

I.—PHYSICAL GEOGRAPHY.

INDEX TO PLATES.

TOPOGRAPHIC MAP	Plate 1	SPRING AND SUMMER RAINFALL	Plate 4
MEAN TEMPERATURE, JANUARY AND JULY,	Plate 2	ANNUAL RAINFALL	Plate 4
MEAN ANNUAL TEMPERATURE	Plate 3	RIVER BASINS	Plate 5
HYPSOMETRIC SKETCH	Plate 3	FORESTRY—ESTIMATED TIMBER SUPPLY,	Plate 5

Topography.—In describing the physical features of the United States, we have first to consider the general topography of the country—its framework, as it may be called—since upon this depends, to a great extent, its temperature, aridity of atmosphere, and rainfall.

This framework consists, in general terms, of two great mountain systems, of which the western, the principal one, is known as the Cordilleran system of North America; and the eastern, as the Appalachian system. Between the two lies a broad basin occupied by the Mississippi river and its branches, and the chain of the Great Lakes.

The Appalachian system enters the United States in the northern part of New England and northern New York, and, extending in a general southwesterly direction, terminates in northern Georgia and Alabama. Throughout most of its extent it consists of two members: the eastern, known as the Blue Ridge; the western, as the Alleghany or Cumberland mountains. These two are separated throughout Maryland, Virginia and Tennessee by a valley, known in different parts by the names of its principal streams. In northern Virginia it is the Shenandoah valley, and in southwestern Virginia and eastern Tennessee, the Tennessee valley.

The Blue Ridge first appears in northern New Jersey. Detached portions of it may, indeed, be traced to the eastern bank of the Hudson river, in the line of the Highlands. The Delaware crosses it at the Delaware Water Gap. Within the State of Pennsylvania it is known as the South Mountain, a range of but little topographic importance. It then rises gradually, however, and, at Harper's Ferry, where the Potomac cuts through it, has a height above the river of some twelve or fifteen hundred feet. At the Peaks of Otter,

near Lynchburgh, its height is over 4,000 feet. Entering North Carolina it develops into a series of ranges and cross-ranges, forming a tangled mass of mountains, which cover the whole western part of the state and rise to heights, in the peaks, of from 5,000 to 6,000 feet, while a number of the most prominent peaks are considerably above the latter figure. Among them is Mt. Mitchell—the highest summit east of the Cordilleras—which is 6,707 feet in height. In these mountains the line of the Blue Ridge proper can still be traced, forming, most of the way, a water-divide between the streams flowing directly into the Atlantic and those flowing into the Tennessee. It has here the character of a plateau, sloping gradually on the northwest, but pitching off abruptly on the southeast. This mass of mountains extends into Georgia and northeastern Alabama, finally terminating in long narrow ridges.

The depression between the Blue Ridge and the Cumberland mountains, known as The Great Valley, is by no means a simple, smooth expanse. It is traversed by numberless ridges, most of them low, although several rise to heights of between 1,000 and 2,000 feet above the valley. These ridges are remarkably continuous, extending, with slightly sinuous courses, for hundreds of miles. In Pennsylvania they are extremely numerous. Part of the valley occupied by the Shenandoah river in Virginia, is but very little diversified, only one or two ranges being contained in it, while in the high country about the heads of the Shenandoah, James and New rivers, the ridges are extremely numerous and much broken. Farther to the southward they gradually become less numerous and of less importance, so that, below Knoxville, Tenn., the valley is again almost a plain.

The western member of this system is known in different places under different names. In Pennsylvania it is called the Alleghany plateau. In West Virginia, where it is extremely broken and eroded, different parts of it are known as the Alleghany mountain, Great Flat Top mountain, etc. In Kentucky and Tennessee it is known as the Cumberland mountain or plateau. This portion of the system presents everywhere, however modified by erosion, the general character of a great plateau, breaking off sharply toward the valley and sloping gradually in the opposite direction. Generally speaking, its crest forms the divide between the waters flowing directly into the Atlantic or into the Tennessee river, and those flowing directly into the Ohio or into the Cumberland. Exceptions may be found in the case of the Susquehanna and Delaware rivers in Pennsylvania, the New river, a branch of the Kanawha, in southwestern Virginia, and the Potomac, which cuts back a short distance into the plateau in northern West Virginia. In some localities, as in eastern Tennessee, this plateau has suffered comparatively little erosion, but throughout West Virginia and northwestern Kentucky erosion has so nearly obliterated its form that little of the plateau character is left. The slight inclination of the strata, however, and the fact that all of the mountain and hill summits are, approximately, upon the same level, together with the erratic course of the drainage, all indicate this as the original form of the region.

Toward the northeast, in New York and New England, the character of this system of mountains becomes obliterated. In its place we have the isolated masses of the Catskills, the Adirondacks, the parallel ridges of the Green mountains and the

Berkshire hills, the White mountains of New Hampshire, and the irregularly grouped summits of Maine. It is a singular fact, however, that in this part of the country, where the range has lost its continuity, are found, with the exception of the North Carolina mountains, the highest peaks in the whole system; among them are Mt. Marcy, in the Adirondacks, with an elevation above sea level of 5,379 feet, and Mt. Washington, the culminating peak of the White mountains, which rises to a height of 6,294 feet above the sea.

East of the Appalachian system there extends to the coast a gradually sloping plain. In the neighborhood of the mountains it is slightly broken by isolated ridges and minor undulations. In Maine the Atlantic slope is terminated by a rocky, broken coast, cut by deep bays and with thousands of islands scattered along its front. From Massachusetts Bay southward the coast begins to change its form to a low, sandy shore, and on the New Jersey coast there is the typical southern shore, with a low reef facing the sea, back of which are bays or lagoons and coast swamps. These swamps grow broader southward, until on the coast of North Carolina they cover a very considerable area. To a great extent they are uninhabitable. Most of the rice land of North and South Carolina has, however, been reclaimed from them. The area of coast swamp in Georgia and Alabama is not considerable, but in Louisiana it has a great breadth along the whole coast, covering a very important part of the entire state. In Texas again it is very small, being confined to small areas about Sabine lake and near Galveston bay.

The great depression between the Appalachian and the Cordilleran systems of mountains, roughly estimated to contain an area of a million and a half of square miles, is drained mainly by the Mississippi river, a comparatively small portion of the drainage finding its way into the Gulf through the smaller streams, and another portion draining into the great lakes and Hudson's bay. In population, agricultural productions and wealth, this division is now the most important section of the country and will doubtless always continue to be so.

From the foot of the Cumberland plateau this great depression is almost an absolute plain, rising gradually northward, eastward and westward from the Gulf. The only considerable breaks in the uniformity of its surface consist of the Ozark hills in southern Missouri, northwestern Arkansas and the southern part of the Indian Territory, and

some small ranges of hills in northern Michigan and Wisconsin.

Westward from the Mississippi the country rises in a long incline to a great continental plateau, which is crowned by the ranges forming the Cordilleran system. The summit of this plateau forms the continental watershed. In western Montana this crest-line has an elevation above the sea of from 4,000 to 5,000 feet. It rises in western Wyoming to heights of from 7,000 to 8,000 feet, while in Colorado it is still higher, ranging from 8,000 to 10,000 feet, the latter elevation being reached in the South Park. In New Mexico it diminishes in height, passing out of the country with an elevation, just west of the Rio Grande, not much above 4,000 feet. The basin of the Colorado and Green rivers forms a general depression in this plateau, which rises again to the westward, reaching its second summit line in eastern Nevada, where, in the northern part of the state, it has an elevation of 6,000 feet, whence the height diminishes rapidly southward.

The Cordilleran is an extremely complex system of ranges. In its widest part, that is between latitudes 37° and 42° , it has a breadth of no less than 19° of longitude. Crossing it anywhere between these latitudes, one must cross or outflank dozens of separate and distinct ranges of mountains. In this system two well-defined members may be distinguished, each of which consists of a multitude of separate ranges. The eastern member, which has been called the Rocky mountains, occupies, generally speaking, the main crest of the plateau, from the line of the British possessions to that of Mexico. In about latitude 43° it sends off a great spur or offshoot, known as the Wasatch mountains, which, with the southern extension of the Rocky mountain system, embraces the drainage basin of the Green and Colorado rivers. The western member of the Cordilleran system consists of the Cascade range of Oregon and Washington, the Sierra Nevada of California, and the Coast ranges. Between this series of ranges and the Wasatch lies an area known as the Great Basin, occupying nearly all of Nevada and part of southern Oregon, western Utah and southeastern California, the waters of which find their way to neither ocean, but are absorbed by the thirsty atmosphere and the arid soil. This area is traversed by numerous parallel ranges, trending nearly north and south.

The plains at the eastern base of the Rocky mountains rise from a height of 4,000 feet in Montana to 6,000 in Colorado, then gently fall

through New Mexico to 4,000 feet at the Mexican boundary. The ranges in Montana rise to heights of from 9,000 to 11,000 feet in the highest peaks, while the passes range from 5,000 to 6,000 feet. Southward the mountains increase in elevation. The peaks of the Wind River range rise to heights of nearly 14,000 feet. From the end of this range, at South Pass, to a point near the Colorado boundary, the Rocky mountains have only a theoretic existence, being represented only by broad plateaus, 7,000 to 8,000 feet in elevation—plateaus so flat that, although carrying the continental water-parting, it is impossible to tell for many miles in what direction the water flows. In the southern part of Wyoming, about the heads of the North Platte river, mountains rise again from the plateau. The easternmost of these is known in Wyoming as the Laramie range, in Colorado as the Colorado or Front range, whose peaks reach a height of 14,300 feet. It terminates in Pike's peak, just north of the Arkansas river. Westward of this is the Park range, between which and the Front range are the high mountain valleys, known as North, Middle and South Parks. South of the Arkansas river the front rank is taken up by the Sangre de Cristo range, which, with a series of peaks exceeding 14,000 feet in height, passes down into New Mexico as far as Santa Fé. Thence this line is carried southward into Texas by a series of broken ranges and ridges. West of the valley of the upper Arkansas is a short range—the Saguache—the highest and most massive range of Colorado, having a score of peaks above 14,000 feet, and without a pass below the timber line, which, in this state, reaches a height of between 11,000 and 12,000 feet. Beyond this, to the westward, is a series of broken ranges and ridges known as the Elk mountains, or, to the miners of that region, as the "Gunnison country." Further southward, about the heads of the San Juan river, is a mass of mountains known as the San Juan, separated from the Sangre de Cristo range by the broad and sandy expanse of San Luis valley.

Between this great and tangled mass of mountains in Colorado and the short, broken ranges of New Mexico on the east, and the Wasatch range of Utah on the west, lies a peculiar country—a region of plateaus and cañons, drained by the Colorado and its tributaries. The different plateaus are level, or but slightly inclined, changes of elevation from one to the other taking place abruptly by steep cliffs, often of vast height. All the streams flow in deep cañons; many of them so deep and narrow that the sun never penetrates

to their bottoms. Not only is every stream in a cañon, but there are thousands of cañons without streams for nearly the whole year, or absolutely dry. So numerous are these gorges in some localities that the plateau is reduced to a mere skeleton. Upon the higher plateaus, in the neighborhood of the mountains, where rains are abundant, forests and grasses flourish. Passing down, however, from one plateau level to another, step by step, these gradually disappear, and vegetation peculiar to arid regions becomes relatively more and more abundant, until finally, upon the lower plateaus, vegetation and soil together cease. To illustrate the character of this cañon country let us trace the course of the Green and Colorado river. From its head, in its upper course in Wyoming, it winds through a broad basin upon which the peripatetic name of the Great American Desert has been finally bestowed, there probably to remain. Most of the way through this basin it is bordered by cliffs 200 to 300 feet in height, gradually rising toward the south, until at the foot of the basin it meets the Uinta range, which crosses its course with an east and west trend. It holds its way through this range, showing indisputably by its course that it occupied this position before the range commenced to rise, and has simply retained it as the latter was elevated. Having passed through this range it meets an inclined plateau, dipping very gradually to the north. Into this it burrows, going deeper and deeper; the depth of its cañons being increased not only by the fall of the stream, but by the rise of the plateau, until, having reached the cliff which marks the southern edge of the plateau, it bursts suddenly into daylight. This is repeated with a second and a third plateau, after which it plunges into the great Kaibab plateau, in which its cañons reach their greatest depth, viz., nearly 7,000 feet. Through this it winds, at a depth of from a mile to a mile and a quarter below the surface, for scores of miles, and finally emerges again into sunlight at the "Grand Wash."

The Wasatch range, which separates the Colorado country from the Great Basin, has an elevation in its peaks of from 10,000 to nearly 12,000 feet, its highest peak, Mt. Nebo, having a height of 11,992 feet above the sea. The ranges of the Great Basin differ greatly in height, ranging from 4,000 to 5,000 feet up to 12,000 feet, or even more in some of their peaks.

The Cascade range is one of volcanoes. Nearly all of them are now extinct, and the volcanic activity of the rest is very feeble.

The body of the range is not greatly elevated above the neighboring country, but the heights of the peaks vary through quite wide limits. The highest summits are those of Mt. Rainier, in Washington Territory, 14,444 feet, and Mt. Shasta, in northern California, 14,442 feet. The Sierra Nevada, although topographically a continuation of the Cascade, is, geologically and structurally, very different from it. South of Mt. Shasta the mountains fall to a comparatively low elevation; indeed at this point they are cut through by the Pitt river, a branch of the Sacramento. Southward the range rises quite rapidly, and reaches its greatest height between latitudes 36° and 37°. The peaks here range between 14,000 and 14,800 feet, the highest summit, Mt. Whitney, slightly exceeding the latter figures. South of this point the mountains fall off abruptly and become confused with the Coast ranges, forming in southern California a mass which has but little system or continuity.

The Coast ranges through Washington, Oregon and California are separated from the Cascade range and Sierra Nevada by a broad valley, occupied in Oregon mainly by the Willamette river, and in California by the Sacramento and San Joaquin. They are not of great elevation, ranging from 8,000 feet in southern Oregon and northern California, to 3,000 or 4,000 feet in southern California.

There are two areas in the United States below sea level: one in southern California, on the line of the Southern Pacific Railroad, which is known variously as the Great American Desert and Soda Valley, having a depression below the sea of 200 feet; and the other, known as Death Valley, in eastern California, having about the same depression below the sea. Both of these areas are in a region of extreme aridity.

Temperature.—Generally speaking, the mean annual temperature of a region is dependent upon its latitude and its elevation above the sea. It is modified, also, to some extent by proximity to the sea or to large bodies of water, and by the direction of the prevailing winds.

It will be seen upon examination of the map showing mean annual temperature, that the isothermal lines, unless deflected by mountain masses, pursue courses very nearly east and west across the country. The deflections, however, caused by the Appalachian and Cordilleran mountain systems are very great, giving to some of the highest mountain regions an almost arctic climate. Increase of elevation has, however, little or no effect upon

mean annual temperature in cases where a large extent of country is elevated. This is shown in the case of the great Cordilleran plateau, which, rising from a height of a thousand up to six, eight and ten thousand feet, carries with it the isothermal lines with but slight deflection southward. In the northern part of this region there is, in point of fact, a *northward* deflection of the isothermals, indicating the well-known mild climate of central Montana.

The influence of the oceans and of the great lakes is scarcely perceptible upon the lines of mean annual temperature. It is shown, however, very decidedly in the maps exhibiting the mean temperatures of January and July, the hottest and the coldest months of the year respectively, especially in case of the former, where the effect of the sea in elevating the winter temperature is very marked. These two maps considered together, illustrate also the "continental" character of the climate of the Cordilleran plateau. Eliminating from the isothermals the effects of the mountain ranges, it is seen that the midsummer temperature is abnormally high and the midwinter temperature abnormally low. Not only are the annual extremes great in this arid climate, but the diurnal extremes are also very marked. It is not unusual to record a mid-day temperature of 80°, while during the night the temperature falls below the freezing point.

It will be seen on examining the map showing mean annual temperature, that almost the entire cotton belt lies in that region having a mean annual temperature above 55°. The sugar and rice regions have a temperature greater than 70°, while between 50° and 60° is comprised mostly of the tobacco region. The great prairie region lies almost entirely below 55°, and the wheat region of Minnesota and Dakota is below 45° of mean annual temperature.

Rainfall.—The rainfall of the country is, perhaps, the most important element of the climate in its relation to material interests, inasmuch as that one upon which all others depend, viz., agriculture, may be said to flourish, within certain limits, directly in proportion to the amount of precipitation. The rainfall in this country differs greatly in different parts. Over the eastern half it is sufficient, in most places amply sufficient, for all the needs of agriculture. The whole Cordilleran region, however, with the exception of a narrow strip near the Pacific coast, has an insufficient supply, so much so that everywhere, except in certain limited localities

where the local topography produces a greater precipitation, irrigation is necessary for the cultivation of crops. The rainfall of the eastern half of the country is derived from the Gulf of Mexico and the Atlantic ocean, and mainly from the former. The air currents from the Gulf are cooled upon reaching the land, and deposit their vapors copiously at first, and then more sparsely as they move northward and eastward. The result is that throughout the Mississippi valley the isohyetal lines have the general form of concentric curves, concave toward the Gulf. Were there no topographical inequalities in the surface of the country, these curves would be even and unbroken. The presence, however, of the Appalachian mountain system breaks up this uniformity. The moisture-laden currents meet the southern end of this chain, and are forced up at once to a considerable altitude, which, rarifying and consequently cooling them, compels them to disgorge their moisture, so that we find, especially upon the southern end of this chain, a comparatively heavy rainfall. A second source of precipitation is the Atlantic ocean, from which comes most of the rainfall of the Atlantic plain.

Leaving now the eastern part of the country, and tracing the rainfall westward, we find that, going up the slope of the plains, it constantly decreases until in the neighborhood of longitude 100°, where it ranges from twenty to twenty-five inches, it becomes too light for the needs of agriculture. This limit of the arid region, it must be understood, however, is not a hard and fast line. There is in the neighborhood of this meridian a belt of country stretching down through Dakota, Nebraska, Kansas and Texas, having a breadth of two or three degrees of longitude, in which agriculture without irrigation, while sometimes possible, is always a dangerous experiment and often a disastrous one. This is the debatable ground between irrigation and non-irrigation. The location of this belt is not determined by the rainfall alone. Temperature enters as a qualifying term, inasmuch as the evaporation in a hot climate counts as much against agriculture as rainfall counts for it. Moreover, the manner of distribution of the rainfall during the year also has an effect upon the location of this belt. A light annual rainfall may be amply sufficient for agricultural needs, in case all of it falls during the Spring and Summer months. Both these qualifying terms tend to throw this semi-humid belt to the west of the isohyetal lines, in the northern part of the country, and east of them in the southern part.

The higher ranges of the Cordilleran system receive an ample supply of moisture, but the plains and valleys at their bases are blessed by it only as the mountains pour down abundant streams for irrigation. The aridity reaches a maximum in western Arizona, southern Nevada and southeastern California, where the rainfall is the least and the temperature the greatest. In respect of aqueous precipitation, the Cascade range and the Sierra Nevada present a sharp line of demarkation between the country lying east and that lying west of them. They cause, in great measure, the aridity of the former.

The rainfall of the Pacific coast is peculiar. We have throughout the region a well defined wet and dry season, but there are degrees of wetness or dryness which vary with the latitude. In the northwestern part of Washington Territory the annual rainfall has been known to reach 120 inches, being the greatest ever recorded in any part of the country. The dry season here is only comparatively dry. Southward the rainfall of both the wet and dry seasons decreases until, in southern California, there is very little at either time of the year, irrigation being universally practiced in the southern half of the state. The reason for this distribution of the rainfall is not difficult to find. The prevalent southwesterly winds from the Pacific ocean reach the shore as warm, moist air currents, having the temperature of the sea over which they have passed. If the land is colder than the sea, as it is to a greater or less extent in the winter time, precipitation is induced, and this is more rapid the greater the difference in temperature between the land and the air current, which is the case in the more northern latitudes. In the summer the land along most of the coast, and in the southern part of the area, even up to considerable heights upon the mountains, has a higher temperature than the sea; while in the more northerly portion of the area under consideration the difference is but slight, inducing a comparatively light precipitation in the dry season. In passing over the high mountains of the Cascade Range and the Sierra Nevada, these air currents are drained of their last drops of moisture, and blow over the plains and plateaus to the eastward as dry winds.

From the map it is seen that the sugar and rice regions of the South are almost entirely within the area enjoying a rainfall greater than fifty-five inches annually, and that the cotton of the country is raised where the rainfall exceeds forty-five inches; that wheat and other cereals flourish without irrigation in the northern

part of the United States, where the rainfall does not exceed twenty inches.

Distribution of Forests.—The eastern part of the United States is forest-clad. Along a line passing, generally speaking, across the middle of Texas, and Indian Territory, eastern Kansas, and Nebraska, and the western border of Minnesota, woodlands disappear. They reappear in northern California, western Oregon and Washington, northern Idaho and northwestern Montana. In other parts of the Cordilleran region forests are found only on the high mountains and plateaus. The plains, lower plateaus and valleys are treeless.

East of the line above sketched as the western limit of arborescent vegetation, there are great areas, comprising eastern Kansas and Nebraska, northern Missouri, all of Iowa, southern Minnesota and Wisconsin, the greater part of Illinois, and a portion of Indiana, constituting what is known as the prairie region, which is, or was when civilized man first entered it, a debatable ground between forests and grasses. In this region the proportion of forest grows gradually and by imperceptible degrees less as the longitude increases, until it shades into the treeless expanse of the great plains. In Texas and the Indian Territory there is a similar but much smaller extent of prairie, the transition here from forest to plain being much more quickly made.

Forests require a moist climate and soil. A comparison of the forestry map with that illustrating the annual rainfall, shows the intimate relations subsisting between them. But it is not upon rainfall alone that the moisture of a climate depends. With the same or even a less amount of precipitation, the climate of a cold region may be moister than that of a warmer one, owing to the decreased amount of evaporation. This is the case in central Minnesota and northern Wisconsin and Michigan, regions which are covered with forests, while the prairie regions south of them enjoy fully as great, and in most localities, a slightly greater, rainfall.

The occurrence of prairies is, in the main, dependent upon the degree of moisture of the climate. If the amount be diminished below a certain point, grasses and other forms of vegetation suited to the climate spring up to contest the occupancy of the soil. Slight causes, such as in a moister region, have little or but a temporary effect, then suffice to check tree-growth. Forest fires, under such conditions, permanently destroy woodlands; diseases spread rapidly and produce permanent and wide-spread injury. In short, trees, not being

as well suited to the environment as other vegetation, give way in the struggle for existence, and retain their hold on the soil only in certain favored localities.

Between latitudes 39° and 43°, the prairie region, this battle-ground between trees and grasses, has a great breadth, extending eastward into Indiana. South of it the rainfall is sufficient to turn the balance in favor of forests, while northward, the slight decrease in rainfall is more than offset by the colder climate and consequently decreased evaporation, aided, no doubt, by the lacustrine character of the country.

The prairie region, however, is fast disappearing. The advent of civilized man upon the scene has had the effect of turning the scale in favor of arborescent vegetation. The cultivation of the soil of this level region increases its capacity for retaining moisture; forest and prairie fires have ceased; and, further, thousands upon thousands of acres of trees have been planted. The result is that the eastern part of what was fifty years ago a prairie region would scarcely be recognized as such to-day.

From the ill-defined western border of the prairies, the monotonous indulations of the great plains stretch to the base of the Rocky mountains. The rainfall of this region is not sufficient for forest-growth, and, with the exception of narrow belts of timber along some of the main streams, or an occasional pine on the face of a rocky bluff, the whole area is treeless. In the early days, before the iron horse had shortened the toilsome journey across the plains, emigrants traveled for weeks together without the grateful sight of a tree. The country is covered with "bunch" or "buffalo" grass, which, in the more arid regions, gives place to artemisia, cacti, yucca and other growths characteristic of the desert.

Throughout the broad belt of mountains and plateaus known as the Cordilleran region, timber growth is a direct result of the joint action of rainfall and temperature. Those mountains and plateaus which are sufficiently high to induce a supply of rainfall adequate to the needs of trees are clothed with forests. The elevation necessary to ensure these conditions ranges widely in different parts of this region, depending upon the local aridity of

climate, the temperature and the elevation of the surrounding country. In general, the elevation necessary for the existence of forests is decidedly less in the northern than in the southern parts of the Cordilleran region.

Below the forests, on the middle plateaus and in the mountain valleys, the prevalent growth is artemisia ("sage-brush"), interspersed to a greater or less degree with "bunch" grass, and grading off in the more arid localities, and upon the lower plateaus, into cacti, yucca, and sterility.

Relation of Forests to Climate.

—The influence of forests is, in certain respects, decided and salutary. While their presence does not increase the amount of rainfall in the least, it tends to economize that which falls, preventing it from flowing directly off into the streams, and thereby lessens the violence of

scarcely be felt in the forests, as far as their influence upon climate and soil are concerned. The forests of northern Maine have been almost entirely depleted of their valuable timber, yet to-day this region is the same forest-grown lacustrine country that it was a century ago, before its great pines had been transformed into the masts and spars of ships.

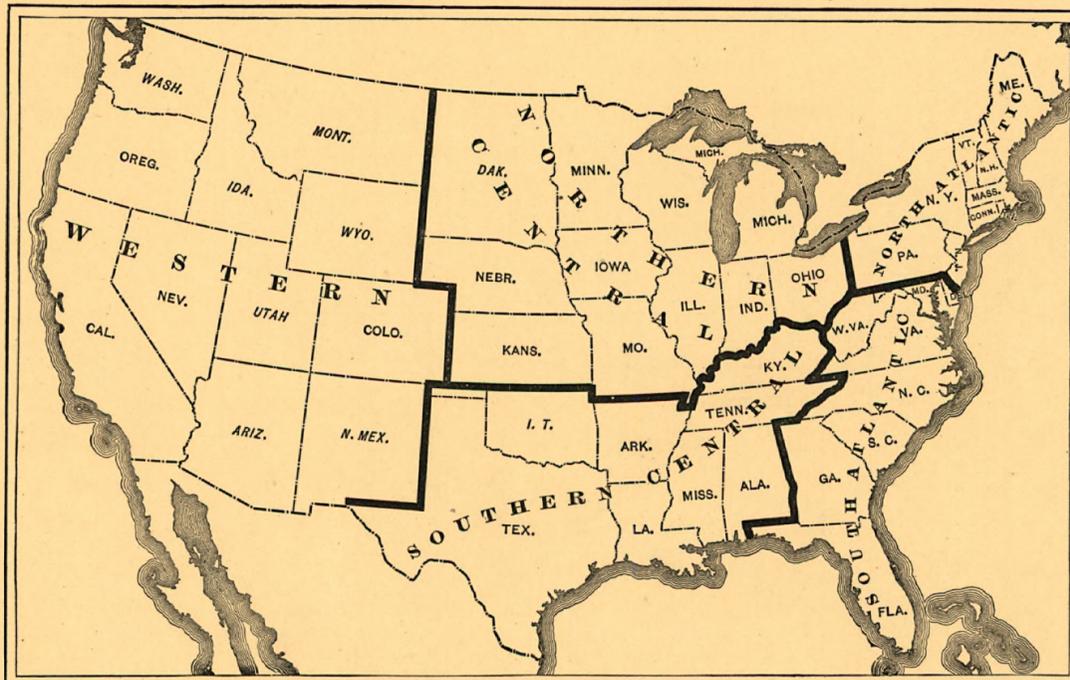
Natural Grouping of the States.

—In the discussion of the subjects embraced in this work, it has been found necessary to adopt some characteristic mode of grouping the states and territories. The country has long ago outgrown the old, time-honored groups with which we have been familiar from childhood, known as the New England, Middle, Southern and Western states. To-day it is a curious arrangement which classes New York, Pennsylvania and New Jersey among the "Middle"

states, and Ohio, Indiana and Illinois in the "West." Moreover, the group heretofore known as the "Western" states, is not only vastly larger than all the others combined, but contains more than half the population and nearly half the wealth of the country.

The grouping adopted in this work is that proposed by the Census office and used in its publications. It is illustrated in the accompanying map.

As will be seen, this scheme divides the country, primarily, into three great



GROUPING OF THE STATES.

floods. Evaporation from the myriad leaf-surfaces doubtless lowers the temperature slightly in the immediate neighborhood of the forests, and they break the force of winds which otherwise might develop into destructive tornadoes. In these and many other ways the presence of forests tends to mitigate the extremes of climate, and to neutralize its ill-effects.

It is, beyond question, desirable to preserve so much of our forests as may be required to serve the purposes indicated above. As yet, however, even in the most densely settled regions, it does not appear that the forests have been so depleted as to cause material damage. Our lands are nowhere laid waste by drought due to this cause, nor are our streams subject to greater floods to-day than a hundred years ago. Although, at the present rate of cutting, the days of our merchantable timber of original growth are limited, yet the loss of this will

divisions, corresponding roughly to the primary topographic divisions of the country, viz.: the Atlantic region, the region of the great valley of the Mississippi, and the western or Cordilleran region. Each of the two eastern divisions is then divided by a line running approximately east and west, following Mason's and Dixon's Line, the Ohio river and the southern boundary of Missouri. These lines divide the states into groups which differ from one another very decidedly, in respect to topography, climate, population, material interests and social conditions.

From a historical point of view, also, these divisions differ materially. It will be seen that the two Atlantic groups comprise the original thirteen states with those formed from them—Maine, Vermont and West Virginia—and the single addition of Florida. These states were settled during the colonial period.

The states of the Northern and Southern Central groups have been settled and organized, without exception, since the country became independent of Great Britain; while the greater part of the Western group is still in an unsettled, or but sparsely settled condition.

The North Atlantic and Northern Central groups are sharply distinguished from the two Southern groups by the character of the population. North of the divisional line are found not less than 85.8 per cent. of the foreign born population; while, on the other hand, south of it, 90.5 per cent. of the negro element resides.

The distribution of urban and rural population is remarkably different in the different sections. Out of a total of 580 cities and towns of four thousand population and over in the United States, containing 12,936,110 persons, 266, comprising 6,960,766

people, or more than one-half of the entire urban population, are found in the North Atlantic group, and 213, comprising 3,663,843 people, in the Northern Central group; while in the two Southern sections combined there are but 78 cities and towns, comprising only 1,825,832 inhabitants.

Similar marked differences exist in regard to material interests. The North Atlantic section has as its primary interest a large proportion of the manufactures of the country. In the Northern Central group, also, manufactures are a very important branch of industry; while in the two Southern groups they are of comparatively little importance, the agricultural interests being much more prominent. While agriculture is the leading industry in the Northern Central group, as well as in the Southern groups, the character of the products is altogether different. The

greater part, 71 per cent., of the cereals produced in the country is raised in the Northern Central states, while in the two southern sections 99.6 per cent. of the cotton and all of the sugar cane and rice of the country are produced.

The differences in topography, rainfall and temperature existing between these groups are so generally understood, that it is unnecessary to specify them here.

The Western group is distinguished from the others by its topography—comprising, as it does, the great Cordilleran plateau—by its arid climate, and great extremes of temperature, by its present sparse population, and its inability ever to support a dense population, and by the occupations of its inhabitants, which are mainly mining and stock raising, with comparatively insignificant agricultural and manufacturing interests.