances, and processes; the invention of processes by which greater certainty, safety and success could be assured in chemical manipulations, especially those pertaining to the extensive and constantly-increasing departments of practical chemistry and chemical technology; additions to the number and great improvements in the quality of our musical instruments; new materials and new processes for attaining a higher success in sculpture, painting, &c.; better methods of preserving vegetable and animal substances without change or decay, including in these some process for embalming the human body far more perfectly than it is now done; and finally, new, more economical, and greatly better plans of heating, ventilating and illuminating our dwellings and public edifices than any yet devised. There will be, of course, many singular, ingenious, and out-of-the-way inventions, some of practical value, perhaps, which will not come under any one of these heads, but there are enough suggestions here, if rightly considered, to occupy the inventive powers of a great nation for more than a century.

To this department of machinery and invention legitimately pertains the profession of civil engineering, a profession which has, within a few years past, greatly increased in numbers, and in its capacity for directing the great enterprises of railroad, canal, and bridge construction, and the solution of the great problems of the adaptation of materials to the purposes to which it is proposed to apply them. It is but a few years since it was thought that no one who had not a training in the schools of engineering in England or on the continent of Europe was competent to undertake any great work of construction. It has been proved, however, that our native engineers, trained either in the field or in our own engineering schools, are the best in the world; and the wonderful feats of railroad construction, building of viaducts, tunnels, subaqueous structures, bridges, both suspension and tressel, and lighthouses, and removing obstructions to navigation, which have been accomplished by men born and educated here, satisfactorily demonstrate their ability. The greatest engineering feat of the war, the bringing the vessels of Admiral Porter's squadron safely over the rapids and falls of the Red river at a low stage of water, was accomplished by a Wisconsin lumberman, General Bailey, who had not an engineer's education in any school except the Wis-

consin pine forests. The skill which availed to make a firm foundation and plant in an eligible position the great Swamp Angel battery, which accomplished a work previously deemed impossible, in the midst of a quaking marsh and quicksand of unknown depth, was not trained at West Point, but was that of a self-educated civil engineer, General Serrell. And though some of our great suspension bridges have been the work of European engineers, to whom we would give all honor, it is not to be forgotten that the finest and most perfect tressel bridge, the one almost universally in use on our great railroads, was invented by Howe, a mechanic of Springfield, Mass. The corrugated iron bridge, destined to a yet higher success, is the conception of another self-taught American mechanic; and the combination iron truss, in which the greatest possible strength is united with the smallest amount of material, originated in the mind of Asa Whitney, a self-educated American engineer. With the present remarkable opportunities for education in the principles of engineering science, it is to be expected that the strong bent of the American mind toward this pursuit will lead to the most extraordinary results.

Already a company is organizing to lay a telegraphic cable from San Francisco to China; and other companies are preparing, by ship canals, by excavations to a vast depth, by tunnels, if need be, to open the way between the waters of the Atlantic and Pacific at two points, (the Isthmus of Darien, and the Isthmus of Tehuantepec,) for the commerce of the world to pass through. Still others are projecting a navigable highway across the Alleghanies, through the Ohio and the James rivers; and yet others are proposing means of overcoming the difficulties of a union of the waters of the Atlantic and the great lakes with the Mississippi, by way of the Wisconsin and Fox rivers, or by a ship canal through Illinois and another around the Falls of Niagara. The crossing the peninsula of Florida by a ship canal is a foregone conclusion at no distant day; and in the event of the annexation of Cuba, a causeway and bridge may unite it with the mainland. What other and still vaster enterprises may be projected and executed in the future, we know not, but it will be a time of great undertakings, and as the ambition of man will know no limit and the wealth of the nation is likely to be sufficient to pay the cost of improvements which now would be regarded as utterly beyond human ability, no enterprises of which our imaginations can conceive need be regarded as impracticable.

CHAPTER IX.

PUBLISHING, AUTHORSHIP AND LITERATURE IN THE FUTURE.

We have shown in the previous chapter, the great improvements and advances which are now making and will speedily be perfected, in type-setting and distributing, printing, engraving, photolithography, heliotypy, intagliotype, color-printing, &c., &c. The effect of these upon the publishing business must be very great, not in the way of materially cheapening production, for most of these improvements rather add to the cost of the manufacture of a book, by making it possible to give a greater number of illustrations and a superior typography, than could have been afforded for the same or perhaps for any amount of money, fifteen or twenty years ago. The present volume is an illustration of this very point. Twenty years ago, a book on the subjects of which we treat might have been produced, having the same number of pages, and the same binding, perhaps for three or four dollars; but the abundant and superb illustrations on wood and steel, and in colors, and the superior typography, could only have been produced by great labor and very slow and careful printing, and would have made the cost of the volume not less than twelve or fifteen dollars. It is now afforded at two and a-half and three dollars, (according to the style of binding,) affording a smaller profit to the publisher than the volume with poor paper, indifferent printing and few and poor illustrations would have done, at the price named above, but giving the purchaser the advantage of a much more beautiful and valuable work, at a very slight advance in cost. This work of improvement in the illustration and externals of our publications is destined to go on, and though the average price of books, periodicals and newspapers will probably never again be as low as it was ten or fifteen years ago, yet the public will receive very much more for their money. The same state of things exists in relation to periodicals and newspapers. The price is somewhat higher than ten or fifteen years ago, in some cases nearly double, but the quality is in all cases greatly superior,

and in most instances the quantity of matter is nearly or quite double. The illustrations in the periodicals are generally of a much higher grade than formerly. Such is the expense of illustrations, typography and paper lavished on a first-class periodical (weekly or monthly) in this country, that a circulation as large as that of some of the most prominent English periodicals would not begin to support them. Several of our most popular weekly and monthly periodicals have a circulation exceeding 100,000 copies, and two or three have 200,000 or more. This makes them very valuable property; but constant energy and activity is necessary to keep them up to this standard. Of the daily newspapers, not more than one or two come up to a circulation of 100,000, though several exceed 50,000. With the improved machinery for rapid printing, and the facilities for duplicating to any required extent the stereotype casts of the paper, there seems to be no necessary limitation, certainly none inside of one million copies, which a daily paper might issue. Such a paper, if well conducted, would exert a mighty power in forming and influencing public opinion.

It is altogether probable that if the same eagerness and greed for the latest intelligence continues to possess the minds of our people, which now makes them impatient of the slightest delay, the number of editions of the daily papers will be greatly multiplied, and perhaps in the end, with the greatly increased facilities for procuring intelligence from all parts of the world, the newspaper patrons of 1970 may have a small hourly paper, at least through the business hours of the day, issued to them, instead of the mammoth dailies of the present time. Such a change would be no more surprising than the issuing of the first daily paper to the reading community, who had till then satiated their thirst for news with a weekly paper, and indeed it has its prototype in the bulletins of the stock exchange and in the hourly and half-hourly *extras* with which we became familiar during the war.

There is a limit in one direction to this multiplication and frequency of issue of newspapers. It lies in the power of the human eye to read, of the human mind to retain, and of the busy man to find time for such an accumulation of news. Our present mammoth dailies contain too much, and he who would make himself master of the contents of one or two of them, will find but little leisure for any other pursuit. Of course the issue of an *hourly* paper of the dimensions of the N. Y. *Tribune*, *Times*, *World* or *Herald*, is an absurdity; but the attempt to read daily, twelve papers of the size of the New York *Sun*, would be an infliction beyond the endurance of most persons.

The tendency of the weekly literary, scientific, and religious newspapers, and of the monthly periodicals, is constantly toward enlargement, and very large sums are often paid to popular writers for single contributions or serials, which, by extensive advertising, may materially increase the circulation of these periodicals. The effect of these measures, if continued in the future, will be to concentrate the available talent of the country in magazine and newspaper writing, and thus to make our literature fragmentary, superficial, and careless. The promptness and rapidity necessary in writing for the daily press is necessarily unfavorable to that care, deliberation and finish which characterizes our best literature. Hasty generalization, rash assertion, appeals to the feelings and imagination rather than to the reasoning powers, the introduction of colloquialisms, provincialisms, and slang expressions, and the desire to tickle the ear and amuse the taste, rather than to instruct the mind, or improve the morals, will be the natural results of this surrender of the domain of literature to journalism. There will remain, it is true, certain fields in the realms of literature and science which the magazinist and journalist can not successfully till; works of scientific research or learned investigation; grave essays, and careful dissertations, too grave and painstaking for the literary periodicals; treatises on physical, metaphysical, or theological topics; text-books, and philological works, and those books on which the laborious and patient student spends a lifetime of labor. For these works there will be, doubtless, in the future as in the past, some demand; but the popular taste, accustomed to lighter diet, will not easily acquire an appetite for sound and substantial literature. This tendency is already producing a noticeable effect on the literature of our own times; not to speak of the ponderous volumes of Cotton Mather, the able but slightly heavy orations of Burke, the learned but occasionally drowsy historical essays of Gibbon, we already find that the great majority of the purchasers who buy Addison, and Bacon, Hume, Hallam, and even Washington Irving, because it is the thing to

have them in their libraries, are entirely innocent of any knowledge of the works of these great masters of English undefiled; and even the polished essays of such men as Willis, Hawthorne, Prescott, Macaulay, and Milman—men who belonged to our own generation—are more talked about than read. The taste for trashy sentimentalism, born and bred of this excess of magazine literature, has already exerted its evil effect in corrupting the minds of the reading community, and rendered a sound and thoughtful literature distasteful and almost unendurable to the mass of readers. Yet there is nothing which so readily palls upon the mental appetite or produces so speedy and stubborn an intellectual dyspepsia, in any mind which is capable of doing its own thinking, as this same sensational, prurient, and exciting literature, of which the Miss Braddons, Ouidas, and Wilkie Collinses of our day furnish us such a profusion.

The man, woman or child who, now-a-days, sits down to read a work such as would have delighted the readers of thirty years ago, whether it is a religious treatise like those of Baxter, Doddridge, Howe, Bunyan, or Zimmerman, or a thoughtful essay like the miscellanies of Carlyle, Stephen, Jeffrey, or Dr. Milman; a learned dissertation like those of Bacon, Hallam, or Gibbon, or a great historical work like those of Grote, Gibbon, Hume, or Thierry—is voted slow, old fogyish, dull, and not up to the times in literature. How will it be in the coming time, when this tendency to pander to the weaker and baser tastes of our intellectual nature shall have dominated more completely over the minds of men? There is great danger lest, with a wider culture, and a more general diffusion of education, the age in its literary aspects should become even more soulless and frivolous than was that of the first, second, and third Georges in English literature. The passion for the lowest form of the novel, the mere story, almost always improbable, and concocted by immature minds, not versed in the knowledge of men or the world, is stimulated in our nurseries, in our schools, and above all in our Sunday School libraries, until the boy or girl of sixteen has no taste for anything higher than the New York *Ledger* and its kindred class of illustrated newspapers, the dime novel, or the miserable and disgusting array of yellow cover sensational stories. We can not but hope that satiated and surfeited at last with this unwholesome mental food, these young people may turn to something better, higher, and purer, and that in the generations to come, a better taste and a desire for a more thorough intellectual culture may prevail. But, alas! who shall teach the teachers of those generations? If it be true that the stream can not rise higher than its source, where shall we find, in this general decay of sound literary taste among the purveyors of literature, the authors of the coming age, those whose mastery of the subjects they may discuss is so perfect, and their intellectual grasp so wide, that they can present sound and profound truths in a garb so attractive that the young literary dyspeptics shall be beguiled into their study? There may be some such writers, *we* would hope there are many, but there is ground for fear that the number is not only small, but decreasing. Our age, an age full of great and heroic deeds and of mighty discoveries, should produce a great poet, or more than one, who could write an epic that should be to the world what the Iliad, the Æneid, the Jerusalem Delivered, the Visions of Heaven and Hell of Dante, and the Paradise Lost, have been to the past ages; but thus far no such poet has greeted our eyes; he may come in the next hundred years; he may even now be biding his time, but as yet his coming is unheralded.

The hundred years to come should be prolific in great poets, great historians, great orators, great preachers, great philosophers, and perhaps great novelists. We hope it may.

In regard to the publishing of books we may reasonably expect that the two methods so long in vogue will continue to be maintained; that in the future, as in the past, the publishers will be divided into what is technically known as "the trade," or the publishers who publish for and sell through the bookstores all over the country; and the subscription publishers, who sell through agents who go from house to house in the scattered hamlets as well as in the large cities. Both methods of publication have their advantages and their disadvantages, and neither is likely to be relinquished. The publishers for the trade are tending more and more with each year to that concentration and aggregation of great houses which seems to be the controlling tendency of all mercantile business, and with a population fifteen times what we now have, there is no reason to believe that we shall have fifteen or even ten times the

number of prominent publishers we now have. Twenty-five firms now issue nineteen-twentieths of all the books in general literature published for the trade; and twenty more, and some of these included in the previous twenty-five, would include nearly all the publishers of school and scientific text-books. The number has not materially increased within the past ten years; indeed we doubt if it has not diminished, for though there have been a few new firms, a larger number of the old ones have either retired, failed, or become consolidated with others. A gigantic capital is necessary for the successful conduct of the business, and the great sums invested in stereotype plates, electrotypes, and engravings, and the heavy cost of conducting the business, consumes money so fast, that the net return is actually smaller than in most branches of business. The school-book and text-book trade, which has been perhaps the most successful of any branch of the business, has now formed an association with very stringent regulations, which is likely to make their future business profitable, while it will do much toward preventing accessions to the trade. We are inclined to believe that the publishing of books for the trade, whether miscellaneous or text-books, will be conducted a hundred years hence mainly by about one hundred firms, each of them wielding a capital of several millions, and so leagued together as to make it very difficult for new firms to engage in the business. Their issues of books will be daily announced and in very considerable numbers, and sales will probably reach a much greater extent than now, but the management of a business so vast as most of them will have, will require the most vigorous division of labor and a high order of executive ability. The school and text-book department of the business will especially demand a vast amount of labor, and its sales will amount to many millions of dollars annually.

The business of publishing books to be sold by subscription will have a somewhat different course. Doubtless the subscription publishers will unite in an association for their own protection and defence, and thus will obviate some of the difficulties which now beset them. If they can, by this or any other means, secure the services of a higher and better-trained class of canvassers, and can give the public generally a more favorable impression of them, they will have accomplished much to insure their future success. The demand is now increasing for books of a much higher grade than were formerly sold by canvassers, and we think that at the present time the books sold by subscription will compare very well with the average of those published for the trade. Competition and the desire of attracting the attention of purchasers to their books, will lead to greater improvements in typography, illustration, and possibly in the preparation of their books in the future, and the subscription book which will sell to the extent of one hundred thousand or two hundred thousand copies in 1970, will be a very attractive book. While, of course, the number of different books sold by this method will bear no comparison with those sold through the trade, it will achieve great successes for a few books, and as it will require a smaller amount of capital than publishing for the trade, it will probably be more extensively tried. We should be inclined to estimate the number of subscription publishers in 1970 at not less than fifteen hundred. We believe, too, that very many authors who have something to say of real value and importance to the whole nation, will seek this mode of publication, as bringing them more directly in contact with the great mass of those they desire to address.

The publication of music and music books and periodicals, is distinct from other branches of the publishing business, and employs a large capital. It is increasing, and will continue to increase as the taste for music and the disposition to a higher and better musical culture prevails. We are becoming gradually a music-loving people, and the large accession of Germans to our population will aid in inducing a better musical training in our families. The Orientals, who will by and by form so large a portion of our population, are not famous for their musical taste, and though they are fond of what they term music, it is, to a Western ear, only a horrible agglomeration of discords. If they have the musical ear, they can doubtless be made to appreciate the concourse of sweet sounds; but this is somewhat doubtful. On the whole, we may, with safety, predict a very considerable advance in the knowledge and taste for music in the next hundred years, and the musical publishers will doubtless reap an abundant harvest.

CHAPTER X.

THE FINE ARTS IN THE FUTURE.

The increase of wealth in a nation always tends to the increase of luxury; and in no way can this tendency to luxurious expenditure expend itself more beneficially than in the encouragement of the fine arts. The wealthy art-connoisseur who expends some thousands of dollars on a fine painting, a beautiful statue or group, or a tasteful and luxurious dwelling, though his principal impulse may be the gratification of his own tastes and love of art, is really a public benefactor, if in the first two cases he does not hoard up his treasures of art, and keep them from the view of all whose enjoyment might be heightened by them; for not only does he encourage the artist in his labors, but he aids in improving the public taste, and contributes greatly to the pleasure of those who, while having the same tastes, do not possess the same means of gratifying them. Yet he is also a public benefactor in a larger sense, who devises means for bringing the treasures of art within the means of persons of small fortunes. A beautiful landscape, a grand and rugged mountain, a cataract as lofty as Niagara, or waterfalls uniting sublimity and beauty like those of the Yosemite, a sweet and charming face, full of innocence and truth—these are all objects which not only delight but elevate and enrich the soul; and the transference of any one or all of them to the canvas, if successfully accomplished by an artist whose soul is in his work, and who has the ability to embody his conceptions in color, or drawing, or in the pure marble, is itself a thing of beauty, which brings hardly less enjoyment to the cultivated taste than the scenes or objects it represents.

If now by the skill of the engraver, the chromo-lithographer, or the moulder and die-cutter, who must in each case be himself an artist as truly as the first designer of the landscape, portrait, figure, or group, these rare and costly objects of art can be reproduced by thousands in an exquisite engraving, chromo, or statuette in Parian, bisque, or bronze, at a small price, and thousands of homes thus made beautiful and joyous, is not the world made the better and happier for the life of this artist who manifolds the creations of art?

The development of art by means of photography and its combinations with other processes, is also effecting great good, in multiplying (not permanently, perhaps) the representations of statuary, machinery, portraits, landscapes, and historical scenes, the exterior and interior of buildings, &c., &c. The stereoscopic views, and the presentation of these in the stereoscopticon and other instruments, have greatly added to the means of rational enjoyment in the observation of works of art. Thousands and tens of thousands who, with the culture which would have enabled them to enjoy a tour in Europe, have never been able to command the means for it, have enjoyed nearly all the pleasures of the journey in being led step by step over the route, and made to witness in life-like reality those landscapes—mountain, lake, river, and cataract—and the venerable and interesting buildings, and still more venerable and interesting ruins, which they would have seen in the actual journey. The problem, so long unsolved, of photographic representation of persons and objects in their natural colors, is already beginning to show signs of yielding to the importunate questioning of skilled experimenters; and remarkable as have been the discoveries of the past thirty years in regard to photography and its combinations, we are evidently just on the verge of others still more extraordinary. Our photographers, before the close of the present century, will have overcome their present difficulties, and will be able to present us the wondrous hues of the evening clouds, the glittering whiteness of snow-clad summits; the reddish gray, deepening into tints of blue, and of living green, of the lower slopes of our mountains, the various shades of mountain lakelet, the purling stream, the broad inland sea, and the foam-capped waves that burst on the rock-bound shores of New England; the tints of autumn in our forests, the shades of grass and flowers and shrubs; the hues of the sky, the shadings of the human complexion, even to the delicate flushing of the modest maiden's cheek, and the resplendent beauty of the plumage of birds, the wondrous tints of the butterfly and the glittering iridescence of the insect's wings, or the gold and purple bronze which glistens on its armor. In every other department of the fine arts, there will be equal progress. The reproduction in more permanent and enduring forms of these wonders of nature, will task the highest skill of the chromo-lithographer, and methods will doubtless be devised for printing in color from raised surfaces, with a perfection as yet unattained by the

lithographic art. We do not despair, even, of learning the secret of the application of the different rays of light to produce the colors of nature, and the skill to use them for the production of the same effect, thus making the sun our colorist. This once accomplished, and how dull would be the finest colors blended on the artist's pallette compared with the tints which the light would give us. We do not, however, anticipate that what is now, properly enough, called high art, will in any respect degenerate; on the contrary, we have great hope of its advance far beyond anything which it has hitherto attained. When our artists shall have learned fully the important lesson that the successful copying of nature in its sublimity, its beauty, or its desolation and homeliness, is the highest attainment of art, and shall resolutely reject those conventionalities and tricks of art which have led them so far astray, they will be prepared to stand forth as the founders of a new school of art which shall be enduring, and whatever may be the colors or materials they may use, they will produce effects hitherto unattainable. In sculpture, as in painting, there is no reason why we should not attain a higher success than even the most skillful of the Greek sculptors; the anatomy of the human form, the positions and expressions of the passions and emotions, and the laws which govern them, are fully defined, and the artist who has the power of expressing his conceptions in plastic material (clay or plaster,) can have them rendered for him exactly in the more enduring marble by inferior hands. So much of the work of the sculptor is merely mechanical, and can be performed by machinery or by the labor of ordinary trained workmen, that he has a much better opportunity than his predecessors in former ages, of working out the great thoughts in which high art really consists.

In *architecture* there is a necessity for the development of a higher measure of creative genius than has yet appeared in our country. The problems of climate, of temperature, of light and shade, of material, of warming and ventilation, and of the surrounding scenery and landscape, are all more or less new, and at all events different from those of other countries; differing, indeed, in a very marked degree in different portions of our own country. If any country ever imperatively demanded styles of architecture peculiarly adapted to its own wants and necessities, America is that country; yet our architect only ring changes on Doric, Tuscan, Corinthian, Composite, Italian, Early, Middle and Later Gothic, Norman, and Renaissance, o some combinations of these. It would seem to be their idea that all the possible styles o architectural structures had been already exhausted, and that nothing more remained fo them to do except the combination of some two or three of them in some way which should mingle ugliness with inutility. This state of things can not last. We shall have, probably before the close of the present century, some architect who, by the force of his genius and the brilliancy of his inventive powers, shall introduce a style of architecture which shall commend itself to public taste and acceptance alike by its beauty and its adaptation to our climate, conditions and requirements. Nay, diverse as are these, we should and doubtless shall have a series o styles of architecture, each appropriate to its own section. On the broad, sunny plains of our central region, where the blue sky is ever cloudless, and no forest trees woo the winds, a style of architecture which shall supply the needs of shadow, quiet and repose, will be needed; in the mountains and on the Pacific coasts there will be an opportunity for bolder flights of fancy, for buildings whose well defined and clear outlines shall stand out sharp and cleanly cut in that wonderfully pure and transparent air; and on the Atlantic slope, grand, solid and substantial edifices will well become our more rigorous and frowning climate. The palaces and great manor-houses of a hundred years hence will surpass in extent and magnificence the famous imperial palaces of Rome or the Orient, for it is a characteristic of the rich men of our own time and nation to surpass in their lavish expenditure the most renowned spendthrifts of antiquity. The costliness, and we would hope also the architectural beauty of our churches, capitols, halls, and other public buildings, as well as of our college edifices, schools, and theaters, will increase in a still more rapid ratio. It was formerly objected in Great Britain that the voluntary system of religious worship in this country utterly precluded all possibility of good church architecture; that the churches would only be huge barns, because the communicants of each denomination would be unwilling to contribute for anything beyond the cheapest and plainest of church edifices. The true danger lies in just the contrary direction; the volun-

tary system, by its strong competition, prompts to altogether too heavy expenditures for church edifices, and though the expenditure is not always in good taste, yet enough is paid to make the churches, at least in our cities, admirable models of the best styles of ecclesiastical architecture. We have not the exact figures at hand to verify the statement, but our impression, derived from a pretty large acquaintance with the cost of church edifices in Great Britain and the United States, is that the aggregate value of these edifices in the United States is very little, if at all, below that of Great Britain. We have not, indeed, a St. Paul's, a Westminster Abbey, or a York-Minster, and ages must elapse before we can rival them in the wealth of their historic and antiquarian treasures and memories, but in the matter of actual cost and money value we are not far behind the United Kingdom, though she has had two thousand years, and we but one hundred, for the development of these edifices. A hundred years hence the advantage will be altogether on our side, and we may hope that the originality and beauty of the architecture will not be less so. Our National, State, and municipal government buildings, whether architecturally successful or not, have led to most enormous expenditures in the past and will lead to still greater extravagance in the future. Our National and State Legislatures, our Presidents and Governors, are not so well paid as they should be, and far less than some of the smaller States of Europe, but for the most part they are far more luxuriously housed than the legislatures of any country of Europe, and the Presidential and Gubernatorial offices are luxuriously fitted up. Our present National Capitol at Washington has cost between fourteen and fifteen millions of dollars, and is not remarkable for its beauty; the Capitol of 1970, whether at St. Louis or Omaha, will, before its completion, cost not less than a hundred millions, and will, we hope, be the embodiment of the best architectural genius of the nation.

But we must not overlook the claims of *music* to be considered one of the fine arts, nor forget that melodies addressed to the ear have as elevating and refining an influence as the lessons of beauty in which the eye finds such delight. The measure of our national progress in music is not to be ascertained from the wonderful increase in the sale of musical instruments of all descriptions, for this is to some extent a matter of fashion, and many hundreds and perhaps thousands of pianos are rarely or never opened except at some evening party or entertainment, the ladies of the household having, to use their own expression, had enough of that in their school days. Nor is the greater prevalence and larger support of Opera a certain indication of a higher musical culture, for this, too, is a matter of fashion, and as many go to see and to be seen, or to witness the acting and dancing, as to hear the music. The shamelessness and indecency of the performances in Opera Bouffe of late have attracted thousands who would never have gone merely to hear Offenbach's music. At the Philharmonic and other great concerts there are also many in attendance who have no knowledge of and no taste for music, but who go because "it is the thing" to do.

Yet there has been a rapid advance in musical culture in the United States within the last twenty or twenty-five years. The number of really accomplished singers and first class performers on string and wind instruments has greatly increased, and the persons who can appreciate the best music although it may be difficult, is certainly tenfold what it was twenty-five years ago. Several of our primé donné, born, and educated almost wholly here, have attracted great attention and occupied the highest positions in Opera abroad. The musical taste of the masses is becoming more cultivated; church music is acquiring a very much higher character. These are all indications for good. Musical instruction of the highest grade is now to be had in the musical conservatories of most of our large cities, and our amateur performers often attain a very high degree of skill. Our pianos, cabinet and parlor organs, and brass instruments, are acknowledged by European musical professors and connoisseurs to be the best in the world. With these advantages we may confidently look forward to great attainments in music in the next hundred years. Whether they will display themselves in monster concerts, anvil choruses and accompaniments of twenty-inch cannon, may be uncertain; but this much we may be assured of, that not only will the grandest compositions of the old masters, and the more brilliant but less substantial operas of the present century be worthily reproduced, and with an effect which has never yet been attainable, but other composers will arise who shall be able to transfer to musical ex-

pression the great events of our national history and the music of nature in her grandest hymns of the forest, the mountain and the cataract. In religious music we may expect new triumphs, in songs and melodies which shall lift the soul heavenward when the thoroughly trained voices of the great congregation roll out their volume of joyous music, and though the somewhat extravagant anticipation of one of our poetical and musical composers may hardly be accomplished,

> "When Heaven's every bright rafter
> Shall shake with the thunder of sanctified song,"

still we may rightfully expect that there will be grander choruses of sacred music rising from the sanctuaries of the future, than we have dared to dream of.

Floriculture is fast taking its place as one of the fine arts; and very appropriately so, for nothing can be more delightful or more elevating and refining to the mind than the culture of flowers. There is something exquisitely beautiful in the development of a flower; in tracing it from the seed, the layer, the bulb, or the germ, all of them various phases of the leaf, which is the primary form of the plant, through all its stages of growth and development till it blooms forth in its highest beauty or yields its perfected fruitage, the infinite variety of its forms, the exquisite blending and the beautiful contrasts of its colors, the delicate proportions and shapeliness of its flowers, and the remarkable diversity of the habits of the plants, one rejoicing in sun and drought, another constantly craving water; one perishing in the shade and another unable to exist out of it; one expanding its flowers to catch the sun's first rays, another hiding away till the afternoon rays come slantingly upon it; one covering the earth with its continued blossoms through the whole summer, another shy and coy, giving but scant and widely-separated blooms, but of exquisite beauty, to the hand that cultivates it; all these varied incidents of plant life make the cultivation of flowers one of the most instructive and intellectually profitable pursuits in the world. This pursuit, too, is to have a grand and glorious development in the future; the flowers and productions of all climes will be ours to choose from; there is no climate so hot, so cold, so moist, so dry, so purified with strong, searching winds, or so languid and drowsy that we have it not, either in nature in our varied temperatures, or in the artificial climate of the conservatory and green-house. Side by side there will be seen growing the caoutchouc tree of South America, the cactus of Africa and of Mexico, the bauhinia of South Africa, the clianthus of Australia, the dwarf yet fruit-laden pear and orange of Japan, the ferns of the Southern Continent, the club-mosses, gentians and chrysanthemums of the Alpine flora. The houses of the rich will have a well-filled and skillfully-managed conservatory as certainly as they have a kitchen. Every year will witness new conquests from the woods, the plains, the ravines; new treasures garnered for cultivation and development, and botany, no longer a dry and unpleasant science of barbarous Latin names, will become a study of life in the plant, in all its stages of growth, fruition, decay, and reproduction.

It is one of the most hopeful traits in the character of the Chinese and Japanese, that through all the long ages of their formal and uninteresting national and social life, cut off from intercourse with the outer world, with a routine prescribing all the minutiæ of life, they have still maintained their love of flowers. The future development of floriculture in this country will depend largely upon them, and it could hardly be in better hands. In our freer country, with a new and virgin soil under their feet, and new and brighter skies overhead, it will be a wonder if they do not themselves learn lessons from the flowers of the field, which, in all their national experience of 3,000 or 4,000 years, they have never yet dreamed of.

CHAPTER XI.

THE SOCIAL AND INTELLECTUAL PROGRESS OF THE NEXT HUNDRED YEARS.

A great social and political problem—one which has troubled our nation since its first organization—has received its solution within the last decade. The negro and his condition of slavery was the constant source of anxiety, of irritation, and became the basis of social distinctions and the corner-stone of an attempted aristocracy. A fierce and bloody war grew out of this problem, and it was solved at last in the only sensible way by giving him his freedom, and the same rights and privileges, social, intellectual, and political, which all other citizens enjoy. This is the true basis; it makes him no longer a slave, nor, on the other hand, a petted fa-

vorite; but a man, with the same privileges, responsibilities, joys, sorrows, struggles and triumphs as other men. He has a fair field and no favor; what he attains either in social or intellectual progress, in the accumulation of wealth, or the acquisition of political station and renown, he will owe to his own abilities and his own wise use of them. There is no question of amalgamation here, but if the negro, rising from a condition of ignorance, degradation and slavery, can achieve position and station by dint of hard work; if he can surpass in intellectual brilliancy and vigor the white man, who has had so many generations the start of him, let him do it by all means. The white man should feel stimulated by the progress of the man of color to make higher attainments himself. There will be, doubtless, during the lifetime of the present generation, minor difficulties and annoyances growing out of this former condition of the negro; but they will not prove of serious consequence. The great fact of his freedom and equality before the law will lead him on to higher culture and will wear off speedily the slighter failings in his character, his fickleness, childishness, and untruthfulness.

This great social question being disposed of, we find ourselves confronted by three more, each claiming speedy settlement. These will be the great social questions which for the next hundred years will agitate the mind of the nation. We hope and believe that they will not, like the one we have just solved, find their solution in war. These three problems are: 1st, the social and political status of woman, and the position she will occupy in the government of the nation; 2d, the liquor question in all its bearings, in regard to the manufacture, whether it shall be heavily taxed; the sale, whether it shall be restricted by license laws, prohibited except for medicinal, chemical, manufacturing, and sacramental purposes, or left free to work out its injurious effects; and the drinking to intoxication, whether it shall be prevented, by restriction of the sale, or punished, by fine, imprisonment, or public degradation. There are other ethical questions more or less connected with this, which will also create considerable excitement in the communities where they assume a practical form. Among these are, the culture of the grape for the manufacture of wines and brandies; the raising of the hop, for the manufacture of ale and distilled liquors; and to some extent the production of grains for the purpose of distillation; the manufacture of factitious liquors from alcohol or strong whiskey and other ingredients; and the raising and manufacture of opium and tobacco for habitual use as stimulants.

3d. The Chinese question, viz., whether the Chinese and other oriental nations shall be allowed to swarm into our territory and take the place of our present laboring classes; and whether, if, as is probable, this right is conceded, they should be admitted to the same political and social privileges with ourselves. These questions are all of them of great importance, and should be settled speedily and forever. Other questions, mainly ethical, but all bearing on our social condition, will claim an answer by and by, such as the question of the marriage relation and divorce; polygamy, free-love, absolute free-trade, some form of communism, the abolition of capital punishment, &c., &c. The coming hundred years will not, more than the past, be free from exciting and sometimes rancorous discussions on these points. But the three great questions already indicated will, until they are decided, occupy the foremost place in the public attention; not only will political victories and defeats, both State and National, rest on the decision, but their influence will be felt in our homes and in every phase of social life. The question of the political and social status of woman resolves itself into so many subordinate questions, that those who would be disposed to concede many rights and privileges to her, will be blamed by some for conceding so much, by others for not yielding all. That, in the matter of the rights of property; that in some of the disabilities connected in the English common law, and even in many of our statute laws, with her position in marriage; that in the compensation for labor performed by her, or for injuries done to her, woman in the past and to some extent in the present, has suffered wrong, every intelligent right-thinking man will admit, and society will not hesitate, when the measure of these wrongs is ascertained, to make amends for them; but that it is the privilege and duty of every or any woman to exercise the act of suffrage on political questions, to choose officers of the government at the polls, to make laws, to preside in the courts, to become members of Congress, political leaders, or executive officers of the government, admits of very grave doubt. The nature of suffrage,

the fact that the woman is already represented in the head of the family to which she belongs, her strongly-marked adaptation to the duties and pleasures of home life, and her equally manifest inability to view political questions in any other than a partisan light; the demoralizing effect of active participation in politics upon the purity and delicacy of true womanhood; the large proportion of women who would always vote *under influence*, and that of the worst kind, and the great majority of the best women, who would be unwilling, even under stringent compulsion, to vote, while the worst classes would be marched up to the polls *en masse*, to cast their ballots for those demagogues who had purchased them—are all so many strong reasons against woman suffrage.* As to holding office, an almost necessary corollary of the exercise of suffrage, we are inclined to the belief that very few of the women who possess sufficient capacity for it, would desire to undertake its responsibilities. So far as the strife has yet progressed, the only women who have nominated themselves for Congress or other high office, have manifested no other qualifications for it than unlimited powers of declamation, without point or argument, and with absolute ignorance in regard to many important questions which would inevitably come before them for action if they ever achieved an election. There are, unquestionably, many women much better fitted for this position than these boisterous declaimers, but *they* are not of the sort that aspire to it.

Our own opinion has been and still is, that the ardent advocates of woman suffrage would so overdo the matter, as to provoke a reaction against it, and render their success impossible for at least a hundred years to come. Still the itching for progress in any direction is so strong in the minds of the unthinking masses, that it would not be matter of surprise, though certainly a cause for profound regret, if they should succeed in some, and possibly in all the States. The possibility of the adoption of a limited woman suffrage in England is often quoted as a strong reason why it should be established here; but the cases are entirely unlike. Suffrage in England is based exclusively on a property qualification. The registry of voters comprises now less than one-tenth of the population. If all the women who possessed the property qualification were to be registered, the whole number of voters, men and women, would not be one-ninth of the population, and the only ground on which it is urged there is that certain single, widowed, or in a few instances married women, possessing property in their own right, have not, without the ballot, sufficient control of it to prevent undue taxation of it by parties who, if they could vote, would be more ready to consult their interests. There is, in the suffrage agitation in England, no claim of equality of the sexes, or of any inherent right to vote in woman as woman, but only in the right of a woman who holds property to have a voice in choosing those who are to lay taxes on that property. Here, on the other hand, suffrage is well nigh universal, so far as men of adult age are concerned. There is no property qualification, and the only possible reasons why women should vote are based on the assumptions of her being hitherto entirely unrepresented, and of her being in all respects the equal and peer of man. Both assumptions are unfounded; woman is the complement, the other half of man, but the question of equality or inequality is absurd between things or persons essentially unlike; and as to the representation, it is the family, not the individual, which is the unit of suffrage, and in that family representation, the woman is as truly represented as her father, husband, brother, or son.

Should the decision in favor of woman suffrage finally prevail, with its inevitable result of office-holding and partisan candidacy on the part of the sex, the social condition of the country would be greatly altered. While there would be great numbers of women who would neither vote nor seek office, many thousands (millions we might say, perhaps, in view of the great prospective increase of our population) of the more giddy and conceited, pleased with the notoriety which political life would afford, would abandon all home duties and pleasures to discuss political questions in public; partisanship would run high, and as in the minds of this sort of women incidental circumstances, such as good looks, handsome address, tasteful clothing, or even the possession of some single feature which they might admire, would be more likely to secure their support for a candidate than the highest intellectual or moral qualifications, the danger of a foolish or injudicious choice of candidates would be

* See this subject more fully and thoroughly discussed in "Woman: her Rights, Wrongs, Privileges and Responsibilities," by L. P. Brockett, M. D., Hartford, Conn. Published by L. Stebbins.

greatly increased. For the first time in well-authenticated human history, the interests and action of the two sexes would be very generally antagonistic, and as women would inevitably be in the minority, it would only be by absolute demagogueism that their measures could be carried or their candidates elected. Partisanships would run high, and often the home and family circle would be the scene of bickerings and rancorous political disputes which would in time become intolerable. It could not be otherwise than that the number of divorces should increase rapidly; and the marriage tie, subjected to this fearful strain of political strife, which in too many instances from the violent impulsiveness of both parties would become personal, would soon give way, and it would be well if it was not sundered with violence and murder. The close affiliation of partisan leaders of both sexes, and the corruption (which is even now shamelessly rife) of unprincipled politicians determined to carry their points at all hazards, would become astounding, and would inevitably lead to a debasement of the public morals which has had no parallel except in the worst days of the French Reign of Terror. The lower classes of women, especially female servants of whatever nationality, and the vicious class, voting almost wholly under influence, and brought up to the polls in masses at the order of their leaders and purchasers, would add to the social degradation of the time, and a political campaign would come to be dreaded and abhorred by every virtuous, high-minded woman. The influence of this condition of things on our children and youth would be unfortunate in the extreme. That chivalric feeling of respect and reverence for woman which it has ever been our pride to have instilled into the hearts of our boys and young men, would die out, blighted by the degrading scenes they could not fail to witness, and in its place would come a contemptuous feeling for the sex who had strayed so far from their pristine purity and modesty. It would be in vain for the Christian mother to seek to inculcate in the mind of her son a feeling of reverence for and courtesy toward the sex, of whose good qualities she might, indeed, be a shining example; for on every side her example and instructions will be nullified by the bold and brazen partisanship of women in the same social rank with herself. The perils to society and to good morals which would grow out of woman suffrage and office-seeking, have never been portrayed half so vividly as they should be.

2d. The evils resulting from the untrammeled manufacture, sale, and use of intoxicating drinks have been set forth so often that the denunciation of them falls many times on ears and hearts dulled to apathy by their repetition. Yet there is no evil affecting our social condition so seriously as this. The greed of base gain on the part of the maker and seller, the craving for stimulants prompted by our dry and exciting climate, the feeling of temporary exhilaration induced by their use, and strongest of all, the love of conviviality and good fellowship, all conspire to keep up the ranks of the intemperate, and are fast making us a nation of drunkards. The temperance organizations are struggling manfully and nobly against this fearful evil, and doubtless save many from filling a drunkard's grave; but with all their efforts they can only keep the field which they occupy clear. It is a painful fact that there are more intemperate persons to-day in the United States, and a considerably larger consumption of intoxicating liquors, than in 1860. The liquor interest is well organized and strong. It holds the balance of power in most of our States, and cracks its whip effectually, over both political parties. It controls too many votes, to permit any radical measures of repression to be enacted, or enforced if enacted, and the gains so vilely accumulated in the destruction of our citizens, are lavishly expended to retain its hold on power. Our citizens who love their country and desire its prosperity ought to unite in repressing this formidable crime-inducing monopoly, and by taxation, fines, pains and penalties, restrict and curb the traffic, so that temptations shall not be found at every corner, and almost at every door, to lead the young, the weak, the generous and the unwary astray. In their efforts to do this they will be met, doubtless, by the claim of vested rights, and an outcry against fanaticism, and intermeddling with other people's business, for avarice and heartlessness know well how to conceal their baseness under the mask of honorable motives; but there is no fanaticism, no intermeddling with other men's matters, nothing but the purest and most exalted patriotism in this effort to rescue our youth, who should be the pillars of the republic in the coming generation, from the destruction which is impending, if the liquor dealers are allowed to hold high carnival. Unless this question is decided

adversely to the free manufacture and sale of intoxicating drinks, very soon, the next generation will be powerless for good. Intemperance and lust, twin demons from the pit, will walk our streets, and cast down our strong men, and this country, with the grandest future before it that any nation ever had, will become what Egypt has been for ages, the basest of the nations.

The culture of the grape for the purpose of manufacturing wine and brandy, has already become a very important business and is augmenting rapidly with each year, and there is reason to fear that this industry, as well as the hop and barley culture, may be the means of increasing the sway of intemperance in our country. That the coming men will be addicted to the use of intoxicating liquors, unless more strenuous and effectual efforts are put forth to protect them from this great temptation, is too evident.

3d. The Chinese problem, though in one sense already solved, is one of great importance in its influence upon our social condition in the next hundred years. We say it is in one sense already solved, because it is evident that we can not, if we would, keep them out, as they are now arriving upon our Pacific coast at the rate of several thousand a week, and already number about 150,000 of our population. Nor can we, when their numbers begin to be large, successfully withhold from them the privilege of suffrage, beyond the ordinary period of naturalization, if we grant it to immigrants of other nationalities. There is no surer method of laying the foundation for a civil war than to have a large laboring or servile population of considerable intelligence diffused through a country, and deprived of the political privileges which others in like condition enjoy. We may take it for granted, then, that whatever politicians may say, or however stringent may be the laws to repress their immigration, or to prevent their participation in the social and political privileges of the country, they will, just as soon as they become powerful in numbers, find a foothold in all our States, and exercise the privilege of the ballot, at the expiration of a limited period of naturalization. Our Irish immigrants, who are now so strongly prejudiced against them, have not, in many instances, waited for their period of naturalization to be accomplished, before entering upon the privileges of citizenship. John Chinaman may not be so bold and blustering in the assertion of what he believes to be his rights, as Patrick, but he will be as shrewd in obtaining them.

Regarding this point as settled, and believing as we do that before 1880 we shall have 500,000 of Chinese on this continent, and before 1900, 5,000,000 or 10,000,000, let us consider what will be the result upon our social condition, as a nation.

We must remember that in the Chinese, we shall be brought in contact for the first time with a civilization of a type entirely diverse from our own, and having hardly any points in common with it. The Chinese civilization is far older than ours; when our ancestors were scantily clad in skins and roaming through the vast forests of Britain, Brittany, and Saxony, subsisting on animals killed in the chase or on fish, a barbarous, uncultivated race, his ancestors were masters of science, philosophy, the useful, and, to some extent, the fine arts. Their silks, their porcelain, their filagree work in gold and silver, their carved work in ivory, their temples, their literature, and their history, were even then in existence. When our ancestors had barbarian chiefs, given over to gluttony and revel, they had philosophers, reverenced by all the people and uttering maxims of wisdom which to this day are honored in all countries. Much as we boast of our discoveries in the arts and sciences, there are very few of them which they had not already tried. First of all the nations of the world, they had invented and used the mariner's compass. While with most of the nations of the West, and notably with our ancestors, the ability to read and write was confined to a very small number, whose attainments were regarded as marvelous, the Chinese were not only proficient in many branches of literature and science, but they had their printed books, executed, indeed, after a rough fashion, but giving them the opportunity of multiplying them with considerable rapidity, a thousand years before Faust or Gutenberg.

It is true that their civilization has, for some centuries, been nearly stationary, while ours has been of late years very progressive; but it need be no marvel if we should find them wedded to customs, and habits, and scientific *formulæ*, which seem to us formal and antiquated, but which are to him the foundation of his social and intellectual system.

The Chinese will come to us, mainly, like some of the European immigrants, as candidates for filling our more menial positions; they will be house-servants, washermen, rail-

road laborers, miners, laborers in the field, &c., &c. They have not so generally emigrated to other countries in these humbler capacities; but in Batavia, in Cochin China, in Manchüria, and in Chinese Tartary or Süngaria, wherever and in whatever capacity they have entered a country, they have ere long obtained the ascendancy, compelling the adoption of their language, their habits and customs, and attaining to leading positions in business and influence. It is questionable whether they can do so among us. The Western intellect is more vigorous and controlling than the Oriental, and in the end, after perhaps a hundred years of attrition and quiet struggle for the supremacy, the highest Caucasian type of manhood may assert and maintain its superiority over the Mongolian. But in the meantime, by the mere fact of contact, we shall have adopted some of their habits and ways; we shall look at life more from the Oriental stand-point, and the absorption of the Oriental race into our own nationality will be, not an amalgamation, but an incorporation of the elements of each into the other, a fusion. There will be a long time required to accomplish this. The Chinese is the most impassible of mortals. It will be years, scores of them, perhaps, before you can really get at his feelings and emotions, his beliefs and disbeliefs. Their morality is not of the highest order, for what there is of it is based on motives of self-interest and not on the desire to please God. For the most part the Chinese, though professedly Buddhists or Fo-ists, or adherents to the old Sin-tü religion, have very little idea of the existence of a Supreme Being, or of any responsibility to him. They worship their ancestors and burn incense to them; they have their religious expressions, which are used at all times; if they are of the learned class, they profess to be disciples of Confucius and Mencius, and quote their excellent and virtuous precepts; but of the God who enlightened the mind of their great reformer, they have no knowledge. Truthfulness, strict honesty, and straight-forwardness, are not, to so great an extent as they should be, the prevalent virtues of this people. On the other hand, their patient assiduity in labor, their faithfulness and precision, and their imitative capacity, can not fail to excite our admiration and approval. In the way of filial regard and reverence, we have much to learn from the Chinese; and if, in turn, they acquire from us some of the more chivalric virtues, in which they are now lacking, the exchange will be advantageous to both parties.

That the intermixture of the two races, Caucasian and Mongolian, (for in the end it must come to that,) will not tend to elevate the type of physical beauty in the offspring of the union, seems probable, and yet it may result that a new type of humanity will be thus formed, possessing a higher degree of perfection than was possessed by either parent.

We should be inclined to hope for a higher degree of intellectual power in favorable specimens of the progeny of the union, than we have yet found in either race. There is a vividness of imagination, and a patience of research, in the Oriental, which, combined with our quickness of perception and capacity for logical deduction, will produce intellectual abilities of the very highest order.

But the future man of the American Republic will be a thoroughly composite being. It is not simply the union of the Mongolian and Caucasian types to which we are to look forward, but an agglomeration of almost all races and nationalities to make up the coming man. The old English stock of New England, Virginia, and the Carolinas, already blended with Huguenot, Norman French, Irish, Scottish, Welsh, German, French, Danish, Swedish, and Norwegian blood, will receive from the Canadian French on the one side and the Hispano-Americans on the other, an accession of French, Spanish, and Portuguese blood not wholly free from an admixture in all degrees with the Northern Indian, the Aztec, and the Negro races, and these, with the blending in our own Southern and Southwestern States with the African stock, and the combination in the not distant future of Chinese, Japanese, Hindoo, Malay, and Polynesian, will give to the average American of a hundred years hence, a darker complexion and very different intellectual and moral characteristics from those which we possess to-day. Still we have faith in the predominance of the Anglo-Saxon type, if not in numbers, at least in sway over the hundreds of millions who will then people this broad land. Its resolute will, its ability for governing and controlling, its rare executive power, and its high intelligence, secure for it here, as on the Eastern continent, the position of the foremost nation of the earth in all the highest qualities of manhood.

It is impossible to predict how far the great and rapid influx of Orientals, with their low

and false estimate of woman, may affect the social position of woman in this country in the future. But for that we should regard it as absolutely certain, whether female suffrage prevailed or not, that in business, in all the lighter mechanical employments, and in intellectual and social life, her position would be much higher than now, and her compensation for labor more just than it has been in the past; but the Chinese will, to a certain extent, come in competition with women in those employments hitherto regarded as especially feminine, and accustomed to regard women in their own country as almost slaves, they may retard in some measure the progress of those reforms which would prove really beneficial to the sex.

It will be seen, then, that we can not regard the social and political progress of the country for the next hundred years without some apprehension. The millennium, in social life at least, is more than a hundred years away, we fear, and though we may be approximating to it in time, we can hardly hope that the reign of peace and good-will will come when there are so many discordant elements in society to oppose its approach.

CHAPTER XII.

EDUCATIONAL AND RELIGIOUS PROGRESS IN THE FUTURE.

That we are destined to be a well-educated people in the not distant future, does not admit of a doubt. The advancement of all educational measures and institutions during the past decade has never had a parallel in the world's history. Previous to 1860, the New England and Middle States had very well organized systems of public schools, though the character of the instruction was much below what it should have been; the Western and one or two of the Southern States, with their ample provision of school lands and their system of school taxes, were laying broad and deep the foundations for a school system, which should in a few years furnish the means of obtaining a good English education to all the youth of the State, and a few of them had connected their high schools, colleges, State universities, and normal and professional schools, with their public school system. As yet, these school systems were working imperfectly, but every year they were making progress. In the South, except Alabama and a part of Louisiana, there was no public school system of much value, and owing to the prevalence of the plantation system it seemed impossible to sustain one; a large proportion of the poorer classes, and, with few exceptions, all the slaves, grew up entirely unable to read or write. There was some provision for higher education, but it was only available for the most part by the families of the wealthy or middle class. With the war came a great change, as manifest in the Northern as in the Southern States, though operating somewhat differently in the two sections. Throughout the Northern and Western States, there was an almost simultaneous impulse for the better endowment of old, and the establishment on a firm basis of new institutions of higher education. Congress made very large grants of lands (30,000 acres for each Senator and Representative) for the founding in each State or attaching to some College or University already organized, of an Agricultural and Mechanical College or Department; men of large wealth gave vast sums for endowing old or new colleges, universities, or professional and scientific schools; the condition of the freedmen and their children, and the families of poor whites in the South, and their great need of education, attracted the attention of Congress and led to the establishment of the Freedmen's Bureau, which in six years expended for educational purposes more than twenty-three millions of dollars; religious and benevolent societies established schools, sustained teachers, and expended between four and five millions of dollars in free schools for these classes, and Mr. Peabody crowned the work by his two munificent gifts, from which there will probably be realized eventually about three and a half millions of dollars for schools in the South. Aside from the Agricultural College land grants, and the expenditures of the Freedmen's Bureau, there was raised by private contributions and donations for educational purposes, between 1863 and 1870, more than $25,000,000. The course of instruction in most of the larger colleges and universities was extended, and scientific and professional schools of engineering, mining, agriculture, mechanism, technology, geology, paleontology, music, astronomy, and the fine arts, were added to them. The medical, law, and divinity schools were reorganized, enlarged, and more amply endowed. In the South, the plantation system having to a considerable extent given place to farms

of smaller extent, a public school system was organized in most of the States and its endowment begun. In the North and West a new impulse was given to public school instruction, and by the organization of normal schools within reach of most of the teachers; by the elevation of the character of the academies and high schools, and the development, and where it was necessary, the reorganization of the State Universities, the system of free education, from the primary school, step by step, up to the university and professional schools, was perfected. Of course, in the early working of this vast machinery there is considerable friction, and unceasing vigilance is necessary lest at some point there should be a lowering of the standard or careless and inefficient teachers should injure the prosperity of the work. In the schools of higher education, and especially in the agricultural and scientific schools, the progress has been almost too rapid to be safe; so many new professorships have been created, all demanding a high order of talent and extensive and profound learning, that it has been very difficult to obtain fully qualified men to fill them. This difficulty, however, will soon be obviated, for there are men enough in training who will soon be competent to occupy these positions with ability and success. Much progress has been made in the effort to elevate teaching to the dignity of a profession, and the compensation of the teacher is advancing from year to year.

This work of education must and will go on, increasing in magnitude with each year. Congress, in 1868, established a Bureau or Department of Education, which has charge of the national interests of the subject, and this Department, though somewhat modified from its original plan, still exists, and will doubtless do much good. In the future there should be, and with the dense population there doubtless will be, a system of education so complete that every boy and girl can have the opportunity of a free education up to the highest studies which they possess the capacity to acquire, and up to a certain limit, perhaps that of our ordinary grammar schools; it should and probably will be made compulsory upon parents and guardians to have their children instructed. If with this an educational qualification were to be required of every voter, the eagerness for education would be greatly increased and the perils of the government lessened.

In the high school, the college, and the university, the privileges which the State or General Government offers should be bestowed alike on both sexes. The mixed college plan, (that of having both sexes in the same class and taking part in the same recitations,) is the preferable one, and should be generally adopted; but where for any cause this is impossible, we hold it to be the duty of the State to provide a course of instruction for girls equally thorough, and provided with all the appliances of illustration, with that which is furnished for boys. The State can not with propriety make any distinction between its sons and daughters, in the matter of education; both are entitled to the best. Private institutions of learning which do not and never have received any aid from the State, are of course at liberty to limit their instruction to either sex, but the number of these is very few.

Other means of education there are whose promotion will enure to the intellectual growth and advancement of society, and the present condition of these promises well for the future. Prominent among these are great consulting and lending libraries. The growth of these within the past ten years has been very remarkable. In 1860 there were but three in the United States which numbered 100,000 volumes or more, viz., Harvard University Library, the Boston City Public Library, and the Astor Library in New York. There are now seven libraries possessing over 100,000 volumes each, viz.: The Library of Congress, having nearly or quite 200,000 volumes; Boston Public Library, about 165,000; Astor Library, 145,000; Harvard University Libraries, 160,000; Mercantile Library, New York, 116,000; Athenæum Library, Boston, 108,000; Philadelphia Library Co., Philadelphia, 103,000. Nine or ten others range from 50,000 to 90,000 volumes. Many of the colleges, State, historical, and other scientific societies and professional schools have large collections of books on special topics, nearly exhausting these topics; thus the State Library of New York has over 80,000 volumes, its specialties being Law and American History. The Union Theological Seminary, N. Y., the Rochester Theological Seminary, and the Chicago Baptist Theological Seminary, have for their specialties, Systematic and Polemic Theology, Ecclesiastical History, and the Early Fathers of the Church. The American Bible Society, the American Bible Union, and Princeton Theological Seminary, with the addition of

Mr. Lenox's library, are particularly rich in editions of the Bible and in works on Biblical Literature. We might go on with the catalogue, *ad infinitum*, but it is sufficient, perhaps, to say, that the time has passed when it is necessary for the student to go to Europe to consult the great libraries there on any subject, except perhaps the local history of some of the smaller European States, or on questions of Oriental philology. This accumulation of valuable books is destined to continue and increase. In all the great European book-sales, where the treasures of ages are exposed for sale, American buyers are sure to be present and are the most eager as well as judicious purchasers. The year 1976 will find at least half a dozen libraries of a million volumes, not largely made up of rubbish, as many of the great European libraries are, but well and judiciously selected, and from twenty to forty libraries of half a million or more volumes; while every considerable city will have its library of from one hundred thousand to two hundred thousand.

Institutions of a special character, such as Agassiz's Museum of Comparative Zoölogy, the Massachusetts Institute of Technology, the Academies and Lyceums of Natural History, the American and the National Academies of Science, the American Association for the Advancement of Science, the Social Science Association, the Philological Societies, Geographical, Antiquarian and Historical Societies and Scientific Institutes, have each an important influence on general education. So, too, in a humbler but perhaps not less effective way, do the Lyceums, Institutes, and Mercantile Associations, most of which have libraries, courses of lectures, and classes of instruction connected with them. Many of the Young Men's Christian Associations have also these features, which materially aid in the education of young people. These organizations are destined to grow in the future, and as the population becomes more dense, no town will be without some literary or scientific institution. It is to agencies of this sort that we look in part to maintain the ascendancy of the Anglo-Saxon race in the intellectual and moral control of the nation.

And what of the religious character of the nation a hundred years hence? The question is a difficult one to answer. So many elements of opposition to the Protestant Christianity which has characterized the nation in all its past growth, will probably come to the surface, that it is exceedingly doubtful whether, in proportion to the population, Christianity will be as much in the ascendancy then as now. The membership of all the professedly Christian (including the Roman Catholics and the non-evangelical denominations) churches of the United States is now, in round numbers, about 8,500,000, or a little more than one-fifth of the population; it is usually estimated, and probably correctly, that the number of adherents to each denomination is, including all ages and both sexes, about three for each member; so that we should have about 25,500,000 adherents to the churches, which numbered, as above, 8,500,000 members, or of both members and adherents, 34,000,000, leaving 8,000,000 or thereabout with no religious connection.

We do not share the apprehensions of some, that the Roman Catholic church will ever gain the ascendancy here. On the contrary, we believe that it has already reached very nearly its highest point. Its growth has been almost wholly by immigration, the few converts it has made from our native-born citizens by no means compensating for its losses by the defection of Catholic immigrants or their descendants to Protestantism or infidelity. They had a large proportion of the early population of Maryland, Louisiana, Missouri, and Michigan. Within forty years past there have been nearly 4,000,000 Catholic emigrants to this country from Ireland, England, Belgium, Germany, France, Spain, and Italy; these, with their descendants, should make not less than 10,000,000 reared in the Catholic faith, in this country; yet to-day, counting all their nominal adherents, they do not number 4,000,000. As one of their archbishops said, not long since, they lose one-half of the second generation and three-fourths of the third. The emigration from Ireland, though temporarily quickened, is nearly over; the inducements not being sufficient to induce the remaining population to leave their native island; the emigration from the South of Europe has never been large, and much of it is hardly nominally Catholic; that from Germany is now more from Protestant than Catholic States, and the Scandinavians now coming hither in large numbers are all Protestants. The concentration of these Catholic emigrants in large towns has given the impression that they possessed much greater strength than was actually true. So soon as they cease to be reinforced by immigration, they will cease to

grow. The genius of our government is not favorable to the development of Catholicism. Its freedom leads very many of the immigrants, and still more of their children, to throw off the trammels of that faith, and to think for themselves. Our system of public education tends in the same direction, not by any teaching of dogmas opposed to Catholicism, but by its tendency to develop free thought. Desirous of retaining their power over the children of Catholic families, and as many others as they can draw into their own schools, their bishops and clergy have begun, of late, to clamor for the division of the public school moneys to their own and other sectarian schools, that they might be able to sustain larger and better schools for teaching the Catholic faith. Their demand will not prevail, nor would it help them as much as they think if it did, for an education which leaves the mind untrammeled by sectarianism or partisanship, is too absolutely necessary to the citizens of a free government to be dispensed with.

But if the growth of Catholicism is checked, will that of the Protestant churches be hindered as well? We think not, for these reasons: Protestantism is more in accordance with a free government and with our national traditions; its individualism and the rivalry of the different denominations makes it more aggressive than Catholicism; the more evangelical denominations have gained largely in the past from the rising generation, from the irreligious, and from the Catholic immigrants; its zealous advocacy of education, intelligence, humanity and morality, have commended it to the thoughtful portion of the irreligious; and it sways a large influence among the wealthy, intelligent and refined. The literature, the history, and the science of the country are essentially Protestant and under Protestant influence. The annexation of countries now professedly Catholic, such as Mexico, Cuba, St. Domingo, and the Central American States, could not essentially modify the position of affairs, as they would necessarily remain in a territorial condition for some years, till they could be prepared to understand and adopt our views of government, and the substitution of complete religious freedom for an established church, would let in Protestantism upon them rather than give them the opportunity of exerting any very powerful Catholic influence upon the United States.

The danger to the religious well-being of the country seems to us to lie in an entirely different direction. The influx of Asiatics from Eastern Asia—Chinese, Japanese, Malays, Hindoos, &c.—which there is every reason to believe will be rapid and constant, will bring us in contact with systems of religion entirely new to the great mass of our people. Buddhism, the most accommodating of faiths, yet the most persistent in its adherence to its great cardinal principles, of a strict Theism, of the transmigration of souls, of the necessity of works of merit both to placate the Deity and to attain to the condition of *nirvana*, or perfect absorption in the Divine life, and its intense fatalism, is to try its influence over the human heart in direct contact with Christianity on this continent, to an extent which has not been witnessed in any other land or at any former time. When brought into contact with Catholicism in the East, the two have coalesced, and in the end Buddhism has triumphed. To Evangelical Protestantism it has always maintained the bitterest hostility. We have no fear that the Buddhist priests will make any considerable number of converts from our Caucasian race, though they are shrewd and astute, and have proved very formidable reasoners; they may convert some of our transcendental philosophers, who regard any other creed as preferable to Christianity, but it is the fear that they will retain to a large extent their influence over the Chinese and Japanese and their descendants, who will migrate hither in such numbers.

Of all the religious systems of which Asia has been so prolific for past ages, none has been found so difficult to eradicate from the mind as Buddhism. Buddha Sakyamuni, its founder, was one of the wisest and most exemplary reformers of the East, and his influence has been perpetuated, and his system extended in its influence till it is to-day the nominal religion of at least four hundred millions of souls. Its tenets are so admirably adapted to the natural tendencies of the human heart, and tend to foster its pride and self-righteousness to such an extent that it is far more difficult to reach a Buddhist than the worshipper of any other faith. It would seem at first view that it would be a much greater labor and one likely to be more unsuccessful, to break up the bondage of caste, and lead the Hindoo to abandon his religious system, so skillfully constructed, identified at

all points with his daily life, and interwoven with a literature of great beauty and eloquence. But the chains of caste have been broken by many thousands of Hindoos of all castes, and Brahminism abandoned, many of the Brahmins of highest rank having, under the teaching of the missionaries, become themselves preachers of Christianity. In Burmah, Siam, China, and Japan, a few thousands (hardly more than three or four) of Buddhists have, after more than fifty years of assiduous and patient labor, been converted to Christianity.

If, as is probable, the year 1970 shall find forty or fifty millions of Asiatics on this continent, we fear that 20 millions of them will still be followers of Buddha Sakyamuni. Yet it is possible that we underrate the influences which may be brought to bear on them, and the potency of the truth when skillfully directed against error. Buddhism has never undergone any such test of its vitality, and if it begins to yield, its downfall will be certain and speedy. Buddhism is, indeed, not so vital a faith with the Chinese as with the Japanese. Among the latter it is identified with their government, the Mikado or Spiritual Emperor being one of the four or five Dalai Lamas, or incarnations of Buddha, found in Asia. There is, even among the Japanese, a considerable amount of idolatrous worship, Sin-tüism, as it is called, intermingled with their Buddhism; but the Japanese are, in their way, a religious people. The Chinese, on the other hand, are by no means unanimous in their regard for Buddhism. While it is the religion of the government, and professedly of the high officers of state, and the mandarins, a large majority of the higher classes are really atheists, having no belief in a God, and maintaining, as their only code of morals, the oft-repeated maxims of Confucius and Mencius. These maxims are many of them excellent in character, and inculcate the highest morality in the abstract, but the assent to them is for the most part rather formal than hearty. The lower classes, from whom mainly our first immigration will come, worship their ancestors, and have small idols representing them in their houses; they are, moreover, very generally Tau-ists, Tauism being a low form of idolatry prevailing in China before the introduction of Buddhism, and still having a strong hold upon the more ignorant and degraded. In Southwestern China, Mohammedanism prevails extensively, but at present we shall not receive many immigrants from that quarter.

Other forms of heathenism will also be likely to come in with the inflowing tide of Asiatics. Brahminism, with its union of intellectual activity with the most horrible rites of paganism; the bloody and detestable idolatry of the Malays, and the pure deism of the Parsees, will each find their way to our shores. There will need to be a greatly increased amount of Christian activity, or this fair land will retrograde into idolatry and atheism. We believe that the Christianity of our time, even impaired as it is by formalism, fashion, the love of money, and the want of an elevated and earnest faith in God, will yet triumph in the struggle. To this end it is gratifying to see that there is a growing tendency to union among Protestant denominations hitherto separated only by trivial differences of opinion. In union there is strength, and while it is not probable, and perhaps not desirable, that a complete fusion of all the Protestant churches should take place, since they will do better to work in harmony so far as they can, than to attempt a union which radical difference in their views would make necessarily incomplete. Still there is great need that their action henceforth should be more harmonious than in the past, and that in the fierce struggle to come between light and darkness, Christianity and heathenism, there should be no bickering and no conflict between the different corps which make up the Christian army. The victory of one division should be recognized as the victory of all. It may well happen that the great struggle between the powers of evil and good, predicted in prophecy and apocalypse, and but imperfectly understood even at the best, may occur on our own continent, and in the coming century. Here in our great central plains, or on our Pacific slope, the hosts of error, Gog and Magog and their followers, may assemble for spiritual and possibly for physical conflict; and if we read aright the inspired predictions, for their final rout and overthrow. Whenever and wherever that final conflict shall occur, the battle, though brief, will be fierce, and the contest more bloody than has ever before been known. The various forms of error will be united in the struggle for existence and for the overthrow of their persistent foe, and they will not relinquish the conflict until they are completely and forever overthrown.

all points with his daily life, and interwoven with a literature of great beauty and eloquence. But the chains of caste have been broken by many thousands of Hindoos of all castes, and Brahminism abandoned, many of the Brahmins of highest rank having, under the teaching of the missionaries, become themselves preachers of Christianity. In Burmah, Siam, China, and Japan, a few thousands (hardly more than three or four) of Buddhists have, after more than fifty years of assiduous and patient labor, been converted to Christianity.

If, as is probable, the year 1970 shall find forty or fifty millions of Asiatics on this continent, we fear that 20 millions of them will still be followers of Buddha Sakyamuni. Yet it is possible that we underrate the influences which may be brought to bear on them, and the potency of the truth when skillfully directed against error. Buddhism has never undergone any such test of its vitality, and if it begins to yield, its downfall will be certain and speedy. Buddhism is, indeed, not so vital a faith with the Chinese as with the Japanese. Among the latter it is identified with their government, the Mikado or Spiritual Emperor being one of the four or five Dalai Lamas, or incarnations of Buddha, found in Asia. There is, even among the Japanese, a considerable amount of idolatrous worship, Sin-tuism, as it is called, intermingled with their Buddhism; but the Japanese are, in their way, a religious people. The Chinese, on the other hand, are by no means unanimous in their regard for Buddhism. While it is the religion of the government, and professedly of the high officers of state, and the mandarins, a large majority of the higher classes are really atheists, having no belief in a God, and maintaining, as their only code of morals, the oft-repeated maxims of Confucius and Mencius. These maxims are many of them excellent in character, and inculcate the highest morality in the abstract, but the assent to them is for the most part rather formal than hearty. The lower classes, from whom mainly our first immigration will come, worship their ancestors, and have small idols representing them in their houses; they are, moreover, very generally Tau-ists, Tauism being a low form of idolatry prevailing in China before the introduction of Buddhism, and still having a strong hold upon the more ignorant and degraded. In Southwestern China, Mohammedanism prevails extensively, but at present we shall not receive many immigrants from that quarter.

Other forms of heathenism will also be likely to come in with the inflowing tide of Asiatics. Brahminism, with its union of intellectual activity with the most horrible rites of paganism; the bloody and detestable idolatry of the Malays, and the pure deism of the Parsees, will each find their way to our shores. There will need to be a greatly increased amount of Christian activity, or this fair land will retrograde into idolatry and atheism. We believe that the Christianity of our time, even impaired as it is by formalism, fashion, the love of money, and the want of an elevated and earnest faith in God, will yet triumph in the struggle. To this end it is gratifying to see that there is a growing tendency to union among Protestant denominations hitherto separated only by trivial differences of opinion. In union there is strength, and while it is not probable, and perhaps not desirable, that a complete fusion of all the Protestant churches should take place, since they will do better to work in harmony so far as they can, than to attempt a union which radical difference in their views would make necessarily incomplete. Still there is great need that their action henceforth should be more harmonious than in the past, and that in the fierce struggle to come between light and darkness, Christianity and heathenism, there should be no bickering and no conflict between the different corps which make up the Christian army. The victory of one division should be recognized as the victory of all. It may well happen that the great struggle between the powers of evil and good, predicted in prophecy and apocalypse, and but imperfectly understood even at the best, may occur on our own continent, and in the coming century. Here in our great central plains, or on our Pacific slope, the hosts of error, Gog and Magog and their followers, may assemble for spiritual and possibly for physical conflict; and if we read aright the inspired predictions, for their final rout and overthrow. Whenever and wherever that final conflict shall occur, the battle, though brief, will be fierce, and the contest more bloody than has ever before been known. The various forms of error will be united in the struggle for existence and for the overthrow of their persistent foe, and they will not relinquish the conflict until they are completely and forever overthrown.

T. Allom. A.J. Dick.

CHAPEL IN THE GREAT TEMPLE, MACAO. (China.)

We do not, then, regard the future as so dark in its religious aspect as our words might at first seem to imply. There will doubtless be more heathenism here than there is now, but it will only be because it is transferred from Asia, where it now riots almost wholly unopposed. If the Christianity of the coming time is as active as it should be, it will accomplish more for the Christianization of the world through its struggles with heathenism here, than it ever could by sending its missionaries to other lands.

CHAPTER XIII.

CONCLUSION.

THE HISTORY OF A DAY IN 1970.

In no way, perhaps, can we give our readers a more vivid idea of the changes and extraordinary progress of the nation in the next hundred years than by transporting them in imagination to the home of a wealthy citizen of one of the great central cities of the Continent and accompanying him in the day's duties, pursuits and pleasures.

Let us then introduce to the reader the Honorable Enrique Chang Marston, the head of the great forwarding house of Marston, Sih-Wah & Villanova of LaPorte, the largest city of the central region, and the *entrepôt* of the mining products of Colorado, Wyoming and Eastern Utah. LaPorte is a city of a million inhabitants, situated at the junction of five or six lines of railway, which connect it with all sections of the Continent, and by means of its pneumatic tubular routes, it has a constant and rapid interchange of the products of the mines, the fertile fields of the region about it, and the immense manufactories which make it a busy hive with the East and the West. Its daily shipments for Asiatic ports are enormous, and for European markets are hardly less considerable. The house of which Mr. Marston is at the head has its branches and correspondents, at Yedo, Shanghai, Melbourne, Bangkok and Calcutta, as well as at New York, Havana, London, Paris and Constantinople. Mr. Marston as his name would indicate, is on his father's side, of Anglo-Saxon stock, but mingles in his ancestry also, Spanish and Chinese blood. Highly educated and early trained to business in which he has achieved a great success, he has also taken a part in political affairs and now represents the City of LaPorte in Congress. It is late in June, and Congress not being in session, he is at home and looking after the interests of his extensive business. We find him, in the early morning, at his country seat, about sixty miles from LaPorte, on the slopes of the Uintah Mountains, overlooking the glorious North Park. His country seat is a large, finely planned building of reddish sand stone, and, with its towers, its gracefully curved roof, and its numerous slender spires and minarets has a decidedly ornamental appearance. The furniture is luxurious, but at this season of the year great pains is taken to give the impression of coolness, for though the location is high, the Summer sun is fiercely hot at midday. The nights are however, deliciously cool. Mr. Marston is a somewhat early riser, and the musical tinkle of a chime of small silver bells summons him and his family to breakfast at seven o'clock. The breakfast room, carpeted over its encaustic tiling with the finest of Chinese matting, is cool and still. The well trained Chinese servants, each at his place awaits the master's coming. The table of richly inlaid wood is covered with a ramie table cloth, of the most brilliant whiteness and exquisite pattern but so strongly resembling silk that only a practised eye can detect the difference. The dishes are of the most delicate porcelain, the manufacture of of the skilled Japanese artisans at the great porcelain factory of New Kanyasawa in California. The gold and silver service which though tasteful, is

not intended for display, was manufactured in LaPorte from Colorado gold. The chairs are of bamboo but of American manufacture. The walls are painted in a rich maroon fresco, and hung with some exquisite pictures, mostly of Rocky Mountain Scenery, though one or two betray their owner's passion for hunting. But the family have already assembled at the table, Mr. Marston in a richly embroidered silk robe, suggestive both in its form and figures of the traces of Chinese blood of the wearer. Madame, a stately Spanish looking lady, with still much of her youthful beauty, in an orange tinted robe with black trimmings, of the exquisite ramie grass and an opening rose of brilliant tint carelessly nestling in a coil of her intensely black hair. The children, two sons and two daughters, all under the age of fourteen are neatly but not showily dressed. The breakfast is simple but nutritious, and in ample quantity, bread and cakes of wheat, millet and rice, pure golden butter and olive oil equally pure, from Southern California, antelope steaks, of which his park enables him to afford a supply; some broiled sage hens, and pickled olives, with bananas, oranges and figs from Arizona constitute the repast. Tea and coffee are both served, the former from California, the latter from Southern Arizona, and both of the best quality. By the plates of both master and mistress are placed copies of the six-o'clock Laporte papers, and ere they rise from the table the seven o'clock issue is brought in. Some of the items (all of which are reduced to the utmost brevity of expression) will appear strange to us. Let us cull a few from the latest paper. *Paris*, 12 A. M. The Commissioners have at last agreed upon measures for the consolodation of Spain with the French Empire. *Rome*. The fifteenth anniversary of the organization of the Italian Republic is now being celebrated with great pomp. *London*. The President of the British Republic has just proclaimed a complete amnesty to all the Irish insurgents. *St. Petersburg*. Ivan Sergievitsch Alexandrevitsch, said to be the last survivor of the Romanoff princes died in this city this morning in great poverty and suffering. *Constantinople*. The leader of the late conspiracy to assassinate our gracious Emperor Michael I, who was arrested some time since and proved to be a Turk and a professed descendant of Abdul Aziz, the last Sultan of this Empire, yesterday was subjected to the punishment of the knout three hundred blows being ordered, but he died at the two hundred and sixteenth. *Potchefstroem*, Transvaal Republic, 4 P. M. We have full reports of the terrible battle fought yesterday, at Sebale between the great negro army of Mosilikatse IV, and our troops under General De Groot. Mosilikatse, certainly the ablest Sultan the Matabele have ever had, led his troops in person, and made some magnificent charges on Gen. De Groot's position, but it was too strong for them to carry, and in the final charge Mosilikatse was killed instantly by a shell, and his soldiers becoming panic struck fled in every direction. It is said that over twenty thousand were killed. This will end the war. *Lahore*. Punjaub, 3 P. M. A fierce but indecisive battle took place yesterday about twenty miles from this city between the Turcoman army commanded by Russian officers and our Sikh force led by General Graham. The Sikhs retained the field though with heavy losses. The whole Punjaub is ablaze with excitement and the invaders will be speedily driven out. *Peking*, 2. P. M. The Son of Heaven has graciously promised to grant a constitution to his faithful subjects. *Yedo*, 1 P. M. Complete religious toleration was proclaimed over the whole Empire at mid-day to day. *Melbourne*, 1.30 P. M. Centralia, the last organized state of our Australian Republic, celebrates to day its twentieth anniversary. *Rio Janeiro*, 10 A. M. The jubilee of the Brazilian Republic celebrated yesterday, was admirably conducted throughout. Senhor Algarzo, Secretary of State, delivered an eloquent oration on the life and times of Dom Pedro II, the second Emperor of Brazil. *Valparaiso*, 2 P. M. The revolution in favor of monarchy here seems to be gaining strength. Senor Montle has proved himself as daring, and he may be as successful, as Napoleon III was a hundred and twenty years ago. Honolulu, 12 M. We have just learned that

the sea is flowing into what was the crater of Mauna Loa. News enough, the reader will say, for one day. But our friends, the Marstons, are accustomed to these startling items of intelligence, and take them very quietly; though once or twice, as he meets with something which may affect his widely extended,commercial enterprises, Mr. Marston shrugs his shoulders, and his face flushes slightly.

Breakfast and family worship over. (for the great merchant is a religious man,) the servants are called, and receive their orders for the day, and the father and children prepare to go to the city—the former to his warehouse, the latter to their schools. Walking briskly to the gate of the park, they enter a neat station, and at once take their seats in elegant, well lighted cars, which are ventilated, as well as propelled, by compressed air, and are driven at a speed of about 120 miles per hour toward La-Porte. In thirty-five minutes they are at their destination, and the father and children part to go their several ways. As we accompany them invisibly, let us note the appearance of the city. The streets are broad, and paved in the carriage way with a slightly elastic composition, which is yet too dense and fibrous in its structure to permit of its being ground to powder by the attrition of wheels, and it is scrupulously clean The sidewalks are broad, and covered from building to curb-stone with an artificial stone, with shallow grooves, to prevent slipping, and having the appearance of sienite. No detached pieces or joints expose the unwary pedestrian to the danger of stumbling; and the neatness and cleanliness of this, as well as the carriage way, gives the street a cheerful appearance. The streets we pass at first are lined with great warehouses, not with flat, meaningless fronts, like many of the warehouses of our eastern cities, but with a fine regard to the effects of light and shadow, which, in that bright, clear, sunny atmosphere is even more necessary than in the eastern cities. The warehouses seem built expressly for the greatest possible convenience of doing business, and answer their purpose perfectly. Of their interiors we will speak bye-and-bye. Meanwhile, with the young Misses Marston, we turn out of the great thoroughfare into a more quiet street of residences. Here, again, the street is wide, and paved with the same noiseless pavement. The houses are not built on lots 20 by 100 feet, but each has from 50 to 100 feet front, and the lot has a depth of 150 feet. The dwellings are in a great variety of styles, but usually not exceeding three stories in height. None of them are of the high stoop, basement dining room, and sub-cellar style, so much in vogue in Eastern cities, and though in some of them the elevators are introduced, in general there is but little need of the incessant travel up and down stairs which is indispensable in the houses of our great cities at the present day. Pleasant small gardens, with one or two shade trees of wide spreading branches, surround each house. One of these villas though of much more than the ordinary dimensions, is the school at which the Misses Marston are in attendance. Surrounded with flowers, and fruit and shade trees, with ample ventilation and everything to make study delightful, it looks like a place where intellectual improvement might be attained without great weariness to the flesh.

Leaving this we turn through another street which leads us toward the block on the great thoroughfare in which the warehouse of Marston, Sih-Wah and Villanova is situated. This cross street is inhabited evidently by families of the working classes. The buildings are lofty, seven and eight stories, and each family has its tenement on a flat or single floor. Through the centre of each building runs a broad hall with its wide staircase, giving access to the tenements, each of which has its own door and door plate at the landing on that floor. Every appliance, we are told, for making each tenement thoroughly isolated and complete in itself is resorted to. There are no dark rooms. The warming and ventilation is perfect, and is the same for the entire building. Neither cooking nor the washing of clothes is permitted in the tenements; but a kitchen on a large scale, buying everything at wholesale and furnishing food at actual cost, supplies wholesome food, the families selecting from the great variety of dishes at much lower rates

than they could prepare it for themselves. One of these is attached to every second building. The food is sent by dumb waiters to each of the tenements. The ground floor is arranged as an immense laundry where the women of each family do their washing at stationary tubs, hot and cold water being furnished to them, and the clothes dried and partly pressed by steam. Everything is scrupulously clean about these tenements, and the numerous children, though dressed in very plain clothing, are neat and healthy looking. The best of these tenement buildings have elevators to facilitate the passage up and down from the lofty stories. Many of the inhabitants indicated by their features and figures, and a few by their dress, their Chinese origin, but these were as cleanly, courteous and well behaved as the others.

Turning again into the great thoroughfare we enter the warehouse of Marston, Sih-Wah and Villanwa. In common with other buildings of its class it has a light but strong verandah projecting half the width of the sidewalk of some light but not easily corroded metal, sustained by brackets, and colored above a delicate neutral tint to protect the occupants of the house and customers as well, from sun and rain. Each story is protected in the same way. The warehouse is substantially built of a delicate buff sand stone, abundant in the adjacent Uintah Mountains, and has every convenience for facilitating the transaction of business. Mr. Marston, himself an accomplished business man, has trained his partners and his whole force into the habit of transacting the entire business of the day in eight hours; but every moment of those eight hours is actively occupied, and there are no drones in the establishment. As we enter he is occupied with his mail, giving orders and asking questions of his clerks, making memoranda on each letter with almost lightning like rapidity for the guidance of the corresponding clerks. We listen—he reads—"One hundred hogsheads of sugar." "James, was that sugar ordered from Vera Cruz on Monday?" James, "Yes Sir." "Has it arrived?" "It is now unloading, Sir," —a word or two on the order. "Sie-Chee, when did you order the five thousand chests of tea from Santa Barbara?" "Yesterday morning, Sir." "Has it come?" "It came last night, Sir, and was hoisted in this morning;" reads, "Five hundred bushels of wheat, (yet we have that,) one thousand barrels of flour. Henry, the flour in from San Francisco?" "Not yet, Sir. We shall probably get it by noon." "One hundred bags of Carolina rice." "How about that, Ceasar. What is our stock of rice?" "Fourteen hundred bags, Sir." "That will do." "Fifty rolls Chinese matting." "Have we any in stock, Charlie?" "Not a roll, Sir." "Order five hundred rolls from San Francisco, to be forwarded to-day."—"Yes Sir." Passing over half a dozen letters Mr. Marston opens one containing a long order—he reads, "One hundren and fifty cases of prints. Are there so many in store, Ezekiel?" "Yes Sir, over three hundred." "Twenty cases Nankin cottons. That invoice in, Ting-Chee?" "Yes Sir, came yesterday." "Ten cases Japanese silks. (I saw them come in this morning.) Seventy-five cases Ramie cloths. Thomas, are we not nearly out of Ramie cloths?" "Two hundred cases only, Sir." "That will do. Six cases Paterson silks." "Our manufacturers there are behind their orders, Sir," says one of the clerks, respectfully. "Telegraph them to hurry up," replies Mr. Marston. The conversation is still going on, interrupted by hasty memoranda, as we turn away. We look through the eight floors of the immense warehouse; everything has its place and its superintendent, and the amount of stock on hand in each department at nine o'clock every morning, is reported to the clerk of that department. After a little time we enter the counting-room again, and find the senior partner proposing to his juniors some great commercial enterprise involving ten or twenty millions of dollars, with the same coolness and composure with which he would propose a trip to San Francisco. His partners are well trained business men, and endowed with nearly as much enterprise as their chief, but one of them ventures to say, "But what if it should turn out badly, Mr. Marston?" "There are no ifs about it," is the reply, "I have looked it over in all its bear-

ings and know it will be a success." "Yes," is the reply of the cautious partner, "still, if it should—" "We can stand the loss," is the reply of the senior. "The matter is settled, then, I suppose," Mr. Marston continues; "will you draw up the papers, Mr. Villanova?" "I will, Sir," was the reply. "By the way, Mr Si-Wah, do you attend 'change to-day?" "Yes Sir." "We had better purchase two millions U. S. bonds of A. D. 2000, I think, if they do not go above 127." "I will buy them, Sir."

After a temperate lunch and conversation with some of the new customers of the house, Mr. Marston withdraws for an hour or two to his private office to attend to his correspondence. Meanwhile, as we purpose to accompany him again to his home after business hours, we will occupy ourselves in looking about the city for awhile, and learning what we may of its character and position. It was folly to expect perfect peace, order and propriety in any large city this side the millenium, and though this city of LaPorte has many good qualities, and is in some respects a model city, yet we shall doubtless find some things in it not to our fancy. We pass along the great central artery of trade until we find that some dwellings of great elegance are mingled with its stately shops and warehouses. Glancing in at some of the great retail marts of trade, we find richly dressed women shopping, and mingled with them occasionally in plain and perhaps uncouth attire, the wife or daughter of some successful miner from the mining districts of Wyoming, Idaho or Colorado. The pretty and tastefully dressed shopwomen, (for in these retail stores there are no male clerks,) have not lost the art of commending their goods by all the maneuvers which they think will be successful, and the unwary purchasers find themselves beguiled into buying more than they want, by their skillful and plausible commendations.

At the corners, Cheap John s, some of them Chinese, cry their wares and endeavor to beguile passers by, by the narrative of some never-ending, still beginning story. Those magnificent stores with easy entrances fitted up with mirrors and pictures, and glittering with fresco and glass and many-hued windows, are retail liquor stores, and their proprietors are as eager as they ever were to make money out of the ignorant, the innocent, the social and the unwary. A building more pretentious than the rest, displays its architectural beauties and excites our attention by its statuary and its lavish adornments. We notice the sign, "Gentlemen's Social Club Room," and enter. We find first a magnificent billiard room in which are a few players, and being asked significantly if we will go farther, we are ushered into a dining room where the tables are laden with the choicest viands which the continent can afford, and are invited to partake without charge. Declining the invitation, we are admitted to a third room heavy with perfumes, and where soft, artificial light and forced ventilation give one the impression of some fairy palace, and find that we are in the finest gambling hell on the plains. Large parties of eager, livid, anxious looking men surround the tables, hazarding their all upon the cast of a die; ever and anon one throws up his hands, the blood rushes to the pale forehead, he clasps his head as if in frenzy and rushes from the room. Perhaps a few minutes later we hear the discharge of a pistol, and wonder if it has anything to do with the scene we have just witnessed; but those desperate players at the table do not notice it. We go out and find in the hourly journal that Mr. ——, rendered desperate by losses at the gaming table, committed suicide at 3 o'clock.

We have had enough of this, and strolling up the street thoughtfully, we turn into one whose architecture and arrangements seem new to us. We have passed numerous churches, of various religious denominations, their tall spires pointing toward heaven, or their stately towers giving evidence of their substantial character; but here we come upon another edifice which seems a place of worship, yet differs from the others. We look more closely and find it a temple for the worship of Buddha, and within its portals is a large and well executed bronze statute or image of Buddha Sakyamuni in his official robes, with the lotus in his hand, and that expres-

sion of profound and serene repose which characterises all the best images of him. We do not care to linger at his worship which seems to us more than usually dull and dreary, and passing on we come to a temple to Sin-tü the Japanese divinity, who shares with Buddha the reverence of that people. His worship is more distinctively idolatrous than that of Buddha, and while there is something interesting, there is also much that is ludicrous, and not a little that is sad, in this worship of wood and stone. We are in the Japanese quarter of LaPorte, and we find here and there elegant cottages, with inscriptions indicating that they are "tea houses." The "Social Evil" among the Japanese has not so many revolting features as among our professedly more highly civilized people; but we decline all invitations to enter, and pass on. The begging nuns, pretty, after the oriental style, and very winning in their ways, next accost us, and ask that we will visit their halls and witness their dancing, and perhaps contribute something toward giving their patron goddess a new silken suit; but we are hard hearted, and do not think their patron goddess much more destitute of "something to wear" than her devotees before us. We have had enough of the Japanese quarter and turn away to retrace our steps towards the great thoroughfare; but in so doing we have entered the purlieus of the lowest classes of the Chinese, Hindoo, and Malay population. Here is an opium shop, and on benches under the verandah lie ghastly-looking men and women, under the influence of the potent drug. They seem dead, and to have died in horrible agony; but soon one of them, and presently another, raises his head, and propping it up with one hand, looks around with an idiotic expression, and calls in utter wretchedness for more of the poison. If denied he presently raises up again, and may commit murder or become a violent maniac. A little farther on a crowd are gathered, who suddenly start and fly for their lives. A stalwart Malay, whose face is so malignant with all evil passions that it would make a capital study for Gustave Doré in his next picture of Satan, and who is maddened with vile liquor and opium has rushed out and is running *amok*, striking and stabbing with his gleaming *Kriss*, every one in his way. Yet farther on the Hindoo, sleek, graceful, and eminently handsome in form and feature, but treacherous and deceitful, bows very humbly and obsequiously, but it would not surprise us to know, that in one of his fits of jealousy against Englishmen and Americans, he had assassinated some friend of ours to whom he had been equally obsequious and polite.

We turn away a little disgusted with this city, which a few hours before we had thought such a model. It is evident that LaPorte is not a city of the saints, unless it be that "Latter Day" kind which a hundred years before had made a neighboring city a by-word and a reproach. Returning to the warehouse we find Mr. Marston ready to go home by the open railway, the cars of which are driven by the new motor, whose wonderful power and freedom from danger, are just beginning to make it popular. He says very pleasantly to a friend whom he has invited to accompany him, that going by this route he will have an opportunity to see something of the beauties of the landscape. We enter the car, and it begins to move almost immediately; the speed increases with great rapidity, but without the short, quick puffs, or the jerky motion, of the old time locomotive. Before we have had time to be conscious of the change, our speed has increased till it is terrific. trees, buildings, and towns are passed so swiftly that it is vain to attempt to distinguish them. The landscape, whose beauties we were to notice, has become an undistinguishable plain, the eye can only rest in looking to the far off hills, and even these approach and recede too rapidly to be comfortable. Yet amid it all there is no rocking or swaying of the cars, as there was in the days of steam. We ask the reason and are told that, high as is the rate of speed, the train is balanced and kept in place by a sort of *quasi*-connection with a middle rail. In thirty minutes after leaving LaPorte, we are set down at the station nearest Mr. Marston's house, a distance of sixty miles. Mr. Marston rallies his friend on his enjoyment of the

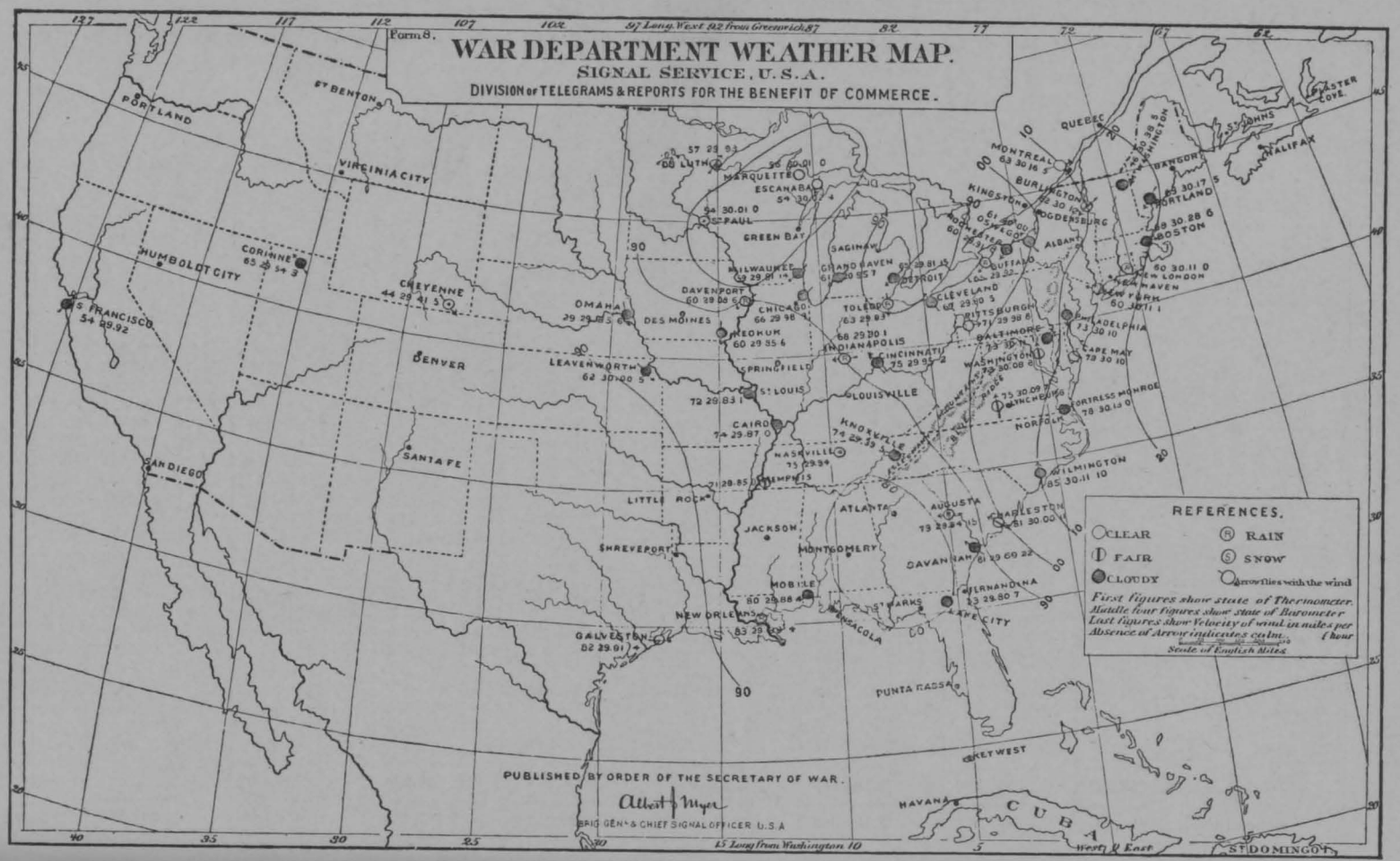
landscape, and promises to show him some of its beauties in his own carriage. Entering this, which is in waiting, the party are presently set down at the door of the villa.

As it yet lacked more than two hours of sunset, the carriage is retained at the door and, after a brief delay, Mr. and Mrs. Marston, with their guests, drive over a superb road to the brow of the mountain overlooking the magnificent North Park, one of the grandest landscapes in the whole eastern slope of the Rocky mountains. After contemplating its beauties for some time from different points, they turn southward and drive for a little distance through one of the passes of the Uintah range, and cross the Green river—already a considerable stream—on a fine suspension bridge. Descending from the carriage, the whole party look over the railing of the bridge down into that deep, dark cañon, even at this point two thousand feet below them, its black waters striking on either side the perpendicular walls of rock which shut them in.

Again entering the carriage, they come to the reservoir ponds and the *acequias*, which Mr. Marston has had constructed for the irrigation of his estate. He explained to his friend that when he purchased it, this was mostly a barren dessert, covered with the sage or grease bush; that several efforts had been made to reclaim it, but unsuccesfully, and that taking advantage of a perrenial stream higher up in the mountains, he had obtained an ample supply in his reservoirs to furnish water sufficient for the entire estate whenever and wherever it was needed, and that now his crops of wheat, millet, dourra maize, and other agricultural products are so enormous that he hardly knows what to do with them.

Returning to the mansion, the closing hours of day are passed in high social enjoyment. The dinner, at seven o'clock, is luxurious without ostentation. Salmon from Oregon, caught thirty-six hours before, and sent in ice; the delicious blue fish of the Atlantic coast, brought fresh in like manner; the great turkey of the plains, the acknowledged monarch of the gallinacious tribes; a saddle of elk venison; a roasted ham of the grizzly bear, now becoming very rare in the mountains; piquant sauces, the genuine trepang or birds' nest, now found in the caverns of the Queen Charlotte Islands, and numberless delicacies devised by the skill of their accomplished cook and confectioner, make it a repast which brings enjoyment without gluttony. Coffee and chocolate were served, and bottles of the choicest wines of California stand in the cooler, but neither host nor guest desired them.

The evening would have been dull had music been wanting; but in this the Marston family are adepts. All joined in some sweet, new songs, while Madame accompanied them on the organ-piano, a new combination of string, reed and wind instruments, whose soft and delicious tones delighted all ears. So ends a day in June, 1970.


Form 8.
WAR DEPARTMENT WEATHER MAP.
SIGNAL SERVICE, U. S. A.
DIVISION of TELEGRAMS & REPORTS FOR THE BENEFIT OF COMMERCE.
97 Long. West 82 from Greenwich 87
PORTLAND
FT BENTON
VIRGINIA CITY
HUMBOLDT CITY
CORINNE
CHEYENNE
OMAHA
DES MOINES
DENVER
LEAVENWORTH
SAN FRANCISCO
SAN DIEGO
SANTA FE
LITTLE ROCK
SHREVEPORT
NEW ORLEANS
GALVESTON
MARQUETTE
ESCANABA
ST PAUL
GREEN BAY
SAGINAW
MILWAUKEE
GRAND HAVEN
DETROIT
DAVENPORT
CHICAGO
TOLEDO
CLEVELAND
BUFFALO
PITTSBURG
ALBANY
MEDICINE HAT
QUEBEC
MONTREAL
KINGSTON
BURLINGTON
OGDENSBURG
PORTLAND
BOSTON
NEW LONDON
NEW HAVEN
NEW YORK
PHILADELPHIA
CAPE MAY
BALTIMORE
WASHINGTON
FORTRESS MONROE
NORFOLK
WILMINGTON
CHARLESTON
AUGUSTA
ATLANTA
JACKSON
MONTGOMERY
MOBILE
PENSACOLA
ST MARKS
FERNANDINA
JACKSONVILLE
KEY WEST
PUNTA RASSA
HAVANA
CUBA
ST DOMINGO
PEORIA
SPRINGFIELD
ST LOUIS
CAIRO
LOUISVILLE
INDIANAPOLIS
CINCINNATI
KNOXVILLE
NASHVILLE
MEMPHIS
REFERENCES.
CLEAR
RAIN
FAIR
SNOW
CLOUDY
Arrow flies with the wind
First figures show state of Thermometer.
Middle four figures show state of Barometer
Last figures show Velocity of wind in miles per hour
Absence of Arrow indicates calm.
Scale of English Miles.
PUBLISHED BY ORDER OF THE SECRETARY OF WAR.
Albert J. Myer
BRIG GEN'L & CHIEF SIGNAL OFFICER U.S.A.
75 Long from Washington 10
West & East

SLAVE POPULATION OF THE UNITED STATES FROM 1790 TO 1860.

WITH THE RATIO OF SLAVES TO THE WHOLE POPULATION IN THE PRESENT SLAVE STATES, BY EACH DECENNIAL CENSUS BY THE FEDERAL GOVERNMENT SINCE ITS FORMATION.

	1790.	Ratio to pop.	1800.	Ratio to pop.	1810.	Ratio to pop.	1820.	Ratio to pop.	1830.	Ratio to pop.	1840.	Ratio to pop.	1850.	Ratio to pop.	1860.	Ratio to pop.
Maine	..	..	..	..	..	..	..	..	2	..	.	..	..	..	..	..
New Hampshire	158	..	8	..	..	..	..	..	3	..	1	..	..	..	..	..
Vermont	17	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Massachusetts	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Rhode Island	952	..	381	..	108	..	48	..	17	.	5	..	..	..	..	.
Connecticut	2,759	..	951	..	310	..	97	..	25	.	17	..	..	..	..	..
New York	21,324	..	20,343	..	15,017	..	10,088	..	75	.	4	..	..	..	..	..
New Jersey	11,423	..	12,422	..	10,851	..	7,557	..	2,254	..	674	..	119	..	..	..
Pennsylvania	3,737	..	1,706	..	795	..	211	..	403	..	64	..	..	..	..	..
	40,370		35,811		27,081		18,001		2,779		765		119		..	
Delaware	8,887	15.0	6,153	9.5	4,177	5.7	4,509	6.2	3,292	4.2	2,605	3.3	2,289	2.5	1,805	1.6
Maryland	103,036	32.2	105,635	30.9	111,502	29.3	107,398	26.3	102,994	23.0	89,737	19 0	89,800	15.5	85,382	12.7
District of Columbia	..	..	3,244	..	5,395	..	6,377	..	6,119	..	4,694	..	3,687	..	3,234	..
Virginia	293,427	39.2	345,796	39.2	392,518	40.2	425,153	39.9	469,757	38.7	448,987	36.2	473,026	33.2	495,826	30.8
North Carolina	100,572	25.5	133,296	27.8	168,824	30.3	205,017	32.0	245,601	33.2	245,817	32.6	288,412	33.2	328,377	33.9
South Carolina	107,014	43.0	146,151	42.2	196,365	47.3	258,475	51.4	315,401	54.2	327,038	55.0	384,925	57.6	407,185	57.2
Georgia	29,264	35.4	59,504	36.6	105,218	41.6	149,656	43.8	217,531	42.0	280,944	40.6	362,996	42.1	467,461	43.7
Florida	..	..	..	..	..	..	..	..	15,011	44.6	25,717	47.2	39,341	44.9	63,809	44.0
Alabama	..	..	..	..	..	..	47,439	32.7	117,549	37.9	253,532	42.9	342,894	42.4	435,473	45.1
Mississippi	..	..	3,489	39.4	17,088	42.3	32,814	43.4	65,659	48.0	195,211	51.9	300,419	51.0	479,607	55.1
Louisiana	..	..	..	..	34,660	45.2	69,064	45.0	109,588	50.8	168,452	47.8	230,807	47.2	312,186	46.9
Texas	..	..	..	..	..	..	..	..	..	..	..	..	53,346	27.3	184,956	30.0
Arkansas	..	..	..	..	..	..	1,617	11.3	4,576	15.0	19,935	20.4	46,983	22.4	109,065	25.5
Tennessee	3,417	9.5	13,584	12.8	44,535	17.0	80,107	18.9	141,603	20.7	183,059	22.0	249,519	23.8	287,112	24.8
Kentucky	11,830	16.1	40,343	18.2	80,561	19.8	126,732	22.4	165,213	24.0	182,258	23.3	221,768	21.4	225,902	19.5
Missouri	..	..	..	..	3,011	4.4	10,222	15.3	25,091	17.8	58,240	15 1	89,289	12.8	115,619	9.8
Indiana	..	..	135	..	237	..	190	..	3	..	3	..	..	..	..	..
Ohio	..	..	..	..	..	..	..	..	6	..	3	..	..	..	..	..
Illinois	..	..	..	..	168	..	917	..	747	..	331	..	..	..	..	..
Wisconsin	..	..	..	..	..	..	..	..	..	..	11	..	..	..	..	.
Iowa	..	..	..	..	..	..	..	..	..	..	16	..	..	..	..	..
Michigan	.	..	..	..	24	..	..	..	32	..	..	..	..	..	..	..
Total	658,527		857,230		1,164,283		1,525,667		2,096,264		2,486,590		3,179,470			
General total	697,897		893,041		1,191,364		1,543,668		2,099,043		2,487,355		3,179,589		4,002,996	

IMPORTANT TO ALL

WHO ARE

INCLINED TO PROFIT FROM HINTS OR SUGGESTIONS.

One of the most important reforms needed by a large portion of Americans is in the direction of economy and saving. Not one in a thousand have any idea of what little savings will amount to in a lifetime. Not one person in fifty living up to seventy or seventy-five years of age leaves as much property as a few savings of unnecessary expenses during life would amount to at the age of seventy or seventy-five years, if the savings were well taken care of and kept at compound interest.

The following calculations are compounded at seven per cent., annually:

One cigar a day, at five cents, will amount to $252.09 in ten years, $747.97 in twenty years, $1,723.42 in thirty years, $3,642.31 in forty years, $7,417.06 in fifty years. Two cigars a day at five cents each, one drink of liquor at ten cents, two glasses of ale or beer at five cents each, will amount to $1,008.36 in ten years, $2,991.88 in twenty years, $6,893.98 in thirty years, $14,569.24 in forty years $29,668.24 in fifty years.

Young men who spend what would be called very moderate sums for billiard-playing, theater-going, pleasure-riding, unnecessary clothing, and numerous other trivial expenses aggregating $25.00 per year and keep it up will find it amounts to $394.57 in ten years, $1,121.58 in twenty years, $2,551.98 in thirty years, $5,364.63 in forty years, $10,908.27 in fifty years. Many spend $50.00; this amounts to $21,816.54 in fifty years; $100.00 per year, $43,633.08 in fifty years; $300.00 per year, $131,899.24 in fifty years.

A span of horses, coach, and coachman, costing $700.00 per year, will amount to $11,048.17 in ten years, $31,404.45 in twenty years, $71,445.51 in thirty years, $150,209.71 in forty years, $305,431.63 in fifty years.

A saving in house-rent of $25.00 per year amounts to $394.57 in ten years, $1,121.98 in twenty years, $2,551.98 in thirty years, $5,369.63 in forty years, $10,908.27 in fifty years. A saving in house-rent of $50.00 per year will amount to $789.15 in ten years, $2,243.15 in twenty years, $5,103.46 in thirty years, $10,739.26 in forty years, $21,816.54 in fifty years. A saving in house-rent of $100.00 per year will amount to $1,578.31 in ten years, $4,486.93 in twenty years, $10,206.93 in thirty years, $21,478.53 in forty years, $43,633.09 in fifty years. A saving of $300.00 per year amounts to $130,899.27 in fifty years.

The difference between living in a $5,000.00 and a $6,000.00 house amounts to $1,967.20 in ten years, $3,869.71 in twenty years, $7,612.30 in thirty years, $14,874.50 in forty years, $29,457.00 in fifty years. Many live in a $10,000.00 house when a $5,000.00 one would answer just as well; the difference amounts to $9,836.00 in ten years, $19,348.50 in twenty years, $38,061.50 in thirty years, $74,372.50 in forty years, $147,285.00 in fifty years. Those living in a $25,000.00 house when a $10,000.00 one would answer very well will find large figures, as follows: difference of $29,508.00 in ten years, $58,045.65 in twenty years, $114,184.50 in thirty years, $223,117.50 in forty years, $441,855.00 in fifty years. We suppose the high priced houses in these cases would be worth more than the low priced houses at the end of fifty years, but as we make no allowance for extra expense of living, taxes, insurance, repairs, etc., the parties would be out the full amount of the figures.

A servant girl costing $300.00 per year, including board, waste, etc., will cost $4,734.93 in ten years, $13,459.05 in twenty years, $30,620.79 in thirty years, $64,435.59 in forty years, $130,899.27 in fifty years. Two servants will cost $261,798.54; three servants $392,697.81 for fifty years. Who wants any more.

The spending of $500.00 in plumbing for a dwelling and $10.00 per year for repairs and water supplies will cost $1,045.00 for ten years, $2,314.00 for twenty years, $4,700.00 for thirty years, $9,527.00 for forty years, $18,880.00 for fifty years. $1,000.00 spent in plumbing, and $20.00 per year for repairs, water supply, etc., will amount to $37,761.00 for fifty years.

The spending of $500.00 for a piano and $100.00 in learning music, etc., will amount to $1,180.32 for ten years, $2,320.20 for twenty years, $4,567.38 for thirty years, $8,982.29 for forty years, $17,674.20 for fifty years. $250.00 piano, $50.00 for learning music, $8,837.10 for fifty years. $1,000.00 piano, $200.00 for teaching, etc., $35,348.40 for fifty years.

The saving of $10.00 per year in clothing for a child from birth until twenty-one years of age will amount to nearly $12,000.00 at seventy-one years of age.

A baby carriage at $20.00 will amount to $2,452.58 by the time the person arrives at the age of seventy-one years.

A lady saving $10.00 per year in clothing amounts to $157.83 in ten years, $448.63 in twenty years, $1,020.69 in thirty years, $2,147.83 in forty years, $4,363.30 in fifty years; $20.00 per year for fifty years $8,726.60; $30.00 per year for fifty years $12,308.99; $40.00 per year for fifty years $17,453.20; $100.00 per year for fifty years $43,633.00.

The difference between carrying a $50.00 and a $250.00 watch amounts to $5,894.40 in fifty years.

Some claim that it is economy to wear diamond jewelry as its value increases. Diamond jewelry costing $50.00 costs the owner $193.48 in twenty years, $1,472.85 in fifty years; diamond jewelry costing $200.00 will amount to $1,522.46 in thirty years, $5,891.40 in fifty years; $1,000.00 worth will amount to

$29,457.00 in fifty years. We doubt whether diamonds are advancing at this rate.

There are thousands of business men who run along for twenty, thirty, forty, and fifty years, and in the end fail, ostensibly because of many bad debts or fall in value of goods.

Suppose a man doing a comparatively small business spends $500.00 more than necessary in family, and $500.00 in business per year. This would amount to $15,783.10 in ten years, $44,863.50 in twenty years, $102,069.30 in thirty years, $214,785.30 in forty years, $436,330.90 in fifty years. Should he fail in twenty years, with liabilities of $40,000.00, assets of $20,000.00, he could, by saving, have paid his debts and have $24,863.50 left; fail in forty years, with liabilities of $100,000.00, and assets of $50,000.00, pay his debts and have $164,785.30 left; fail in fifty years, with liabilities of $300,000.00, and assets of $200,000.00, pay his debts and have $336,330.90 left. There are many firms in large cities with two to five or more partners. A firm composed of four, each one spending $1,000.00 more than necessary in family expenses, or $4,000.00 per year, and as much more in business expenses, making $8,000.00 annually. This would amount to $126,264.80 in ten years, $358,908.00 in twenty years, $816,554.40 in thirty years, $1,718,282.40 in forty years, $3,490,647.20 in fifty years. Should such a firm fail in ten years, with liabilities of $125,000.00, and assets at $55,000.00, with the savings they could pay their debts and have $56,264.80 left; fail at the end of thirty years, with liabilities of $500,000.00, and assets of $225,000.00, pay their debts and have $541,554.40 left; fail at the end of fifty years, with liabilities of $2,500,000.00, assets of $1,700,000.00, pay their debts and have $2,690,647.20 left.

The evils of the credit system are numerous; its tendency is living beyond one's means. The saving of cash payments would result in competence. Suppose a person of small income, say $500.00 per year, should make all purchases with his income at five per cent. discount for cash, this will be a saving of $25.00 per year. This will amount to $394.57 in ten years, $1,121.98 in twenty years, $2,551.98 in thirty years, $5,369.63 in forty years, $10,908.27 in fifty years. On an income of $1,000.00 yearly, cash payments will amount to $50 saving yearly, or $789.15 in ten years, $2,243.15 in twenty years, $5,103.46 in thirty years, $10,739.26 in forty years, $21,816.54 in fifty years. Saving on $2,000.00 annual expenses will amount to $43,632.00 in fifty years.

The merchant who pays cash for all his purchases at a saving of two per cent. will save on $50,000.00 yearly purchases as follows: $1,000.00 per year, $15,780.00 in ten years, $44,860.00 in twenty years, $102,060.00 in thirty years, $214,780.00 in forty years, $436,320.00 in fifty years. In a business of $500,000.00 yearly purchases at one per cent. discount for cash, is a saving of $5,000.00 yearly, $78,900.00 in ten years, $224,300.00 in twenty years, $510,300.00 in thirty years, $1,073,900 in forty years, $2,181,600 in fifty years.

Money doubles, at compound interest six per cent., in about twelve years. The Astor or Vanderbilt estate, supposing it to be $50,000,000.00, would be

$100,000,000.00 in twelve years, $200,000,000.00 in twenty-four years, $400,000,000.00 in thirty-six years, $800,000,000.00 in forty-eight years, $1,600,000,000.00 in sixty years, $3,200,000,000.00 in seventy-two years, $6,400,000,000.00 in eighty-four years, $12,400,000,000.00 in ninety-six years, $25,600,000,000.00 in one hundred and eight years, $51,200,000,000.00 in one hundred and twenty years. According to the census of 1870, the total valuation of the United States personal and real estate was $30,068,518,507.00. Thus it will be seen that either of these estates compounded would amount to more than the total value of all the property of the United States in a little over one hundred years.

The internal revenue for the year 1875, from liquor, beer, etc., cigars, and tobacco in various forms, was $105,792,816.00. We estimate the consumers of these articles paid at least ten times the amount, or $1,000,000,000.00. Imported liquors do not figure in this account; including this, it must amount to the sum named, which the people pay yearly for these articles.

DAILY SAVINGS AMOUNT TO

5 cents per day, $252 in 10 years; $747 in 20 years; $1,723 in 30 years; $3,642 in 40 years; $7,417 in 50 years.

10 cents per day, $504 in 10 years; $1,494 in 20 years; $3,446 in 30 years; $7,284 in 40 years; $14,834 in 50 years.

20 cents per day, $1,008 in 10 years; $2,988 in 20 years; $6,892 in 30 years; $14,568 in 40 years; $29,668 in 50 years.

40 cents per day, $2,016 in 10 years; $5,976 in 20 years; $13,784 in 30 years; $29,136 in 40 years; $59,336 in 50 years.

60 cents per day, $3,024 in 10 years; $8,964 in 20 years; $19,676 in 30 years; $43,704 in 40 years; $89,004 in 50 years.

100 cents per day, $5,040 in 10 years; $14,940 in 20 years; $33,460 in 30 years; $72,840 in 40 years; $148,340 in 50 years.

The relative effects of simple and compound interest may be exhibited in the following manner. Money will double itself at varying rates of interest as follows:

2 per cent. *simple* interest in 50 years, *compound* interest in 35 years.

3	"	"	"	"	$33\frac{1}{3}$	"	"	"	"	$23\frac{1}{3}$	"
4	"	"	"	"	25	"	"	"	"	$17\frac{1}{2}$	"
5	"	"	"	"	20	"	"	"	"	$14\frac{1}{2}$	"
6	"	"	"	"	$16\frac{2}{3}$	"	"	"	"	12	"
7	"	"	"	"	$14\frac{1}{4}$	"	"	"	"	$10\frac{1}{4}$	"
8	"	"	"	"	$12\frac{1}{2}$	"	"	"	"	9	"
9	"	"	"	"	11	"	"	"	"	8	"
10	"	"	"	"	10	"	"	"	"	$7\frac{1}{4}$	"

If One Thousand Dollars be put at Compound Interest, its value will increase as shown below:

Rate per cent.	10 years.	20 years.	30 years.	40 years.	50 years.
4.....	$1,480.24	$2,191.12	$3,243.39	$4,801.02	$7,106.68
5	1,628.89	2,653.29	4.321.94	7,039.98	11,467.40
6.....	1,790.84	3,207.13	5,743.49	10,285.71	18,420.15
7.....	1,967.15	3,869.68	7,612.25	14,974.45	29.457.02
8.....	2,158.92	4,660.95	10,062.65	21,724.52	46,901.61
9.....	2,360.63	5,396.01	12,774.29	30,479.02	72,154.92
10.....	2,594.00	6,727.00	17,449.00	45,259.00	117,391.00

We insert these figures, or estimates, mainly as a matter of curiosity, not supposing they will amount to much in way of reform. The majority of the human race go through life in a slipshod sort of way, having no particular aim or plan of life, only to have a good time. When they get into any financial trouble, or come short of the necessaries of life, they claim it is in consequence of the false or unjust organization of society, and not from any fault of their own, and want to divide up the good things of life with the prudent and saving class, who in their better days they considered small even to meanness. The truth is, that the modern style of living, especially in cities and villages, is so expensive that only a small fraction have incomes sufficiently large to pay expenses and save anything except from rigid economy. The American idea of everybody being as good as everybody else, and of being entitled to all they see others have, must prove a delusion. Voting early and often will not produce this result. The assertion in our Constitution that every one is born free and equal, does not mean that persons are equal mentally or physically, or entitled to an equal share of property, or elevated positions in society. There are favorable or adverse conditions associated with birth, inheritance, etc., but most men are the architects of their own fortune; but few possess first-class administrative ability in matters of business or state. The truth is, comparatively few persons have governed in all ages and countries— have possessed a large share of the property of the several countries, and probably will, no matter what the form of government may be. The happy days of the millennium so much longed for seems to be like the mirage to the thirsty desert traveler—fascinating, but always keeping just so far distant.

Very likely these remarks may give offense to some. They are not intended to produce that effect. Every well-wisher cannot but desire the evening up of the condition of the human race, especially if the lower strata of mankind could be brought up to the higher strata; but it does not seem to have been the design of our Maker. The same diversity seems to pervade the animal and vegetable kingdom as well, as we see the weak and strong running through every species and variety. If equality in the human race is to come, the process seems about as slow as the geologists make of the formation of the earth. For every one to strive to make the best of their lot in life, and be content therewith, seems to be the part of wisdom.

PUBLISHER.