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CENSUS BULLETIN.

No. 85. WASHINGTON, D. C. June 29, 1891.

AGRICULTURE.—IRRIGATION IN UTAH.

DEPARTMENT OF THE INTERIOR,
CENSUS OFFICE,
WASHINGTON, D. C., June 16, 1891.

This bulletin, the third of the series devoted to irrigation in the arid states and territories, has been prepared by Mr. F. H. NEWELL, special agent of the Census Office for the collection of statistics of irrigation, under the direction of Mr. JOHN HYDE, special agent in charge of the Division of Agriculture, and relates to the territory of Utah, in which there are 9,724 farms that are irrigated out of a total number of 10,757. The average size of the irrigated farms, or, more strictly, of those portions of farms on which irrigation is practiced, is 27 acres. The average first cost of water right is $10.55 per acre, and the average cost of preparing the soil for cultivation, including the purchase price of the land, is $16.10 per acre. The average present value of the irrigated land of the territory, including buildings, etc., is reported as $84.25 per acre, showing an apparent profit, less cost of buildings, of $57.60 per acre. The average annual cost of water is $0.91 per acre, which, deducted from the average annual value of products per acre, leaves an average annual return of $17.12 per acre.

The invariable tendency to describe as "irrigated" all land to which water has been applied within any recent period by artificial means, land to which ditches so far destitute of water have been constructed, and even land for which water rights merely are claimed, has placed the Census Office under the necessity of absolutely restricting itself in its official bulletins on irrigation to land on which crops were actually raised by the artificial application of water during the census year 1889.

Robert P. Porter.
Superintendent of Census.

C. O. P.—10m

IRRIGATION IN UTAH.

BY F. H. NEWELL.

In Utah crops were raised by irrigation in the census year ended June 30, 1890, on 263,473 acres, or 411.68 square miles, a trifle over five-tenths of 1 per cent of the entire area of the territory. The aggregate number of farms was 10,757, and of these 9,724, or about nine-tenths, depended upon irrigation, the remaining tenth being either stock ranches or farms in the northern end of the territory, where the climate is less arid, or situated so high in the mountains that crops can be raised by what is known as "dry farming."

The average size of irrigated farms, or, rather, of irrigated portions of farms, was 27 acres. In this connection the term "irrigated farm" is used to include only the area on which crops were raised by irrigation, the uncultivated portions of such farms not being taken into account. With this understanding, irrigated farms have been classified as follows: 5 irrigated farms of 640 acres or upward; 13 of from 320 to 640 acres; 65 of from 160 to 320 acres. These 83 farms contained an average of 312 acres each, and had a total area of 25,857 acres, or nearly 10 per cent of the entire amount watered in the territory. The remaining 9,641 farms, under 160 acres in size, comprised over 90 per cent of the total irrigated area, and averaged 25 acres each.

COUNTIES.	Number of irrigators.	Total irrigated acreage in crop.	Average size of irrigated farms in acres.	Average value of products per acre.
Total	9,724	263,473	27	$18.03
Beaver	200	7,682	38	9.92
Boxelder	359	10,472	29	15.25
Cache	908	30,923	34	14.30
Davis	585	12,866	22	32.93
Emery	264	7,344	28	17.01
Garfield	82	2,234	27	11.64
Grand	56	1,139	20	19.05
Iron	193	3,539	18	14.94
Juab	85	1,946	23	11.05
Kane	107	1,798	17	21.81
Millard	304	8,199	27	14.58
Morgan	233	5,298	23	18.16
Piute	143	5,299	37	11.03
Rich	184	17,266	94	9.00
Salt Lake	1,264	25,392	20	26.73
San Juan	38	777	20	27.95
Sanpete	1,155	30,938	27	15.18
Sevier	311	11,547	37	11.53
Summit	276	10,140	37	15.03
Tooele	267	5,766	22	14.46
Uinta	186	7,611	41	10.61
Utah	1,161	25,236	22	22.50
Wasatch	259	6,475	25	10.22
Washington	176	2,251	13	32.19
Weber	928	21,335	23	22.72

The results shown in the above table were obtained by compilation of the enumerators' returns of the area of crop and value of products for each irrigator in the territory. The name and address of

the farmer, the particulars regarding the extent and value of his farm, the area, quantity, and value of all kinds of crops, as well as details of orchards, vineyards, and domestic animals, in short, everything relating to agriculture in its broadest term, were obtained for each farm. The statistics for irrigation form but a small part of these results, but have the advantage of being made in connection with other classes of statistics, one result thus verifying another, so that the chances of error are very small.

The variation in the average value of products per acre for each county is due somewhat to the character of the crop, but more to the state of cultivation and the water supply, and to some extent to the location of the land with regard to markets. In the northern end of the territory, as, for example, in Rich county, the average value of products is low, from the fact that forage crops are raised principally, and, the altitude being great and the water supply somewhat limited, the average yield is small. The average size of the farms also is large, showing that cultivation is carried on in a broad way, and that the greater part of the irrigation is for crops which require but little care.

In the counties lying along the base of the Wasatch mountains, near the markets of Salt Lake City, Ogden, Provo, and other centers of population, the farms are small and highly cultivated, and, as a consequence, the value of products is large, the counties on either side showing as a rule a lower average value. An exception to this is found in the case of the counties on the Colorado drainage, where the water supply is scanty and the cost of irrigation is at a maximum, for here (as, for instance, in the case of Washington county) the expense of bringing water to the land is so great that the farms are very small and the products per acre large. The semitropical character of the fruit and other crops in this great drainage basin also tends to give a greater value to these averages.

The average first cost of water right for the entire territory, with its varying conditions of topography and climate, is estimated to have been $10.55 per acre. This was the cost of bringing the water to the land. In this territory the canals and ditches were almost without exception built by the irrigators, and the cost of water right is mainly the value of the labor of the farmer, reckoned on a basis of from $1.50 to $2 per day for a laborer and $4 per day for laborer and team. This average first cost includes all cases, however, from the one extreme, where the farmer dug or plowed his water ditches unaided, to the other, where he made a cash purchase of the water right from some association or corporation. The range of cost is therefore very great, being from 50 or even 25 cents per acre in individual cases, where water was diverted by plow and scraper from some conveniently located mountain brook, to $75 or even $100 per acre in cases where such amounts have been spent at various times in rebuilding again and again canals or head works so located that floods have destroyed them. The average by counties ranges from $4 up to $31.75 per acre.

The average of the estimated value placed by the farmer upon this water right is $26.84. This is the price which the water rights, wherever transferable without the land, have usually brought or would probably bring in the various localities, the value of these rights being dependent largely upon the probabilities of the owner receiving the amount of water claimed.

The irrigator has to pay, besides the first cost of water right, a certain amount each year, either in cash or in labor expended, in maintaining the main ditches, in cleaning out sediment, and often in renewing the dams and head works. This cost ranges from as low as 25 cents per acre up to $3 or even more in extraordinary cases, the average for the entire territory being 91 cents.

An estimate has been made of the cost of preparing wild land for cultivation, excluding the cost of water, but including plowing, grubbing, cutting brush, fencing, and leveling, or otherwise preparing the ground for irrigation. This cost averages $14.85 per acre.

Assuming the original price of the land to have been the government rate, viz, $1.25 per acre, the cost of preparing the ground as above stated, $14.85 per acre, and the first cost of water right, $10.55 per acre, the entire cost to the farmer has averaged $26.65 per acre. In comparison with this, the estimated present value of the farms of the territory, including buildings, fences, and other improvements, is placed at an average of $84.25 per acre, showing an apparent profit, less cost of buildings, of $57.60 per acre.

Deducting the average annual expense for water, 91 cents per acre, from the average annual value of productions, which is $18.03, it appears that the average annual return per acre is $17.12.

In the following table the more important of the foregoing statements are compared with those for the adjoining territory of Arizona, the statistics for which were published in Bulletin No. 35, dated February 27, 1891, and for New Mexico, contained in Bulletin No. 60, dated April 30, 1891:

ITEMS.	Arizona.	New Mexico.	Utah.
Total irrigated acreage in crop	65,821	91,745	263,473
Total number of irrigators	1,075	3,085	9,724
Average size of irrigated farms, in acres	61	30	27
Average size of irrigated farms of 160 acres and upward, in acres	287	312	312
Per cent of acreage of irrigated farms of 160 acres and upward to total acreage irrigated	34	21	10
Average size of irrigated farms under 160 acres, in acres	43	24	25
Average first cost of water right per acre	$7.07	$5.58	$10.55
Average annual cost of water per acre	$1.55	$1.54	$0.91
Average first cost per acre of preparation for cultivation	$8.60	$11.71	$14.85
Average present value of irrigated land, including buildings, etc., per acre	$48.68	$50.98	$84.25
Average annual value of products per acre	$13.92	$12.80	$18.03

It has been ascertained, in addition to the foregoing, that the area of crops irrigated comprised 43.21 per cent of the total area of farm lands owned by irrigators in Arizona, 17.98 per cent in New Mexico, and 22.02 per cent in Utah. These facts, in connection with the average size of irrigated farms, 61, 30, and 27 acres, respectively, in Arizona, New Mexico, and Utah, evidently indicate that in Arizona the irrigated farms have not as yet passed completely into the hands of the smaller farmers, who, by concentrating their efforts, bring their land to as high a state of cultivation as in Utah. The average value of crops in each of the three territories, $13.92, $12.80, and $18.03, points to the same conclusion, and also brings out strongly the fact that in New Mexico the farms, though greatly subdivided, are as a rule not as carefully and profitably tilled as in Utah.

The average annual value of products in 1889 on small irrigated farms in Utah, that is, those under 160 acres in size, was $19 per acre, or for the 25 acres, $475. This can be compared with $720 and $312, the total value of products of farms under 160 acres in area in Arizona and New Mexico, respectively.

The average first cost of water right in Utah, $10.55 per acre, is noticeably great, being largely due to the manner in which the ditches and canals were made. Nearly all were laid out and constructed by farmers of ordinary education without the use of surveying instruments. As a consequence, few of the more important works laid out in this manner have proved serviceable without great changes, involving in many instances the reconstruction of almost the entire system. The perseverance shown in many of these cases is remarkable. Time after time a structure has been built only to be destroyed in a year or two. Diverting dams have been placed, at an enormous outlay of time and labor, in rivers at places where it was absolutely impossible to make such works secure, using materials that must inevitably be torn away by the next great flood. Portions of canals have been built, and after the water was turned in the grades proved of such a character that it was necessary to adjust them again and again in order to make the water flow. These changes have added enormously to the first cost of irrigation, and have probably tended to bring the average above that of other parts of the country.

On the other hand, the annual cost is remarkably low, from the fact that farmers have done all the work of cleaning and making the small annual repairs necessary after the canals and ditches were in successful operation. It should be noted, however, that the maintenance is, as a general thing, comparatively poor, and that the main canals and ditches receive only enough labor to keep the water flowing. It would undoubtedly be far more economical to spend a larger sum annually, and thus save much water which is lost through evaporation and seepage, due to the poor condition of the channel.

The results contained in this bulletin have been computed from data acquired partly by field work and partly by correspondence. The census enumerators in the several districts obtained the acreage

of various classes of land and values and products of each farm. On the completion of this field work a blank schedule was mailed to each farmer, requesting a more detailed statement as to the location of his land, the source and character of his water supply, the cost of irrigation, and any other facts of general interest. Thousands of replies were received, and from information thus obtained general statements have been compiled in the light of personal knowledge of the climate and products of the territory and of the results of careful investigations and measurements of the United States Geological Survey.

Utah may be divided into two great divisions, distinct in topography and climate. The northern and western parts of the territory lie within the great interior basin of the continent, from which no water escapes except by evaporation, and the western and southern parts of the territory are in the drainage basin of the Colorado river, everywhere distinguished by lofty plateaus and deep cañons. The Wasatch range runs in a general north and south direction through the center of the northern half of the territory, wringing from the clouds the moisture which renders the counties along its western base so prosperous.

The streams issuing from this great range have, as a general rule, cut through the mountains and pour their waters toward the west, ultimately flowing into the Great Salt lake. This lake is but the remnant of a great body of fresh water which occupied all the principal valleys of western Utah, and from which came the rich sediments which render the broad bottom lands so fertile. Those valleys which are situated at the base of the mountains, although arid in climate, receive many streams, carrying a large part of the precipitation which has fallen upon the higher summits, and thus are most favorably situated for cheap and effective irrigation.

The valleys, however, further to the west, although equally fertile, do not receive streams as large or permanent, from the fact that the mountains bounding them are of less altitude, and therefore these enormous stretches of rich land must for the most part remain unproductive desert wastes, with only occasional patches or oases, where some small stream or spring, natural or artificial, is discovered.

The Colorado basin presents a great contrast to these conditions. Lofty plateaus, uplifted in great masses, have been deeply carved into cañons, the most stupendous in the world. On top of the plateaus the rainfall is light and irregular; the water quickly collects into rills, which soon seek a narrow gully, and then find their way into a cañon. In many localities, especially at rainy seasons of the year, grazing is good, and stock raisers have penetrated and taken possession of much of the country.

Small towns have grown up in places where the cañons open out into valleys sufficiently wide to afford room for agriculture, and there the streams have been diverted upon the strips of fertile alluvial soil. These streams, however, flowing from a country of cliffs and naked rocks, are subject to sudden floods of great violence, due to the fact that the rain of local storms does not soak into the ground, but rushes off at once, collects in the stream, and sweeps down with violence, carrying away dams, head works, and even parts of canals.

Utah occupies the central position in the arid region, and therefore the details of irrigation in this territory possess more than ordinary interest, from the fact that they represent conditions intermediate between those of the north and south, the east and west. Besides this, the irrigation methods and systems have been developed by men of English-speaking origin, who, unaided by capital or previous experience, have introduced methods of their own, and, taught by repeated failures, finally achieved success.

Throughout the territory, excepting perhaps in the Colorado-river drainage, there is more arable land than available water, and consequently the value of the land is dependent wholly upon the amount of water to which it is entitled, the most fertile areas without water being almost valueless. The point was long since reached when all the easily available water was appropriated, and the increase of cultivated area has been due to a more careful utilization of that supply. The water has been so carefully divided and apportioned that now, in years when the supply is less than usual, there is great loss and even suffering among large numbers of the inhabitants. The irrigators unite in declaring that water storage (the saving of the water of spring floods until the droughts of

summer) must be the next step, and that without this great improvement a large portion of the agricultural land can never be successfully cultivated.

Utah offers a striking contrast to the rest of the arid regions in the details of the customs of distribution of water according to priority of right, and also in the control of the water by the irrigators. Almost without exception the canals and systems of ditches have been built by farmers and are controlled by them in every minute detail. An apparent exception is in the case of the municipalities or chartered cities which have built and now own systems of irrigation, but this exception is only apparent, from the fact that these cities, so called, are controlled by the farmers, so that the water is administered by officers representative of the irrigators as a class. The municipalities, however, have a certain advantage over farmers' associations, in that they can levy taxes for the use of water and collect them through the ordinary machinery of such organizations.

In nearly every valley of Utah there is now more land under cultivation than there is water available to mature the crops in all years. The first settlers in these valleys, finding that there was more land than could be cultivated by themselves, encouraged other farmers to come in, and gradually cultivation extended, until at last a time came when the water would not serve all the land under cultivation. The principle was early established that those farmers who first made use of the water should ever afterward be entitled to sufficient water to irrigate the amount of land originally cultivated by them, and that the later comers, whenever scarcity occurred, should not take the water until those enjoying prior rights had satisfied their needs, the latest comer being the first to be deprived, and those settling before him losing their water supply in succession as it became less and less.

For convenience, however, the rights are not held in the exact order of settlement, but are divided into classes, all the individuals of one class or group sharing the water according to their respective claims. For example, all older settlers who used water for a certain acreage before some arbitrarily fixed date are considered as having prior rights; those who cultivated other lands at a later time are considered as having rights secondary to these, and those who cultivated lands during a still later period have third rights, and so on. The farmers owning first rights are entitled to the use of the water to the amount originally appropriated until their needs are satisfied; those owning the second rights can enjoy the use of the surplus water after the prior rights have been supplied, while those owning third rights are by law only allowed to use such water as the farmers having first and secondary rights can not use or claim.

A farmer having prior rights may also have secondary rights, and even third rights, to the water for lands not covered by his first rights, and thus in times of scarcity he does not lose all his water, but is able to mature a small portion of his crop. The man, however, who has last rights only can not be sure of success, and unless the snowfall in the mountains is heavy during the winter he may not dare to plant in the spring, knowing that he can not secure water later in the season.

Those irrigators who own prior rights to the water practically enjoy a monopoly of it, for with the advance of settlement everywhere in the territory and the bringing under cultivation of more land than can be readily watered, lack of supply becomes chronic among later irrigators. This monopoly, although often regarded as a great injustice by these later comers, is unquestionably essential to the success of irrigation, for were all irrigators required each year to divide the water among all who might demand it, in a short time there would not be enough for any one man, and suffering would ensue among all, instead of among those who may be considered the excess of population. This principle of monopoly of water by a certain few of the farmers is recognized not only by custom but even by law throughout the arid lands, and those claimants possessing this monopoly can alone be sure of maturing their crops.

These primary rights, however, are not always clearly defined or carefully guarded. There is a tendency among the owners of first rights to claim more water than was originally appropriated by them, and, on the other hand, the irrigators having second and third rights encroach upon the supply claimed by the owners of prior rights. Those having the second or last rights do not always tamely submit on seeing their crops parch and wither and their trees die for lack of water while their neighbors are enjoying an ample supply. Thus quarrels are constantly arising. The attempt to farm

without a prior right to water is by some declared to be a curse, and demands are made for a more just and equitable division.

With the present unregulated water supply the success of farming depends largely upon the amount of snowfall in the mountains and the time of year in which this occurs. If the snow falls early in the winter, it usually becomes hard, and does not melt until the heat of summer has become intense and the needs of the crops are greatest. On the other hand, if the snow falls late in the winter, it does not have time to become compact, but melts in the early spring, and runs to waste long before the farmers have the greatest necessity for it.

A number of attempts have been made in various parts of the territory to regulate the supply, and storage works have been built on a small scale, some of which are successful. These, when placed in suitable localities out of the reach of floods, not in the course of a river or the drainage from a large area of barren rocks, have justified the plans of their builders, and have rendered possible the cultivation of numerous tracts of valuable lands.

Organized efforts in a large way have, however, not yet been made, although there are various projects on foot to utilize some of the large reservoir sites examined and segregated by the United States Geological Survey.

Water measurements on an extended scale are greatly needed, especially on the longer rivers, where there is constant controversy, not only between the various ditch and canal owners, but between counties, all dependent upon the same source, as to the proper division of the flowing waters. Under present conditions individuals, corporations, and counties highest up on a stream generally succeed in getting most of the water, although their rights legally may be last.

The person at the lower end of a long ditch, or taking water from a ditch far down the course of a stream after it leaves the cañon, is always at a disadvantage in the summer, for if his proportion is allotted at the point where others take their water, this amount is usually lost in traversing the distance to his fields. It often happens in summer that if water is allowed to flow by the head gates of one canal company for the purpose of supplying a ditch below, the whole amount is evaporated or lost in the channel before reaching the lower ditch, and thus neither party is benefited.

After the water is taken into the main canal there is often considerable loss in the height of the irrigating season, due to the weeds, which grow luxuriantly in the water wherever the current is sluggish, and may completely choke the channel if not cleaned out. Sometimes these are pulled up by rakes or mowed under water. In a few cases it has been found necessary to turn the water out of the canal entirely, even when crops were almost in danger, in order to allow the aquatic plants to dry and be killed by the sun.

In canal and ditch management another source of annoyance and expense is found in the burrowing habits of gophers or moles. These little creatures dig into the banks of ditches or into earth dams and often cause leaks, resulting in the sudden washing away of portions of these structures. Another cause of lack of economy in conducting the water from the river to the fields is due to the leakage of the ditches, water escaping into the sandy or gravelly soils, from which it is evaporated, often without benefit to any person. Where small quantities of water are available the loss becomes a very serious matter. To obviate this loss it has been proposed to use pipes to conduct the water over the worst places, and it is probable that these will be employed to a small extent.

Owing to the difficulties and uncertainties concerning the supply and distribution of water, many farmers in the northern counties have gone to the extreme of declaring that dry farming is preferable wherever it is possible, and that in many localities, by carefully preparing the land by summer fallowing and planting at a proper season, cereals can be raised to a greater profit than by irrigation, although the yield per acre is far less. Alfalfa, or, as it is usually termed, lucern, is raised in many counties without water, one cutting of the plant being made, and then, no water being applied, a crop of seed is raised.

The number of cuttings of alfalfa, the crop which varies most with the season, depends directly upon the water supply. If the supply is ample throughout the season three cuttings are obtained, but, on the other hand, when water is scarce, it is used upon the grain, vegetables, and trees, and the alfalfa is generally allowed to run to seed. This forage plant possesses the great advantage of living from

season to season with but little moisture, but, of course, it will not yield a cutting until it has had an ample supply of water.

Whenever the irrigator has an ample supply of water allotted to his field, and his irrigating stream is as large as he can control, the labor of applying the water to the land is comparatively small, for it penetrates to all parts of the land, advancing rapidly over the dry soil. On the other hand, however, when his irrigating stream is very small, he must spend a far longer time in carefully conducting it to each spot where water is needed, and the dry soil seems to drink up the little rill as it slowly creeps along, and demands from the farmer great patience and skill. Many irrigators are successful as long as water is in abundance, but when the time comes to economize they can not accommodate themselves to the new circumstances, and their crops suffer in consequence.

As the water supply for each farmer in all parts of the arid region tends constantly to diminish on account of the increasing demand, greater skill is required to produce the same result with less water, and while some are successful others become discouraged at the great labor involved and sigh for the copious rains of the eastern states. The wide diversity of opinion regarding the proper use of water on different soils and crops, the number of times of watering, and the amount necessary show that there is need of careful experimentation in this matter.

From the main canals or large ditches water is conducted to the farms or fields of the irrigator by small ditches known as laterals, and is distributed to the plants in several ways, of which three are commonly recognized in Utah, viz, by flooding, by furrows, and by markings. Hay and other forage crops, such as alfalfa or lucern, are flooded, the water being allowed to enter the field at its highest point and to find its way, if possible, in a thin sheet over the whole field. The greatest quantity of water is required in this method of irrigation, and on many soils it can not be used on account of their tendency to bake, forming a hard crust.

Potatoes, corn, vegetables, and all plants growing in hills or rows are irrigated by furrows, the water flowing in a small stream through the furrows and gradually moistening the ground on either side. Grain is sometimes watered by flooding, but more generally the ground is marked off by means of some simple contrivance made by the farmer. After grain is planted the fields are sometimes rolled by a heavy roller having annular projections twelve to twenty-four inches apart, which make small grooves in the surface of the field, and in such a direction that there is a constant though gradual fall from one end to the other; the water is then let into these little markings, or grooves, which are in reality similar to small furrows laid out with greater regularity. Sometimes the markings are made by a kind of harrow, but these are not so smooth or regular. By means of these markings, whenever well made, irrigation proceeds rapidly and with the least waste of water.

The use of flowing wells for the irrigation of gardens, orchards, and vineyards is a matter of interest and importance, and therefore at the time of making the agricultural census the enumerators obtained the number of artesian wells owned by each farmer. The total number of these is 2,524. Of this number, facts concerning the depth, cost, flow, and other matters of interest have been obtained from the owners regarding 897 wells. The average depth of these is 145.54 feet, and the average cost is $77.60 per well, the average cost per foot in depth being 53 cents. The diameter of these wells ranged from one and a quarter to four inches, or, in a few cases, to six inches or more, the average being from one and three-quarters to two and one-half inches. The average amount of water discharged by these wells was 26.37 gallons per minute, equivalent to 0.059 cubic feet per second, or second feet, as is the common term.

Most of these wells were used for domestic supply and watering stock, 48.49 per cent being employed in irrigation, watering on an average 4.74 acres per well, thus making the average cost of irrigation from the successful flowing wells $16.37 per acre. It has already been shown that the average cost of water right from canals or ditches was $10.55 per acre. It should be noted, however, that this average cost of irrigating from flowing wells is estimated exclusively from those which are successful, and that there have been a number of attempts made and a large amount of money expended in sinking wells without any return. It is impossible to ascertain what this expense has been, but in making a fair comparison some allowance for this fact should be made.

From the preceding figures the average duty of water from these flowing wells has been ascertained to be one second foot to 80.3 acres, an amount which could doubtless be increased if the farmers considered it feasible to store part of the water which flows during the non-irrigating season. The quantity of water delivered by a majority of the wells gradually diminishes, mainly on account of mechanical impediments, and occasionally because of the diminution of pressure, due to new wells being put down in the vicinity. Many of the wells require an occasional cleaning or an expenditure of labor in other ways in order to remove the accumulations of sand or gravel which tend to check the flow.

These flowing wells are confined mainly to the lower parts of the valleys along the foot of the Wasatch mountains and to the lacustrine deposits from the great body of fresh water which formerly filled these valleys, and which has been named Lake Bonneville. The wells are made by drilling and by driving pipe through the sands and clays until some pervious water-bearing layer is reached. Along the eastern shores of Great Salt lake and of Utah lake these wells are particularly numerous, but they gradually decrease in number and discharge as the higher ground is reached. The depth as a rule ranges from 30 feet on the lowest ground up to 400 feet or more nearer the edge of the valley. The deeper wells on the low ground have not as a rule been successful, from the fact that they are liable to reach brackish or saline waters, which, of course, have no value.

BEAVER COUNTY is on the western side of Utah, adjoining Nevada, and a little south of the center of the territory. It extends from the summits of the Tushar mountains westward into the desert region south and west of Sevier lake or sink. The agricultural land is at the eastern end of the county, principally in the valley between the Tushar and Mineral mountains, along Beaver creek and its tributaries, the principal towns being Beaver, Greenville, and Adamsville. A fourth town, Minersville, is situated lower down the creek, at the foot of the Mineral mountains, where Beaver creek leaves the foothills and enters upon the desert region.

The average altitude of the agricultural land is about 6,000 feet. Alfalfa and the small grains are the principal crops, and in some localities there are a few orchards. The water supply of the early spring is ample for all the crops now under cultivation, but it becomes scanty during the latter part of May, and in July many of the crops which have not matured are lost.

Water storage has been attempted in a number of cases, but with little success, owing to lack of skill and care in constructing reservoir embankments. Many of the dams have been swept away during times of high water, resulting in great loss and discouragement. The experiments which have been made, however, lead the farmers to believe that with proper engineering supervision reservoirs can be made to hold ample water, not only for their present needs, but also to bring under cultivation a large amount of now useless land.

The only streams of importance in the county are Beaver creek and its tributaries, Indian and North creeks. Various small canals lead from these creeks, and the waters are entirely appropriated in times of scarcity, only the irrigators near the head waters being able to obtain sufficient water for their needs.

BOX ELDER COUNTY is in the northwestern corner of Utah, and includes the greater portion of Great Salt lake. The land north and west of the lake is for the most part level, much of it being a sandy desert, but the eastern border of the county extends to the summit of the Wasatch range, and is thus comparatively well watered.

The principal body of cultivated land is along the foot of the Wasatch mountains and in the Malade valley. There is also some tilled land on the extreme western edge of the county, along Grouse creek. Not all of the land under cultivation is irrigated, but there is a considerable acreage of dry farming in the long strip of land at the foot of the Wasatch mountains, extending northward into oats, the Malade valley. In the vicinity of Mantua, Honeyville, Deweyville, and Portage crops of wheat, corn, rye, potatoes, and alfalfa, as well as fruit trees, are successfully raised. The yield, however, is not so great as on the irrigated land, the amount being given as from one-third to one-half the product of land under irrigation. When alfalfa is raised in this manner, one cutting is made in July and the second crop is allowed to go to seed.

Farmers attribute their success in dry farming to two causes: First, the nature of the soil, which retains its moisture for a long time, and, second, the fact that many small springs issue from the mountains and, slowly percolating through the soil, keep it moist.

Water storage in a small way has been tried to a considerable extent in this county. Small earthen dams have been built to retain a portion of the surplus spring flood and the water has been used successfully. The irrigators state that this system has proved to be practicable, and that with greater care and skill large areas can be brought under cultivation. The unregulated water supply is ample for all needs until about the latter part of June. About the first of July it begins to diminish, and crops are often lost after that time.

The present water supply of this county is derived from the various small streams which issue from the cañons. These being distributed along the mountains, there has been no necessity for large canals, but a great number of small ditches have been built. These are owned either by individuals or by the towns to which they bring water. In addition to the small streams there are two rivers of considerable size, the Bear and Malade. Both of these rivers flow at a depth of from fifty to a hundred feet or more below the general level of the agricultural land, having cut their channels deep into the plain, once the bed of Salt lake. The waters of the Malade are impregnated with saline matter and are not suitable for irrigation.

Bear river enters the county by a narrow, rocky walled cañon, through which it passes with rapid descent. At the head of this cañon a low dam has been built to divert the waters into two canals, one on each side of the river. These canals are to pass through the cañon in tunnels or galleries in the rocky walls and then enter upon the fertile plains surrounding Great Salt lake. The canal on the west side of the river is nearly completed, but that on the east, leading southward toward the city of Ogden, is reported to have been temporarily abandoned. This great project, when completed, will be the largest of the kind in Utah, and will bring under cultivation thousands of acres of fertile land now useless or but poorly cultivated.

CACHE COUNTY is in the northern part of the territory, and includes the greater portion of the valley of the same name. The northern end of this valley is in Idaho, and thus the agricultural land and the water supply are divided between two great political divisions, giving rise to complications regarding water rights. Bear river flows southward into this county and then turns abruptly to the west, passing through a cañon into Boxelder county, as already described. This river flows at a considerable depth below the general level of the agricultural land, and accordingly has been found too expensive to bring the water out upon the lands of this valley. Various tributaries, however, come from the high mountains to the east, and it is upon the waters of these streams that the greater part of the agricultural operations depend.

The general elevation of the land under cultivation is about 5,000 feet, and thus the climate is highly favorable for wheat, oats, rye, and other small grains. The irrigated land is principally along the edges of the valley, extending up onto the bench land or beaches left by the retreating waters of the lake, which once occupied this arm of the great basin. In the center of the valley, and at other points where water is not available, dry farming is being tried on a somewhat extensive scale. Wheat, rye, oats, corn, and potatoes are being raised by careful tilling, the product per acre being from one-half to one-third that on irrigated land. It is reported that from twelve to fifteen bushels of wheat and from ten to twelve bushels of rye to the acre is a fair crop. Fall wheat is extensively raised. To compensate for the smaller yield per acre larger tracts are farmed, and it is even claimed by some farmers that the average profits are greater, since the expense of the water is avoided and larger tracts are cultivated at less cost per bushel of wheat raised than is the case with the irrigated grain. This is notably the case in many seasons when the rainfall happens to be favorable.

The use of water on the gravel bench lands surrounding the valley has caused some of the lower lands to be saturated by seepage, so that crops can be raised and even meadows formed. In some instances this saturation has proceeded so far as to ruin some of the farms, and a system of drainage must be put in operation before they can be redeemed.

On the western side of the valley the water supply is far more scanty, on account of the lower altitude of the mountain range. Storage reservoirs have been attempted here, and a few are in successful operation. At Newton there is a reservoir utilizing the surplus waters of Clarkston creek, and it is reported that 1,000 acres are cultivated by that means. The inhabitants of the towns on this side of the valley are preparing to increase the storage capacity by enlarging the old reservoirs and building new ones.

Although agriculture in this county is in such a prosperous condition, there remain enormous tracts of good land, especially on the west side of the valley, still unproductive, or from which only an occasional crop is obtained. It is known to be feasible to bring the waters of Bear river out upon this land, the engineering obstacles being by no means insuperable. There is a question, however, as to the practicability of so doing, both on account of the limited amount of water that can be relied upon at all times and of the complications arising from the peculiar position of Bear river, crossing, as it does, from one state into another. By a proper regulation of Bear lake and of the waters of Bear river the success of any such enterprise could be assured.

DAVIS COUNTY lies between the Wasatch mountains and the shores of Great Salt lake, and extends from the cañon of Weber river on the north nearly to Salt Lake City. The agricultural land is thus in a long and comparatively narrow tract. The larger part is in the nearly level bottom of the ancient lake, but a portion extends up to the benches or old shores of the lake.

The water supply is comparatively large, on account of the peculiar topography of the county. On the east are the lofty peaks of the Wasatch, the winds striking against which are deprived of their moisture in the form of rain or snow. Innumerable small streams issue from the mountains, and springs appear along the base. The water from these, if not used or evaporated, saturates the ground at the base of the mountains, and thus the little streams gradually disappear into the soil, whence the water is either slowly evaporated or ultimately finds its way into Great Salt lake. A small quantity of this water is, however, recovered by flowing wells, the pipes for which are driven in the lower bottom lands. The supply thus obtained is of great value for domestic purposes, for watering stock, and for the irrigation of small patches of garden, as well as of fruit and shade trees. Many of the owners of these wells report, however, that the water is slightly brackish and not always suitable for irrigation purposes.

There is one drawback among the advantages enjoyed by this agricultural land, situated near the source of water in the high mountains: the water coming from the melting snows and running in the stream only a few miles is very cold, liable to chill the young plants, and consequently is not as desirable as water from larger streams.

One noteworthy feature of water conservation in this county is the development of springs by tunnels driven into the flanks of the mountain range. These tunnels are driven on a slightly ascending grade in the same manner as an ordinary mine or prospect tunnel, and after penetrating loose material and decomposed rock usually reach the comparatively impervious strata. Here the course is often turned, or lateral tunnels are driven along the solid or bed rock parallel with the surface. By means of these tunnels the small amount of moisture seeping through the beds on the lower slope is caught and conducted to the surface, where it can be used for domestic supply and irrigation.

The lower lands of the county are to a certain extent wet by the seepage from the springs and irrigation carried on above, so that large areas of wheat and barley are raised without artificial application of water. Wheat is usually sown in September and October, the land being prepared by summer fallowing, and yields from ten to twenty bushels per acre, barley from fifteen to twenty-five bushels per acre, the amount depending largely upon the winter rainfall. Farmers report that probably twice as much could be raised on the same land by irrigation, but, taking all things into consideration, the profits are probably greater than by using water, because of the smaller first cost of cultivation.

On these lower lands the water must be carefully applied in order to avoid bringing the alkaline salts to the surface and thus ruining the land. Drainage is in many cases necessary, and it is probable

that, with the progress of irrigation, large works of this kind will be required. Besides wheat and barley, one crop of alfalfa is raised without water, and in many instances it is stated that considerable acreages of this forage plant have been started from the seed and cropped regularly without the application of water. It is impossible, however, to raise vegetables or trees without a sufficient water supply.

The water supply being distributed along the base of the mountains, there are consequently a great many ditches, few of them, however, being of noteworthy size. The land under cultivation exceeds the ordinary supply of these ditches, and a loss of crops is the result. Considerable care, however, is taken in the management of the available water, and during the latter part of the season lands are irrigated both day and night, the water being in continual use by one irrigator or another. The farmers often complain that their lot is indeed hard when they are compelled to take water at any time of the night, and often to work all night, in order to apply it to crops to the best advantage.

The irrigators owning secondary rights to the water generally begin to irrigate in March and continue until about the middle of June, when the supply, usually ample to June 1, becomes so scanty that those owning primary rights demand the full stream, in order to mature their late crops and water their orchards and gardens. Thus a large number of the farmers do not dare to plant fruit and shade trees to an extent greater than can be watered by hand, because of the uncertainty of obtaining the necessary supply from the ditches during the summer.

Water storage and conservation, although practiced to a very small extent in this county, are earnestly desired by most of the irrigators on account of the many difficulties and uncertainties which they encounter in spite of the comparatively good water supply. There have been a number of long and expensive legal controversies, and the water of their largest canal has been cut off for a time by order of court.

EMERY COUNTY is east of the center of the territory and lies wholly within the drainage of Green river, one of the forks of the Colorado. The country is composed principally of great plateaus, which descend rapidly to the east and south by steep escarpments. Through these plateaus deep cañons have been cut by the Price, San Rafael, and Fremont rivers and their tributaries, and also by the smaller streams flowing into Green river. On the plateaus and along the cliffs there is little vegetation, and whenever heavy storms occur enormous quantities of earth are loosened and washed down the narrow cañons, causing floods of great violence and destructiveness. Mud, sand, and bowlders are rolled along in these torrents, and the cañons are carved still deeper by this mass of turbulent material.

Agricultural land is scattered along the streams in occasional narrow valleys wherever the cañons open, and also on the plateaus near the head waters of the streams before these have entered the deep cañons. The elevation of the tilled land varies from 4,000 feet along Green river to 6,000 feet or upward in the western part of the county. The water supply is derived from the streams just mentioned and is taken out upon the land by ditches made by the farmers, no crops being raised without irrigation. Along Green river small bodies of land are irrigated by means of norias, or undershot water wheels, carrying buckets upon their rims.

The expense and labor involved in maintaining the irrigating ditches is large, on account of the changeable character of the streams, which are liable at any moment to become raging torrents, carrying away head works or portions of canals, or even overwhelming the agricultural lands themselves. These floods often subside as rapidly as they come, and leave the channel almost if not quite dry. The principal towns are in the western part of the county, not far from the head waters of the streams, since at this place the water is more easily controlled and can be taken out upon the fields. The irrigators state that in order to bring all their land under cultivation it will be necessary to store a portion of the flood waters by diverting them from the streams into suitable depressions or into reservoirs, the facilities for whose safe construction are excellent.

Losses of crops for want of water have occurred to a comparatively small extent, these being due more to carelessness or lack of skill in utilizing the water than to deficiency in amount. As settlement progresses, improvements are being made in the methods of dividing water and skill in applying it.

GARFIELD COUNTY is in the southern part of Utah, extending in a narrow belt from the Colorado river westerly across the head waters of the Sevier. The county is thus composed for the most part of high plateaus and mountain ranges deeply cut by cañons, which rarely open to a sufficient width for agricultural operations. Sheep and cattle raising is the principal industry, the soil being tilled in the vicinity of home ranches of the herders or of the small towns from which supplies are obtained. There are a few broad valleys in the western part of the county, high up among the mountains, where meadows are found or are made by turning the streams out upon the bottom lands.

The tilled land is along the head waters of the east and west fork of the Sevier, and also to a less extent near the sources of the Paria and Escalante rivers, both flowing into the Colorado. The water supply is in general ample for all purposes, but when it is used freely from the streams flowing into the Sevier, farmers living in the valleys farther down stream suffer for lack of it. The peculiar manner in which the counties are divided in this portion of Utah stands in the way of water conservation, since it is difficult to enforce economy along the river, flowing, as it does, across several counties.

GRAND COUNTY was formed of that portion of Emery county between the Colorado line on the east and Green river on the west. The principal agricultural land is on the east side of Grand river, northwest of the La Sal mountains, at an elevation of about 4,000 feet. The valleys, surrounded by high plateaus or mountains, and thus protected from violent winds, have an almost semitropical climate. The water supply is derived from small streams, which issue from the La Sal mountains in quantities more than sufficient for present needs, for agricultural resources have not been developed up to the easily available water supply.

The principal settlements are at Moab, at the mouth of the Spanish valley, and in the Colorado valley, about six miles below the mouth of the Dolores river. As yet injurious insects and parasitic growths destructive to plant life have not invaded these isolated valleys, and farmers have been unusually successful in their attempts to raise fruits and grain. The tilled land is along the small streams, the topography being such that canals or large ditches have not been found necessary, the water being taken directly from the streams by short laterals to the fields. There are immense tracts of fertile land along Grand river awaiting the construction of suitable canals, and it is only a question of time when large areas now devoted to grazing will be brought under close cultivation.

IRON COUNTY is in the southwestern part of the territory below Beaver county, to which it is similar in many respects. Tilled land is confined to the eastern end of the county, and lies in narrow valleys at an elevation of about 6,000 feet along the foot of the mountains or escarpments which bound the great plateaus of southern Utah. The water supply is derived from the small streams which issue from these high table-lands, the amount depending upon the depth of snow falling upon the highlands during the winter. These streams are subject to violent floods in the spring, and as a rule decrease in June, furnishing barely enough water for the land then under cultivation.

The county contains immense tracts of barren land, the soil of which is fertile and produces good crops where water is applied. The acreage now under cultivation is relatively very small, but it is as large as the present unregulated supply will permit. Farmers, like those of Beaver county, are convinced of the necessity and feasibility of storing the flood waters in order to bring larger areas under cultivation. The greater part of the flood water is now unused, although as much as possible is diverted upon the hay lands, in order to saturate them, and thus produce some grass for grazing. In the fall also, after the crops are matured, any water remaining in the streams is thus utilized.

At some of the towns in this county, as well as in adjoining localities, instead of a water master or overseer, a "field committee" is appointed to regulate the water during the crop season, thus leaving the distribution of the irrigating streams to a number of men, instead of to one man.

JUAB COUNTY is in the center of the western side of the territory, and consists of a long, narrow strip extending westward from the Wasatch mountains across the desert to the Nevada line. The tilled land is mainly in Juab valley, in the extreme eastern end of the county, along the foot of Mount Nebo and the Gunnison plateau. A number of small streams issue from these mountain masses, the principal one, known as Salt creek, rising on the east side of Mount Nebo and flowing south and west around its base.

The agricultural lands are at an elevation of 5,000 feet and possess a climate similar to that of Salt Lake valley, to the north. Little, if any, land is cultivated without irrigation, the only exceptions being in the case of small areas of rye, corn, alfalfa, and wheat, which are reported to be raised without the artificial application of water, but which may possibly receive a small amount of moisture from springs or by seepage. The present water supply is insufficient for the needs of the land already tilled, and attempts have been made to build reservoirs, but with small success, as the dams for these are built in the cheapest manner possible and have been washed out by floods. The excess water of the spring therefore goes to waste, excepting such portions as may be turned upon grazing lands.

There is a belief prevailing among the irrigators of this and other counties that the summer flow of the streams has been diminished through the cutting of timber on the higher mountains. Their observations have led them to think that the snow was protected by the timber, but that it now melts earlier in the summer, and is accordingly not available when the need is greatest.

KANE COUNTY is on the extreme southern border of the territory, adjoining Arizona. It extends from the Colorado river westward, including the head waters of the Virgin. Like most of the country tributary to the Colorado, it consists of lofty plateaus, deeply eroded, and intersected by narrow cañons. As a consequence the streams flow for the greater part of their course far below the general level of the tillable lands.

The cultivated areas are mainly in the western end of the county, on Kanab creek, and on Valley creek, a tributary of the Virgin. The irrigated land receives its water from these streams and the valleys being exceedingly narrow the ditches are necessarily small, extending along each side and covering small strips of land. Nearly all the valley land to which water can be brought is cultivated, and the water supply is ample for these limited areas. In the higher parts of the county there are a few localities in which corn, rye, and wheat are cultivated with partial success without irrigation, but in towns, where the elevation is from 5,000 to 5,500 feet, irrigation is necessary for all crops or trees.

The expense of irrigation is very great in this county on account of the destructive floods, which rush without warning down the narrow cañons, sweeping out portions of the ditches, and at times even excavating channels to a depth of 50 or 60 feet, or even more, leaving the ditches high above the stream. It is only by constant expenditure and wonderful perseverance that settlements are maintained in these localities.

MILLARD COUNTY, like the other counties in the western part of Utah, extends from the mountain ranges of the central part of the territory westward to Nevada. In the center of the county is Sevier lake or sink, into which the Sevier river flows, the water being lost by evaporation, leaving a great deposit of saline matter. This river enters the county in the northeastern corner and flows southwestward. The amount of water carried is usually small, from the fact that the greater portion of the stream has been diverted upon lands in other counties through which it flows.

Much of this county consists of broad deserts, from which rise short, abrupt mountain ranges. The soil is fertile, but on account of the lack of moisture it can not support the forms of vegetation useful to man. At the eastern end of the county, along the foot of the Pavant mountains, are a number of small towns dependent mainly upon agriculture and stock raising, receiving the necessary water from the little streams, whose waters are thus entirely used. Attempts have been made to increase the available supply from these streams by storing the floods in reservoirs, but many of the dams constructed for this purpose have been swept away.

The water of the Sevier river is used upon land in the cañon where it enters the county, and is also diverted by dams into canals supplying the towns of Deseret and Oasis. The expense of maintaining these dams has been enormous. They have been washed out many times, and finally at great expense a new system has been constructed for the town of Deseret, the river being diverted from its original channel in order to insure greater stability in the head works of the canal.

MORGAN COUNTY is in northern Utah, lying east of Davis county. The greater portion of the area is mountainous, agricultural land being found only along the Weber river and its tributaries, the principal of which is East Cañon creek. The valleys are very narrow, so that the tilled land is in

long, narrow strips. Irrigating ditches are usually small and numerous, several ditches carrying the water that could be conveyed with greater economy in one large well-located canal. The water is derived from Weber river and its affluents or from springs in the cañons.

The area under cultivation exceeds that which can be supplied with water in all seasons, and unless there is an unusual snowfall in the mountains a portion of the crops is lost each year, excepting in the case of the irrigators owning prior rights. Water storage is needed, but the facilities for its construction are said to be very limited.

Economy of water under the present system seems to be impossible, from the fact that there are many small ditches, each independent of the other, and all constructed with the object of obtaining as much water as possible. For example, there are in the vicinity of Morgan nine ditches, four on one side of the river and five on the other. Two well-located and carefully built high-line canals would probably furnish more water and cover a larger acreage. At present the water rights are in an unsatisfactory condition, and, as in many other counties, there is complaint of waste of water by those holding prior rights or those fortunately situated on the head waters.

PIUTE COUNTY lies north of Garfield county, and, like it, extends in a narrow belt from the Colorado river, including on the east the greater part of the drainage basin of the Fremont river and at its western end several valleys, through which flow the Sevier or its tributaries.

The eastern part of the county, like all the land draining directly to the Colorado river, consists principally of high plateaus cut by deep cañons, and it consequently contains but small areas of irrigable land. The towns are principally in the center of the county, near the head waters of the Fremont river, where the cañons are of less depth and the valleys sufficiently wide to give agriculture a foothold. A small portion of the head waters of the Fremont lies in Sevier county. Included in this area is Fish lake, a body of fresh water about six miles long and one mile wide. This is already used as a reservoir, a dam being constructed across its outlet by the irrigators along the river in Piute county.

The valleys of the western end of the county are comparatively broad and receive waters from numerous small streams which enter the Sevier from both sides. In the valley through which the Sevier river flows the ditches are generally taken out from the small streams rather than from the river itself, both for the sake of convenience and economy. Being near the head waters, most of the farms have an ample supply of water, and thus there is less demand for storage; but many farmers are apprehensive that with the development of irrigation in Garfield county they will not be able to receive their usual supply. The county, however, contains a large number of excellent reservoir sites, notably on Otter creek, the waters to be stored in which are needed in Sevier county, and also in valleys farther down the river. The lack of coincidence of the county lines with lines of drainage leads to many complications, from the fact that the reservoir sites needed by this county are in some cases beyond its jurisdiction, while in turn it contains reservoir sites of no use to its own people, but of great value to others.

RICH COUNTY is in the northeastern corner of Utah, adjoining Idaho and Wyoming. The agricultural land in this county lies in two valleys, separated by the Bear River plateau. On the east of this plateau is the Bear River valley, and on the west is Bear Lake valley. The greater portion of this latter valley is in Idaho, there being a comparatively narrow strip of land along the southern and western shores of the lake.

Bear River valley is a broad, open tract of country, lying at an elevation of nearly 7,000 feet. The climate is somewhat cold, but the hardier crops flourish. The water supply is derived from Bear river, which flows from south to north, and from numerous tributaries rising in the mountains to the west of the river.

In Bear Lake valley, in the vicinity of Laketown, are irrigated farms of considerable size. North and east of this place, however, the shores of the lake rise abruptly, leaving little room for agriculture. To the west of the lake, however, the slopes are more gentle, and the irrigated land extends in a long, narrow strip, receiving water from small streams and springs in the cañons. There are a number of notable springs in this county, due to the peculiar structure of the mountains and the prevalence of limestone, which in places has been dissolved, giving rise to underground water courses of considerable size, carrying in one case as high as fifty cubic feet per second.

SALT LAKE COUNTY is southeast of Great Salt lake and lies between the summits of the Wasatch mountains on the east and the Oquirrh mountains on the west. On the south it is bounded by a transverse range of hills, through which the Jordan river has cut a deep notch. The agricultural land is at an elevation of from 4,300 to 5,000 feet, and enjoys a climate of the most favorable character, since from its central position and elevation it is not subject to great extremes of heat and cold. The natural facilities for irrigation in this county are not surpassed by those of any valley in the arid regions.

The water supply comes from two sources. The first consists of the various streams which issue from the Wasatch mountains, on the east of the county, flow westward through narrow cañons, and finally enter the valley, where, before irrigation was practiced, the water gradually disappeared into the sand, or in times of flood flowed into the Jordan river. The second source of supply is the Jordan river, the outlet of Utah lake, situated in the county of Utah. The water from this river is carried to the farming land by five large canals, two on the east side and three on the west, as well as by a multitude of small ditches, a few of which furnish power to mills.

Although the natural advantages of the water supply are almost unexcelled, yet the utilization of these advantages has not been of the most satisfactory character, from the fact that the irrigating systems have sprung up without plan and have been developed solely with reference to the needs of the individual owners, and not with regard to the general good of the county. For example, water which could be used on the high bench lands is taken from mountain streams down to the lowlands, beneath the level of canals taking water from Utah lake. The irrigating ditches thus cross each other, giving rise to complications and waste in construction, and water which might be employed to better advantage upon the higher lands is taken to the farms which apparently should be irrigated by lake water.

Utah lake is the great natural reservoir for Salt Lake county, and upon the proper utilization of its waters depend the prosperity and future extension of the farming land of that county and to a less degree the growth of the city of Salt Lake. Up to the present time, although the need of improving the water supply has been appreciated, no serious attempts or definite plans toward this end have been made. The employment of Utah lake as a reservoir, so that the water shall be used to the best advantage, is not a simple engineering problem, but is complicated by the fact that vested rights to its waters have been acquired by individuals and corporations, who can scarcely be expected to work in harmony, and, further, that much of the land surrounding the lake and adjacent to its outlet has passed into the hands of proprietors whose interests are apparently antagonistic to those of the farmers of Salt Lake valley.

The control of the lake has been a source of dispute for many years between the two counties, from the fact that, on the one hand, the farmers of Salt Lake county deemed it necessary to hold back as much as possible of the flood waters in the lake, and, on the other hand, the residents of Utah county owning land around the lake wished to have the waters flow freely through the Jordan, in order that the lake might fall and the area of pasture lands be as large as possible. The contentions between these two parties finally culminated in a lawsuit for damages for injury caused by flooding lands in Utah county. The matter was finally settled by arbitration, and a compromise was agreed upon in 1885, by which a board of commissioners, representing both counties, was empowered to regulate the height of the water in the lake and to hold it at a certain level. If the water should at any time be maintained at a higher level than agreed upon, the damages, if any, to the land in Utah county must be paid by the owners of the dam in the Jordan river.

Under the act of Congress of October 2, 1888, the lake and the surrounding lands were segregated as a reservoir. A survey of the shores was made by the United States Geological Survey and a study of the hydrography of that drainage basin was begun. The conclusions reached were, that to serve its best purposes as a reservoir the lake should be drawn to a lower level on account of the enormous evaporation from the present water surface, the supply of the lake not being in many seasons sufficient to counterbalance this enormous loss. At the same time, to provide storage room for unusual floods, the land below high-water mark should be withheld from settlement and entry.

In consequence of uncertainties attending the amount and distribution of the water in complicated and wasteful ditch systems, there are great losses of crops, especially among the farmers owning

second and third rights, and these irrigators complain bitterly of the apparent lack of economy among the older settlers, who enjoy prior rights. Year by year, as the demand for water increases, losses of crops and the other grievances become more unbearable, and there is a widespread demand for accurate measurements of the amount of water flowing day by day in the various ditches. There is no question that were these quantities known and published many of the worst evils would be at once remedied. There is undoubtedly great waste of water in the canals, many of which, being poorly constructed, lose a large per cent of their water in running through gravel or loose earth. This is not wholly a disadvantage, for the water serves to saturate the lower ground, where a small portion is recovered by means of wells.

The majority of the farmers in the valley state that the way out of their difficulties is by a more careful and just regulation of the water and by the storage of the excess waters of the spring floods. They discuss the methods of water storage, especially in the reservoir sites at the head of the Cottonwood creeks, reserved for this purpose by the government, and express hopes of ultimately constructing dams for water storage in the more favorable localities.

Experience has shown that, owing to the gradual accumulation of moisture in the soil, less water is required to irrigate an acre than formerly, and therefore a far larger acreage is now cultivated than appeared possible in the early history of the valley.

SAN JUAN COUNTY is in the southeastern corner of the territory, adjacent to Colorado, New Mexico, and Arizona. Settlement has progressed but slowly, as the arable lands have not been thrown open to agricultural entry to any extent, and possible settlers have been deterred from entering upon them by the uncertainty as to the reservation of lands for the Ute Indians.

The San Juan river crosses the southern part of the county, flowing into the Colorado river, which forms the western boundary of the county. There is usually an ample supply of water in this river, but the bottom lands being narrow, and the channel shifting in every flood, the expense of bringing water upon the land is generally too great for the area to be cultivated. On account of the difficulty and expense of bringing water from the river by canal, it is a question among the farmers as to whether it would not be advisable to attempt to raise the water by machinery rather than try to build new dams each year in the unstable sandy channel. Along the tributaries of the San Juan and in the higher valleys a small amount of land is brought under irrigation. Stock raising, however, is the principal industry.

SANPETE COUNTY is in the center of Utah, and is among the more populous counties of the territory, being the most southerly of the chain of thickly settled counties which, beginning with Cache county on the north, extends in a generally northern and southern direction. The county includes the whole of the catchment area of Sanpitch river and a portion of the valley of the Sevier river, both above and below the junction with the Sanpitch. The agricultural land lies along these rivers and their tributaries and has an elevation of from 5,000 to 6,000 feet.

The Sanpitch valley is watered by various small streams, which issue through cañons leading down from the Wasatch plateau on the east. Between the Sanpitch valley and the Sevier is the Gunnison plateau, which, however, is not of a height sufficient to give rise to perennial streams of importance. The west side of the valley therefore receives very little water, and the principal towns are along the eastern edge of the agricultural lands.

At the mouth of each cañon from which a creek issues a settlement has been made, and many of these have been incorporated as cities, the inhabitants, however, depending almost entirely upon the cultivation of the surrounding fields or upon sheep and cattle raising. The municipality controls the waters of the creek and apportions them to the town lots or fields in accordance with regulations made by the voters. The control of the water is under the direct supervision of a water master and his deputies, who regulate the head gates of the various ditches, turning the water to the users according to a schedule previously prepared. The water supply of each city and its surrounding fields is wholly within the control of the people, and they have no one but themselves to consult in regard to its conservation or employment. They may construct storage works, improve the channel, or make any regulations desired.

The conditions of control in that portion of the county situated in the Sevier valley are, however, in marked contrast to those just mentioned in the Sanpitch valley, for here the water supply is received, not from independent sources, which can be controlled without interference, but from the Sevier or Sanpitch river, after having passed by the canal head works and agricultural lands of various irrigators. The waters of the Sevier river are used in three counties before reaching Sanpete county, and therefore, as might be expected, there is but little available excepting in flood seasons.

There is two or, in places, three times as much land under cultivation in the Sanpitch valley as can be supplied with water in ordinary seasons. It has become customary to let one-half the fields lie fallow for a year while the other half is being used, the fallow land being plowed once or twice in order to destroy the weeds. The water supply is scanty even for one-half the land, and the right to take water from each creek has, by increase of settlement and subdivision, become so complicated and scattered that it is difficult even for those owning prior rights to get sufficient water to mature a fair crop. It is even worse with the later settlers, for they, according to the regulations, are only allowed the flood waters or such portions of the stream as their neighbors can not use. After a late comer has used the water for several years and has established a home it becomes a matter of great difficulty, both legally and actually, to deprive him of water, destroying his trees and fields, in order that the older settlers shall have enough, and yet, on the other hand, irrigators holding prior rights feel that it is not just for other men to come in and gradually destroy the value of their farms by acquiring the greater part of the water.

Sanpete county is a good example of the evils arising from the neglect of jealously guarding prior rights. As population increased, the older farmers, from friendship or compassion, allowed others to share their water supply, and frequently in times of scarcity good-naturedly divided the scanty supply. Thus an increasingly large number of irrigators acquired certain rights to the water, until the limit has been reached, when in dry seasons all suffer together, and at other times there is barely enough water for all, and they do not receive sufficient returns to insure prosperity or contentment.

As a consequence of the urgent need of more water during the summer, storage reservoirs and other projects for increasing the supply have been attempted. A number of reservoirs, all of small size, have been constructed or are now being made in various parts of the county. Owing to lack of experience and engineering skill several of the dams of these reservoirs have been swept away by floods, with considerable damage to property, while others have been so located that there was not a sufficient amount of water to fill the basin. The people, however, driven by necessity, must persevere, and in spite of loss of life and property they will in time gain sufficient experience, as in the case of canal building, to build structures that will be of use. A great part of the enormous expenditure and loss incurred in such experiments could undoubtedly be obviated by the employment of skilled engineers.

As the matter now stands, if there is ample snow in the winter the crops are good; if not, the yield is small. Very little, if any, land is cultivated by dry farming, a few acres of cereals being thus reported. One cause of the small amount of water available in the summer is asserted by the farmers to be the result of sheep herding in the mountains. The enormous flocks of sheep destroy the vegetation and trample the earth into a hard crust. Thus, on the slopes the rain can not penetrate into the soil, but after a storm the water flows at once into the streams, causing short, sudden floods, followed by low water.

Sevier county is in the central part of the territory, and includes the principal valley along the course of the Sevier river. In this broad valley are a number of towns of considerable size, all depending upon agriculture. Many canals receive water from the river, and various small ditches are fed from springs and streams which issue from the mountains on each side. Only a small portion of the valley land is tilled, thousands of fertile acres lying idle for want of water.

Farming communities depending upon the smaller streams utilize them to their fullest extent, small reservoirs being built in various places to hold the flood waters until needed for maturing crops. The irrigators who depend upon the Sevier river, however, do not enjoy the same security in regard to the permanence of their water supply, from the fact that agriculture is rapidly being

developed above them in the valleys of Garfield and Piute counties, and thus the summer flow of the river tends to diminish.

There is a feeling of insecurity in regard to water rights along this large river, on account of the fact that settlers are pushing into every little valley and diverting upon their lands the springs or streams which formerly flowed into the river, thus tending to decrease the amount flowing through the lower valleys. At the same time, ditches along the course of the river are being enlarged and gradually extended to cover new land, and occasionally a new canal is built by an association of farmers, who, by better organization and co-operation, necessarily gain strength and importance, and by acquiring old water rights in one way or another diminish the amount available for the smaller ditches.

SUMMIT COUNTY is in the northeastern part of Utah, surrounding on two sides the re-entrant angle formed by the corner of Wyoming, which appears to encroach upon the territory of Utah. This county includes the head waters of Bear river, Weber river, and the principal branch of the Provo. The agricultural land is along the comparatively narrow valleys of these streams and their tributaries, receiving water from them or from the numerous springs issuing from the sides of the mountains.

The general elevation of agricultural land is from 5,500 to 7,000 feet, while the mountains rise to heights of from 10,000 to 13,000 feet. The water supply of this rugged country is generally ample at all times of the year, although in the lower valleys losses of crops have occurred. In 1889 the losses were especially great in this and the counties adjoining. Attempts were made by the irrigators of the lower counties to restrain the farmers of Summit county from using all the water, so that some might flow to the dry fields below. Men came up the river at that time with the intention of closing the head gates of the various ditches, but the attempt was not a success, and it does not appear that the irrigators of the lower counties were benefited.

Attempts have been made in a small way to store water, and several irrigators report that they are depending upon water from their own reservoirs and are increasing the supply by building new and better dams. The washing out, however, of one dam, and consequent loss of property, have taught the farmers that great care must be used in these undertakings.

Small crops of wheat and oats are occasionally raised without irrigation, but this method is very uncertain and the yield is small unless there happens to be an unusual amount of rain. The success of farming, either with or without irrigation, depends directly upon the amount of precipitation. Whenever the snowfall during the winter is heavy, farmers look forward to a prosperous season, and when light, as it has been for several years, the prospects are discouraging, since the greater portion of the snow melts and runs away in the spring before the water is needed. In the upper valleys the seasons are short, frosts occurring late in the spring and early in the fall, rendering agricultural success a matter of some uncertainty.

TOOELE COUNTY is southwest of Great Salt lake and includes the greater part of the desert of the same name. The county extends from the Oquirrh mountains on the east to the Nevada line on the west. It includes a number of small mountain ranges, rising abruptly from the broad and nearly level valleys and having a general north and south trend. The county lies almost within the center of the area formerly covered by the waters of the fresh-water lake known to geologists as Lake Bonneville, and the soil of the broad valleys and deserts was deposited by these waters. The mountain ranges were islands in the lake, and still show the results of wave action in the broad terraces, successive beaches of the lake. The soil in the valleys is very fertile, but is heavily charged with alkaline salts, so that care must be taken in applying water. On the terraces the soil is usually not so good, but is comparatively free from alkali and is cultivated to a small extent.

The water supply of this county is very limited, so much so that a very small portion of the broad, fertile valleys can be irrigated. Along the foot of each mountain range there are a few springs which are utilized either for watering stock or, if sufficiently large, for irrigation. The mountain ranges do not rise to a height sufficient to receive a very heavy snowfall, and consequently the streams from them are small in size and variable in quantity. There is a prevailing opinion among the farmers that by driving tunnels into the mountains and cleaning out the springs the water supply can be increased. This is undoubtedly the case where, for example, the strata dip away from the valley and tend to carry

the small amount of water which may be percolating through the rocks away to the opposite side of the mountains.

The cost of irrigation in this county is very great, on account of the numerous failures to obtain sufficient water or the destruction of ditches by unexpected floods. Valley bottoms are at an altitude of about 4,200 feet, being but slightly above the level of Great Salt lake. The climate is extremly arid, and there is a considerable range of temperature, frosts sometimes occurring late in the spring or early in the fall, in spite of the high temperature prevailing during the summer. Among the mountains small areas of rye, wheat, and corn are cultivated without irrigation, although the yield is small and may not repay the labor of tilling the soil, unless the season happens to be unusually rainy. Some alfalfa is also raised in the same way, the cuttings, however, being only from one-half to three-quarters of a ton to the acre, while on irrigated land they are two and one-half tons.

The principal towns are in the eastern end of the county, in Tooele and Rush valleys. They depend for their life largely upon mining and stock raising, the cultivation of the soil being of secondary importance. In the extreme western end of the county, on Deep creek, and especially in the vicinity of Ibapah, is a small amount of agriculture, the supplies being readily marketed at the Deep Creek mines.

UINTA COUNTY is in the northeastern corner of the territory, adjoining Wyoming and Colorado. The mountain range of the same name crosses the northern end of the county, while the southern and western parts are covered by the Ute Indian reservation, thus leaving but a small portion of the county open to agriculture. The tilled land is mainly along Brush creek and Ashley fork, both of which flow into Green river. Water is taken from these smaller streams, from the fact that they can be readily controlled.

Green river crosses the northeastern corner of the county and then flows diagonally through the county from northeast to southwest. Its waters, however, are in general too far below the agricultural land to be taken out, or at places where diversions may be feasible the expense has been too great for the present inhabitants. Various plans, however, have been proposed for doing this, some of which may be executed in future years.

UTAH COUNTY embraces some of the best agricultural land of the territory, its principal valley equaling if not excelling in advantages of location and water supply any other valley in the territory. This county is south of Salt Lake county and extends from the summits of the Wasatch westward to the Oquirrh range. In the center is the beautiful body of fresh water known as Utah lake, on the western shore of which is a short mountain range rising about 3,000 feet above the valley and known as the Lake mountains. These divide the county into two portions, Utah valley, containing Utah lake, on the east, and Cedar valley on the west. The contrast between these valleys is striking, the one with its well-watered fields and broad lake, the other almost a desert, with but few small towns and limited agricultural possibilities. In soil and climate there is no appreciable difference, and it is the water supply alone that gives the great superiority to the valley on the east.

The natural water supply of this county, like that of Salt Lake county to the north, is excellent, but the utilization of it is not all that could be desired, farmers claiming that the water is not distributed with the greatest regard to economy or apparent equity. The greatest cause of loss is the duplication of canals, two, three, or even four small canals running in general parallel courses and carrying the water to land that one large canal would serve with far greater economy. As a consequence of the large number of ditches the construction is usually poor, and the head works and flumes of temporary character. The dams and head gates are occasionally washed out or injured in floods, or, for instance, by the railroad ties which are floated down the river at the time of the spring freshets. In consequence of these injuries crops have been lost before the damage could be repaired.

The principal streams watering this valley are the American fork, Provo or Timpanogus river, Hobble creek, Spanish fork, and Salt creek. The Provo is by far the largest river, since it drains an extensive area to the east of the main range of the Wasatch, through which it cuts a deep cañon. The excess water of these rivers, together with the drainage from the fields, finally finds its way into Utah lake, the regulation of which is mentioned in the description of Salt Lake county. There is more

arable land than can be watered by the regulated flow of the rivers, and, as a consequence, the area of tilled land has increased until limited by the amount of water available in ordinary seasons. In times of drought, therefore, the land more recently brought under cultivation can not produce a crop, and considerable suffering exists among the later settlers.

Under the well-established customs of Utah, previously mentioned, the water supply is given to those farmers who have used it the longest, the rights of each man being classed as first, second, or third, according to local regulations. In times of drought, as during 1888 and 1889, the farmers having only third rights lost their crops and most of their trees and vines, excepting such as were watered by hand. Those holding secondary rights also lost heavily, and even among those having first or prior rights the water was not sufficient for all demands. It is stated that a decision of the courts has been made that a farmer owning prior right could not be compelled to take his supply at night or on Sundays, and that therefore the equitable division of water was somewhat hindered.

Many of the larger irrigation works of Utah valley, as well as those of Salt Lake valley, are owned in part by persons who do not personally cultivate land, but who annually rent their water rights at the market value. There is no fixed price, the rental being a matter of agreement between the parties interested. Thus the owner of water rights may rent his rights to one irrigator for a given season and to another the next. These water rights or, more properly, shares of stock in the canal, are supposed to entitle the owner to a certain amount of water, each share being intended originally to furnish water for one acre. In times of scarcity, however, one share of stock may actually furnish water sufficient for only one-third or perhaps one-fifth of an acre, and even, in some instances, for only one-seventh of an acre. There is very little dry farming in this county. A small acreage of wheat is planted in the fall and is sometimes successful.

The lower lands of Utah valley were first brought under cultivation and have prior rights to the water. After these were taken up agriculture began to encroach upon the higher bench lands or shores of the ancient Lake Bonneville, and later canals were taken out to water these benches, many of them, however, having rights only to the surplus water. The irrigation of the higher lands has a tendency to moisten the lower fields, and when an excessive amount of water is applied during the flood season the water slowly appears on the lands below, and later in the season may saturate those so completely as to make pasturage, or even injure it by creating marshes or by developing an alkaline crust. Thus, in the future development drainage must be inaugurated as well as an improved system of distributing the water.

Water conservation has been attempted in a small way, and several reservoirs have been built in suitable places, by means of which a few farms have been successfully cultivated. Farmers state that others will be constructed in the future at some of the many sites favorable for this purpose. In one or two instances attempts have been made with little success to increase the ordinary summer flow by tunneling into the mountains.

On the lower lands, especially near the lake, there are a large number of flowing wells, which are useful not only for domestic supply and watering cattle, but to a small extent for irrigation. They are, however, confined mainly to lands so low that they are already wet by seepage. The well water is usually stated to be not as good as that from ditches, on account of its slightly saline qualities and lack of fine fertilizing sediment.

WASATCH COUNTY is east of Utah county, the greater portion of it being included within the catchment area of the Du Chesne river and its tributaries, a part of the Colorado drainage. Nearly all the county lies within the Uinta Indian reservation, but on the western end a small projection of the county lines extends across the head waters of the Provo river, and it is in this small corner of the territory that the principal towns and agricultural areas are situated.

The valley of the Provo at this point is comparatively broad, and the river, rising in the Uinta range, furnishes water sufficient to supply all or nearly all the land to which it can be taken. Along the tributaries of the Provo, however, are tracts of land for which the water supply is insufficient, and attempts have been made to increase this by small reservoirs among the mountains. The facilities for the construction of these are unusually good, from the fact that there are a number of small lakes and

depressions of glacial origin whose outlets can readily be closed. It is estimated that the water can be stored at an expense of $10 per acre of land irrigated.

Besides the use of reservoirs, the attempt has been made to increase the amount of water available by cutting a ditch and tunnel across the divide and bringing the head waters of Strawberry creek, a branch of the Du Chesne, over to the Provo side. In this way the demand for water, which is most strongly felt in July and August, can be in part supplied.

WASHINGTON COUNTY is in the southwestern corner of Utah, and thus includes the greater part of the drainage basin of the Virgin river. The agricultural lands are at an elevation of from 2,500 to 3,000 feet or more, and are mainly along narrow valleys between lofty mountain ranges. The Virgin river on the east drains a part of the high plateau of southern Utah, and thus flows in deep, narrow cañons, while its tributaries on the west receive water from steep mountains, which are almost entirely free from forests. The river is thus subject to violent floods whenever a heavy storm occurs, and at these times carries large quantities of sand and débris, cutting the banks and washing away or obliterating the irrigating ditches.

The climate of the valleys is very warm, the growing season being sufficiently long and hot to insure the success of cotton and semitropical fruits. The area of good land, however, is comparatively limited, and the unregulated water supply barely sufficient for the present area under cultivation. The irrigators, however, believe that water storage in side cañons and depressions not on the line of the streams can be successfully accomplished and larger areas thus brought under cultivation.

On account of the erratic character of the streams the expense of maintaining the ditches and diverting water into them has been very great. The head works are frequently washed away, and several ditch owners state that they scarcely ever take water into their ditches at the same place two years in succession. As in the case of the other counties in the Colorado basin, the streams occasionally wash out their channels to a depth of many feet, necessitating the construction of long lines of canal to bring the water up upon the land again. Stock raising and the cultivation of the soil are the principal industries, mining and milling of gold ores having diminished in importance.

WEBER COUNTY, in northern Utah, includes some of the most easily watered land of the territory. Two rivers, the Ogden and Weber, issue from the deep cañons in the Wasatch range and unite in this county. The principal agricultural land is near these rivers, between the foot of the Wasatch mountains and Great Salt lake, and, in addition to this, there is a large open valley on the east side of the Wasatch range on the head waters of the Ogden river.

The water supply, though large, is not sufficient for all the land under cultivation. In the latter part of June need of more water is felt, and in July and August there is often a loss of crops. A number of large canals have been built, taking water from the Ogden and Weber rivers, but they have only a secondary right to the water. It thus happens when the supply is short, as was especially the case in 1889, lawsuits are entered upon and injunctions obtained restraining some of these canals from taking any water from the river until the owners of prior rights should be satisfied. There has thus been great loss to the farming communities, both in legal expenses and in injury to crops and fruit trees, and beyond this, the water being turned out of the canals, in some places the flumes and other wooden structures have dried and been nearly destroyed by the heat of the sun.

There is considerable loss of water, or at least lack of economy in its use, by the faulty construction of the ditches. In many cases the grade is so gentle that grasses and what is known as "moss" grow rapidly and finally obstruct the flow. These weeds must be cleaned out from time to time, involving some expense or even a stoppage of the water.

It is estimated that the value of the crops destroyed in any one year for want of water would pay for a large storage system sufficient to cover most, if not all, of the tilled land.

[7-010]

CENSUS BULLETIN.

No. 86. WASHINGTON, D. C. July 1, 1891.

POPULATION OF IDAHO

BY MINOR CIVIL DIVISIONS.

DEPARTMENT OF THE INTERIOR,
CENSUS OFFICE,
WASHINGTON, D. C., June 24, 1891.

This bulletin gives the population of the state of Idaho in detail by cities, towns, and precincts, according to the official count of the returns made under the Eleventh Census, taken as of June 1, 1890. The figures for 1880 are also given for purposes of comparison.

The population of the state of Idaho according to the present census is 84,385. The population in 1880 was 32,610. This is an increase of 51,775, or 158.77 per cent, during the decade.

Five new counties have been formed since 1880: Bingham in 1885 from part of Oneida county; Custer in 1881 from parts of Alturas, Boise, Idaho, and Lemhi counties; Elmore in 1889 from part of Alturas county; Latah in 1888 from part of Nez Perces county; Logan in 1889 from part of Alturas county. The population of the counties from which the new counties were formed is given in accordance with the returns for 1880, which includes the population of that part subsequently taken.

In three counties only are decreases shown. These apparent decreases are due to the fact that portions of those counties were taken to form other counties. In most of the counties satisfactory increases are shown, some of them very large.

The following summary shows the population of each county according to the censuses of 1890 and 1880, with the increase or decrease during the decade:

SUMMARY BY COUNTIES.

COUNTIES.	POPULATION.		INCREASE.		COUNTIES.	POPULATION.		INCREASE.	
	1890.	1880.	Number.	Per cent.		1890.	1880.	Number.	Per cent.
The State	84,385	32,610	51,775	158.77	Idaho	2,955	2,031	924	45.49
					Kootenai	4,108	518	3,590	693.05
Ada	8,368	4,674	3,694	79.03	Latah	9,173	.....	9,173	.....
Alturas	2,629	1,693	936	55.29	Lemhi	1,915	2,230	a315	a14.13
Bear Lake	6,057	3,235	2,822	87.23	Logan	4,169	.....	4,169	.....
Bingham	13,575	.....	13,575	.....	Nez Perces	2,847	3,965	a1,118	a28.20
Boise	3,342	3,214	128	3.98	Oneida	6,819	6,964	a145	a2.08
Cassia	3,143	1,312	1,831	139.56	Owyhee	2,021	1,426	595	41.73
Custer	2,176	.....	2,176	.....	Shoshone	5,382	469	4,913	1,047.55
Elmore	1,870	.....	1,870	.....	Washington	3,836	879	2,957	336.41

C. O. P.—10m

a Decrease.

The population of nine cities and towns having 500 or more inhabitants, in the order of their rank, is as follows:

CITIES AND TOWNS.	COUNTIES.	POPULATION.		INCREASE.	
		1890.	1880.	Number.	Per cent.
Boise City	Ada	2,311	1,899	412	21.70
Montpelier town	Bear Lake	1,174	546	628	115.02
Weiser town	Washington	901		901	
Paris town	Bear Lake	893	611	282	46.15
Bellevue city	Logan	892		892	
Wallace town	Shoshone	878		878	
Lewiston city	Nez Perces	849	739	110	14.88
Caldwell town	Ada	779		779	
Grangeville town	Idaho	540	129	411	318.60

The table following gives the population for each county in detail by minor civil divisions:

POPULATION BY MINOR CIVIL DIVISIONS.

MINOR CIVIL DIVISIONS.	1890.	1880.
ADA COUNTY	8,368	4,674
Boise precinct, including Boise City	3,391	
Boise City	2,311	1,899
Caldwell precinct, including Caldwell town	1,194	
Caldwell town	779	
Dry Creek precinct	130	
Emmett precinct	479	
Green Meadow precinct	253	
Lower Boise precinct	294	
Middleton precinct	354	
Nampa precinct, including Nampa town	469	
Nampa town	347	
Payette precinct	591	
Pomeroy precinct	671	
Stuart precinct	211	
Union precinct	331	
ALTURAS COUNTY	2,629	1,693
Antelope precinct	74	
Arco precinct	42	
Bullion precinct	119	
Deer Creek precinct	181	
East Fork precinct	135	
Era precinct	107	
Galena precinct	37	
Hailey precinct	1,073	
Island precinct	144	
Ketchum precinct, including Ketchum town	465	
Ketchum town	450	
Little Smoky precinct	95	
Martin precinct	22	
Muldoon precinct	64	
Saw Tooth precinct	33	
Warm Spring Creek precinct	38	
BEAR LAKE COUNTY	6,057	3,235
Bennington precinct	295	
Bloomington precinct	512	
Dingle precinct	360	
Fish Haven precinct	169	
Georgetown precinct, including Georgetown town.	350	
Georgetown town	212	134
Liberty precinct	425	
Montpelier precinct, including Montpelier town	1,379	
Montpelier town	1,174	546
Nounan precinct	138	
Ovid precinct	274	
Paris precinct, including Paris town	987	
Paris town	893	611
Preston precinct	139	
Saint Charles precinct	783	
Thomas Fork precinct	246	
BINGHAM COUNTY	13,575	
Beaver Cave precinct	216	
Blackfoot precinct	1,174	
Camas precinct	379	
Carriboo precinct	342	
Chesterfield precinct	361	
Eagle Rock precinct	1,588	
Gentile Valley precinct	566	
Henry Lake precinct	51	
Little Blackfoot precinct	248	
Market Lake precinct	218	
McCammon precinct	210	
Oneida precinct	805	
Oxford precinct	609	
Pocatillo precinct	2,330	
Rexburg precinct	2,967	
Soda Springs precinct	547	
Teton precinct	250	
Willow Creek precinct	714	
BOISE COUNTY	3,342	3,214
Alpha precinct	110	
Banner precinct	117	
Centerville precinct	142	
Deadwood precinct	24	
Garden Valley precinct	196	

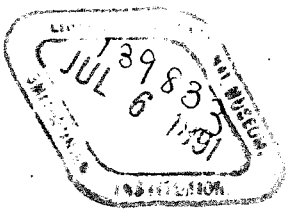
MINOR CIVIL DIVISIONS.	1890.	1880.
BOISE COUNTY—Continued.		
Granite Creek precinct	106	
Idaho City precinct	459	
Lower Squaw Creek, Upper Squaw Creek, and Horse Shoe Bend precincts.	544	
Moore Creek precinct	90	
Omega precinct	261	
Pioneerville precinct	137	
Placerville precinct	173	
Quartzburg precinct	124	
Van Wyck precinct	538	
Not located by precincts	321	
CASSIA COUNTY	3,143	1,312
Albion precinct, including Albion town	545	
Albion town	179	257
Almo precinct	280	
Bonanza Bar precinct	60	
Bucherville precinct	255	
Clear Creek precinct	167	
Goose Creek precinct	32	
Malta precinct	172	
Oakley precinct	1,141	
Rock Creek precinct	292	
Salmon Falls precinct	37	
Sublet precinct	162	
CUSTER COUNTY	2,176	
Battle Ground precinct	122	
Bay Horse precinct	237	
Bonanza precinct	166	
Challis precinct, including Challis town	579	
Challis town	356	614
Clayton precinct, including Clayton town	411	
Clayton town	252	
Crystal precinct	54	
Custer precinct	134	
Houston precinct	274	
Pahsamaroi precinct	84	
Ramshorn precinct	70	
Sea Foam precinct	19	
Stanley Basin precinct	26	
ELMORE COUNTY	1,870	
Atlanta precinct	95	
Big Camas precinct	84	
Cold Springs precinct	75	
Glenn Ferry precinct, including Glenn Ferry town.	412	
Glenn Ferry town	333	
Junction Bar precinct	7	
Little Camas precinct	45	
Mayfield precinct	111	
Mountain Home precinct, including Mountain Home town.	364	
Mountain Home town	233	
Pine Grove precinct	155	
Rocky Bar precinct	505	
Smith Prairie precinct	17	
IDAHO COUNTY	2,955	2,031
Grangeville town	540	129
Mount Idaho town	190	159
KOOTENAI COUNTY	4,108	518
Cœur d'Alene town	491	
Rathdrum town	218	
LATAH COUNTY	9,173	
American Ridge precinct	707	
Bear Creek precinct	907	
Four Mile precinct	328	
Genesee precinct, including Genesee town	788	
Genesee town	282	
Gold Creek precinct	782	

POPULATION BY MINOR CIVIL DIVISIONS—CONTINUED.

MINOR CIVIL DIVISIONS.	1890.	1880.
LATAH COUNTY—Continued.		
Gold Hill precinct	185	
Julietta precinct	350	
Little Pot Latch precinct	648	
Moscow precinct	2,861	
Mountain Meadow precinct	23	
Palouse Bridge precinct	770	
Pine Creek precinct	252	
Thorn Creek precinct	572	
LEMHI COUNTY	1,915	2,230
Bannister precinct	53	
Big Creek precinct	4	
Gibbonsville precinct	188	
Leesburg precinct	128	
Medicine Lodge precinct	83	
Morse precinct	75	
Nicholia precinct	110	
Pine Creek precinct	20	
Salmon City precinct	916	
Shoup precinct	91	
Varianville Junction precinct	226	
Yellow Jacket precinct	21	
LOGAN COUNTY	4,169	
Bellevue precinct, including Bellevue city	1,094	
Bellevue city	892	
Bliss precinct	141	
Broadford precinct	320	
Corral precinct	153	
Crichton precinct	241	
Doniphan precinct	139	
Little Wood River precinct	97	
Malad precinct	105	
Minidoka precinct	104	
Shoshone precinct, including Shoshone village	961	
Shoshone village	958	
Silver Creek precinct	144	
Soldier precinct	267	
Spring Creek precinct	144	
Tikma precinct	95	
Toponis precinct	94	
Willow Creek precinct	70	
NEZ PERCES COUNTY	2,847	3,965
Bed Rock precinct	404	
Big Pot Latch precinct	389	
Goldsmith precinct	151	
Hatwai precinct	90	
Ingle precinct	190	
Lewiston precinct, including Lewiston city	1,069	
Lewiston city	849	739
Mason precinct	195	
Tammany precinct	166	
Waha precinct	198	

MINOR CIVIL DIVISIONS.	1890.	1880.
ONEIDA COUNTY	6,819	6,964
American Falls precinct	278	
Cherry Creek precinct	236	
Dayton precinct	1,230	
Franklin precinct	1,330	
Malad precinct	999	
Preston precinct	1,504	
Rockland precinct	847	
Saint John precinct	321	
Samaria precinct	574	
OWYHEE COUNTY	2,021	1,426
Big Flat precinct	63	
Bruneau precinct	232	
Dairy precinct	69	
Oreana precinct	185	
Pleasant Valley precinct	97	
Reynold precinct	179	
Silver City precinct, including Silver City town	583	
Silver City town	433	593
Sinker Creek precinct	41	
Wagontown precinct	438	
War Eagle precinct	36	
Wilson precinct	98	
SHOSHONE COUNTY	5,382	469
Burke precinct	482	
Carbon precinct	157	
Delta precinct	106	
Eagle precinct	56	
Elk Prairie precinct	68	
Gem precinct	339	
Kellogg precinct	324	
Kingston precinct	158	
Mullan precinct	818	
Murray precinct	450	
Osburn precinct	259	
Pierce City precinct	238	
Wallace precinct, including Wallace town	913	
Wallace town	878	
Wardner precinct	858	
Weippe precinct	156	
WASHINGTON COUNTY	3,836	879
Council Valley precinct	482	
Crane precinct	203	
Indian Valley precinct	210	
Mann Creek precinct	292	
Meadows precinct	294	
Middle Valley precinct	289	
Mineral precinct	153	
Ruthburg precinct	71	
Salubria precinct	733	
Seven Devils precinct	157	
Weiser precinct, including Weiser town	952	
Weiser town	901	

ROBERT P. PORTER,
Superintendent of Census.



[7-010]

CENSUS BULLETIN.

No. 87. WASHINGTON, D. C. July 2, 1891.

POPULATION OF NEVADA

BY MINOR CIVIL DIVISIONS.

DEPARTMENT OF THE INTERIOR,
CENSUS OFFICE,
WASHINGTON, D. C., June 25, 1891.

This bulletin gives the population of the state of Nevada in detail by counties, cities, towns, and villages, and wards of cities, according to the official count of the returns made under the Eleventh Census. The population returned in 1880 is also given for the purpose of comparison.

The population of the state under the present census is 45,761, a decrease of 16,505, or 26.51 per cent, since 1880, when the state had a population of 62,266. In every county but two decreases are shown, owing, no doubt, to the decadence of mining interests.

The following summary shows the population of each county according to the censuses of 1890 and 1880, with the increase or decrease as to number and per cent during the decade:

SUMMARY BY COUNTIES.

COUNTIES.	POPULATION.		INCREASE.		COUNTIES.	POPULATION.		INCREASE.	
	1890.	1880.	Number.	Per cent.		1890.	1880.	Number.	Per cent.
The State	45,761	62,266	a16,505	a26.51	Lincoln	2,466	2,637	a171	a6.48
Churchill	703	479	224	46.76	Lyon	1,987	2,409	a422	a17.52
Douglas	1,551	1,581	a30	a1.90	Nye	1,290	1,875	a585	a31.20
Elko	4,794	5,716	a922	a16.13	Ormsby	4,883	5,412	a529	a9.77
Esmeralda	2,148	3,220	a1,072	a33.29	Roop (b)		286		
Eureka	3,275	7,086	a3,811	a53.78	Storey	8,806	16,115	a7,309	a45.36
Humboldt	3,434	3,480	a46	a1.32	Washoe	6,437	5,664	773	13.65
Lander	2,266	3,624	a1,358	a37.47	White Pine	1,721	2,682	a961	a35.83

a Decrease.
b Unorganized in 1880, but attached to Washoe county for judicial purposes; annexed to Washoe county in 1883.

C. O. P.—10m

The population of six cities and towns having 1,000 inhabitants or more, in the order of their rank, is as follows:

CITIES AND TOWNS.	COUNTIES.	POPULATION.		INCREASE.	
		1890.	1880.	Number.	Per cent.
Virginia City	Storey	8,511	10,917	a2,406	a22.04
Carson City	Ormsby	3,950	4,229	a279	a6.60
Eureka town	Eureka	1,609	4,207	a2,598	a61.75
Austin city	Lander	1,215	1,679	a464	a27.64
Tuscarora town	Elko	1,156	1,364	a208	a15.25
Winnemucca town	Humboldt	1,037	763	274	35.91

a Decrease.

The following table gives the population in detail by minor civil divisions so far as it is possible to make the separation from the returns of the enumerators:

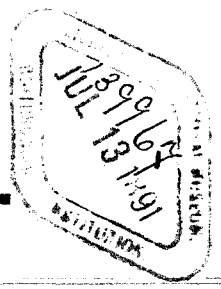
POPULATION BY MINOR CIVIL DIVISIONS.

MINOR CIVIL DIVISIONS.	1890.	1880.
CHURCHILL COUNTY	703	479
DOUGLAS COUNTY	1,551	1,581
Genoa village	434	313
Glenbrook village	223	335
ELKO COUNTY	4,794	5,716
Carlin town	413	394
Tuscarora town	1,156	1,364
Wells town	254	243
ESMERALDA COUNTY	2,148	3,220
Aurora village	225	341
Candalaria village	345	756
Hawthorne village	337	.....
EUREKA COUNTY	3,275	7,086
Eureka town	1,609	4,207
Ward 1	582	
Ward 2	1,027	
HUMBOLDT COUNTY	3,434	3,480
Lovelocks village	552	.....
Winnemucca town	1,037	763
LANDER COUNTY	2,266	3,624
Austin city	1,215	1,679
Battle Mountain village	360	522
LINCOLN COUNTY	2,466	2,637
Panaca village	324	.....
Pioche village	676	745
LYON COUNTY	1,987	2,409
Dayton village	576	391
Mason Valley village	577	.....
Silver City	342	605
NYE COUNTY	1,290	1,875
ORMSBY COUNTY	4,883	5,412
Carson City	3,950	4,229
Empire City	327	348
ROOP COUNTY (a)	.....	286
STOREY COUNTY	8,806	16,115
Virginia City	8,511	10,917
Ward 1	1,475	
Ward 2	1,919	
Ward 3	2,051	
Ward 4	988	
Gold Hill, ward 1	919	
Gold Hill, ward 2	1,159	
Gold Hill town (b)	.....	4,531
WASHOE COUNTY	6,437	5,664
Wadsworth village	537	661
WHITE PINE COUNTY	1,721	2,682
Ely village	203	.....

a Unorganized in 1880, but attached to Washoe county for judicial purposes; annexed to Washoe county in 1883.
b No corporate existence in 1890; annexed to Virginia City since 1880.

ROBERT P. PORTER,
Superintendent of Census.

[7-010]



CENSUS BULLETIN.

No. 88. WASHINGTON, D. C. July 6, 1891.

Transportation on the Ohio River and its Tributaries above Cincinnati.

DEPARTMENT OF THE INTERIOR,
CENSUS OFFICE,
WASHINGTON, D. C., June 23, 1891.

The statistics presented in this bulletin were collected by Mr. T. C. PURDY, under the direction of Mr. HENRY C. ADAMS, special agent in charge of the Division of Transportation.

The number of miles of navigable water on the Ohio river and its tributaries is 928, excluding the 500 miles from Cincinnati to the mouth of the Ohio. The cost of improvements on these waters was $12,129,713, which is equivalent to about $8,494 per mile of navigable route. The total number of passengers, including ferry passengers, carried during the year covered by the census investigation was 2,573,396, and the total number of tons of freight moved was 10,744,063. The ton mileage of this freight movement has been carefully computed to be equivalent to 2,076,866,145.

Robert P. Porter

Superintendent of Census.

C. O. P.—10m

Transportation on the Ohio River and its Tributaries above Cincinnati.

BY HENRY C. ADAMS.

The statement given in this bulletin relates to the equipment and traffic on the Ohio river and its tributaries above Cincinnati, Ohio. These tributaries are the Monongahela, Allegheny, Muskingum, Little Kanawha, Great Kanawha, and Big Sandy. During the year 1889, which was exceptionally favorable for traffic on these waters, all these rivers were navigable for twelve months, with the exception of the Muskingum, Big Sandy, and Allegheny, which were only navigable for about six months of the year.

The following table shows the length of route over which boats operated, the amount of capital appropriated to render these routes navigable, and the sources from which capital was obtained:

TABLE I.—LENGTH OF NAVIGABLE WATERS AND EXPENDITURES ON THE SAME FOR IMPROVEMENTS.

RIVERS.	Number of navigable miles.	COST OF IMPROVEMENTS OF RIVERS.			Average cost per mile.
		United States expenditures.	All other expenditures.	Total.	
Ohio	967	$5,056,479	.....	a$5,056,479	$5,229
Monongahela	102	377,552	$1,906,284	2,283,836	22,391
Allegheny	45	180,000	.....	180,000	4,000
Muskingum	75	532,504	1,628,028	2,160,532	28,807
Little Kanawha	40	.....	230,365	230,365	5,759
Great Kanawha	89	1,976,203	.....	1,976,203	22,205
Big Sandy	110	242,298	.....	242,298	2,203
Total	1,428	.....	.....	12,129,713	8,494
Less mileage below Cincinnati on the Ohio	500				
Total mileage	928				

a Exclusive of combined appropriations for this and other rivers.

The improvements on the Ohio river have been carried on by appropriations from the federal government. The most important of these are the Davis Island dam, by which slack water is forced back to Pittsburg, Pennsylvania, and the Louisville and Portland canal, around the falls at Louisville. The total appropriations for all improvements on the Ohio river were $5,056,479, which shows an expenditure of $5,229 per mile of navigable route. It should be noted that these appropriations are applied to improvements both above and below Cincinnati, although the freight statistics of this bulletin are given exclusively for that portion of the Ohio river above Cincinnati.

Improvements on the Monongahela river began in 1840. Up to that time the federal government had not made any appropriations for this purpose, and works were undertaken by a corporation, which is still in existence. This corporation owns at the present time a series of seven locks and dams, which carry slack water from Pittsburg to Geneva, Pennsylvania, a distance of 85 miles. In 1872 the federal government undertook the improvement of the river above Geneva and carried navigation to Morgantown, West Virginia, a distance of 17 miles. As shown by the table, the total cost of improvements on the Monongahela river was $2,283,836, of which $377,552 were expended by the United States government and $1,906,284 by the corporation. The four lower dams belonging to the

corporation are provided with locks measuring 220 by 56 feet, and it is from the pools formed by these dams that the bulk of the coal moved down the Ohio river is shipped.

The improvements on the Allegheny river, which were undertaken by the federal government in 1879, are in part above the limits of steam navigation, and were made with a view to movements of timber, and consist of a number of dams provided with lumber chutes. On this account it does not seem proper to assign the expenditure to the entire length of the river returned as navigable in Table I.

Until 1886 the Muskingum river formed a part of the system of public works belonging to the state of Ohio, but in that year it was transferred to the care of the federal government. It was originally navigable as far as Dresden, at which point it connected with the Ohio canal. At present, however, steam navigation does not extend above Zanesville, a distance of 75 miles from the Ohio river, since the works above that point are out of repair. On that portion of the river below Zanesville, a distance of 75 miles, there are 10 locks, measuring 157 by 36 feet, with a total lift of 118 feet. In May, 1889, through navigation was suspended and the works placed under repair. This accounts for the limited traffic reported on the Muskingum river.

The Great Kanawha river, which reaches the Ohio at Point Pleasant, 203 miles above Cincinnati, is the principal competitor of the Monongahela for the coal trade on the lower Ohio. The federal government made its first appropriation for the improvement of this river in 1873, since which time it has expended $1,976,203 and completed five locks and dams, measuring 300 by 50 feet. The following statement shows the location of these dams, their style, and the date of their completion:

NUMBER OF LOCK.	Distance from Point Pleasant.	Style of dam.	When completed.
1	84.25 miles.	Fixed.	1887
2	79.25 miles.	Fixed.	1882
3	73.00 miles.	Movable.	1880
4	67.25 miles.	Movable.	1880
5	54.00 miles.	Movable.	1886

The Little Kanawha river, which has a total length of about 150 miles, has been improved for steam navigation up to Burning Springs, 40 miles from its juncture with the Ohio. The improvements consist of a series of four locks and dams, the property of the corporation, which carry slack-water navigation to the point above named. The general government has undertaken improvements above Burning Springs, which will extend navigation 12 miles farther up the river.

The Big Sandy river is, strictly speaking, but 26 miles in length, extending from Catlettsburg, on the Ohio, to Louisa, Kentucky, but taken in connection with its principal tributary, the Levisa, it provides 110 miles adapted for the navigation of steamboats of light draught during six months of the year. The Big Sandy river and its tributaries are mostly used for rafting timber, but push boats, long, narrow boats of ten or fifteen tons capacity, are extensively employed. The expenditures for the improvement of this river, all of which were made by the federal government, were $242,298, equivalent to $2,203 per mile of navigable route.

FLOATING EQUIPMENT.

The boats and crafts, or, as termed in this bulletin, the floating equipment, used during the year 1889 over the routes described are named in Table II. This table makes a classified exhibit of boats for each of the rivers named. For example, the Ohio river above Cincinnati is credited with 713 boats, of which 46 were passenger steamers, 37 ferry steamers, 93 towing steamers, 17 tugs, 9 miscellaneous, and 511 barges. It is not to be understood from this statement that these were the only boats on the Ohio river during the season, but that their ordinary use was on that river, and their managers or owners resided at some town on or near it. It frequently occurs during low stages of water that steamboats commonly employed on some of its tributaries are run on the Ohio itself. It is also a common practice for barges loaded with coal to pass over the entire route from the place where the coal is mined to where it is delivered on the Ohio or on the Mississippi. With this explanation, the attempt to localize the floating equipment of the upper Ohio river and its tributaries is believed to be correct.

By "towing steamers," as used in the table, may be understood steamers used in moving barges on routes, while under the class of "tugs" propellers used mostly for harbor service are included. The "miscellaneous steamers" are mostly sand dredges and repair boats.

TABLE II.—NUMBER, TONNAGE, AND VALUE OF FLOATING EQUIPMENT ON THE OHIO RIVER AND ITS TRIBUTARIES ABOVE CINCINNATI.

RIVERS.	Class of vessels.	Number of vessels.	Tonnage of vessels.	Value of vessels.	Number of employés.
Total of all rivers		5,214	2,526,414.91	$6,111,813	4,444
Ohio		713	162,961.51	2,719,010	3,226
	Steamers—Passenger	46	12,998.60	544,100	1,083
	Ferry	37	3,059.72	209,250	127
	Towing	93	25,539.45	1,586,300	1,893
	Tugs	17	1,274.80	80,300	80
	Miscellaneous	9	574.94	47,900	43
	Unrigged—Barges, etc.	511	119,514.00	251,160	
Monongahela		3,458	1,974,414.46	2,623,575	532
	Steamers—Passenger	10	1,655.25	80,300	96
	Ferry	3	263.39	15,000	12
	Towing	33	4,704.02	326,750	373
	Miscellaneous	12	1,031.80	78,400	51
	Unrigged—Barges, etc.	3,400	1,966,760.00	2,123,125	
Allegheny		66	5,006.34	71,340	31
	Steamers—Passenger	1	213.31	15,000	9
	Miscellaneous	5	513.03	38,000	22
	Unrigged—Barges, etc.	60	4,280.00	18,340	
Muskingum		51	5,319.67	43,940	53
	Steamers—Passenger	4	331.24	16,750	39
	Towing	3	234.43	8,300	14
	Unrigged—Barges, etc.	44	4,754.00	18,890	
Little Kanawha		23	3,392.18	22,865	28
	Steamers—Passenger	2	143.56	10,000	18
	Towing	2	60.57	7,000	9
	Miscellaneous	1	24.05	1,000	1
	Unrigged—Barges, etc.	18	3,164.00	4,865	
Great Kanawha		811	370,258.08	579,083	208
	Steamers—Passenger	5	427.55	23,500	62
	Towing	11	1,853.51	87,333	133
	Ferry	2	102.47	8,000	8
	Miscellaneous	3	74.55	4,500	5
	Unrigged—Barges, etc.	790	367,800.00	455,750	
Big Sandy		92	5,062.67	51,500	366
	Steamers—Passenger	5	443.65	16,000	99
	Towing	3	344.02	24,000	42
	Unrigged—Barges, etc.	84	4,275.00	11,500	225

The total tonnage used on the upper Ohio and its tributaries, as shown by Table II, was 2,526,415, and the value of this tonnage was $6,111,813. This appears to be an enormous tonnage when placed in comparison with tonnage in and about cities like New York, Buffalo, or Chicago, but it will be observed that 97.78 per cent of this total is tonnage of low grade. This is due to the fact that the freight carried is for the most part coal, lumber, sand, stone, and other like low-class freight. The value per ton of the equipment for transporting this low-class freight was $1.17. The average value per ton on the Great Lakes, as shown in a previous bulletin, was $53. In no other way could the character of transportation by water on the Ohio river and its tributaries be more clearly set forth.

FREIGHT AND PASSENGER STATISTICS.

The traffic over the routes considered by this bulletin during the season of 1889 is shown in Table III. This statement shows that 2,573,396 passengers were carried during the year, but of this

number 1,580,139 were carried by ferry steamers, leaving 993,257 passengers carried by regular packets. The total passenger mileage carried by packet and ferry lines was, as nearly as could be determined, 39,110,160. These figures, if placed in comparison with figures for railways in the same district, would show that the passenger traffic on the Ohio river is relatively of slight importance.

Such a conclusion, however, can not be drawn if the freight movement be noted. Thus, the number of tons of freight moved during the season was 10,744,063, and this movement, reduced to a ton basis, represents a total freight movement of 2,076,866,145 ton miles. This statement is strictly confined to freight movement on the Ohio river above Cincinnati, together with its tributaries.

TABLE III.—PASSENGER AND FREIGHT TRAFFIC ON THE OHIO RIVER AND ITS TRIBUTARIES ABOVE CINCINNATI.

RIVERS.	Number of crafts.	Passengers carried.	Passengers carried one mile.	Tons of freight moved.	Tons of freight moved one mile.
Total	5,214	*a*2,573,396	39,110,160	10,744,063	2,076,866,145
Ohio	713	2,182,883	34,910,137	5,528,857	1,926,821,800
Monongahela	3,458	299,654	1,254,507	3,294,932	58,930,015
Allegheny	66	5,319	27,513	365,946	3,668,560
Muskingum	51	11,492	373,775	10,041	77,836
Great Kanawha	811	53,597	1,436,705	1,145,202	76,620,363
Little Kanawha	23	9,451	246,073	112,602	2,484,000
Big Sandy	92	11,000	861,450	286,483	8,263,571

a 1,580,139 carried by ferry steamers and 993,257 by regular packets.

The character of the freight movement, as exhibited in the preceding table, is best shown by a statement of the principal classes of commodities carried on each of the rivers subjected to investigation.

On the Ohio river, out of a total of 5,528,857 tons moved, 4,338,421 tons were due to shipments of coal, 65,550 tons to shipments of salt, 176,877 tons to shipments of clay, sand, and stone, 617,493 tons to shipments of forest products, the remainder being shipments of unclassified freight.

On the Monongahela river, for which a total shipment of 3,294,932 tons is reported, the shipments of coal and coke amount to 3,059,418 tons, of sand and stone to 98,359 tons, of iron ores to 35,563 tons, of forest products to 81,209 tons, the remainder being unclassified freight.

On the Allegheny river there were moved 275,681 tons of forest products, 80,750 tons of sand and stone, and 9,515 tons of unclassified freight.

The movement of freight on the Muskingum river during the year covered by the investigation was very slight, amounting to 10,041 tons of general freight.

On the Great Kanawha river, out of a total of 1,145,202 tons of freight moved, shipments of coal amount to 1,076,871 tons, and shipments of forest products to 43,313 tons, the remainder being unclassified freight.

The freight movements on the Little Kanawha river were 99,561 tons of forest products, 2,200 tons of coal, 2,160 tons of sand, and 8,681 tons of unclassified freight.

Of the 286,483 tons of freight moved on the Big Sandy river 274,320 tons were forest products, the remainder being unclassified freight.

From the above analysis it will be observed that the most important item of freight on the upper Ohio and its tributaries is coal, and on this account it seems desirable to attempt to localize the coal traffic. In the table given below will be found a statement of the amount of coal shipped from Pittsburg (Pennsylvania), Point Pleasant (West Virginia), Pomeroy (Ohio), and Ashland (Kentucky), and the cities to which this coal was shipped. This statement includes only original shipments, or shipments at first hand. It will be noted that the number of tons moved one mile, as presented in this table, exceeds the number of tons moved one mile in Table III. This is accounted for by the fact that the movement below Cincinnati is taken into account.

TABLE IV.—COAL TRAFFIC ON THE OHIO.

A.—AMOUNT OF COAL SHIPPED FROM PLACES NAMED AND THE DISTANCE CARRIED EXPRESSED IN TON MILEAGE.

FROM—	Tons.	Tons moved one mile.
Total	4,338,421	2,973,783,387
Pittsburg, Pennsylvania	3,073,232	2,712,162,662
Point Pleasant, West Virginia	1,067,857	231,087,122
Pomeroy, Ohio	136,900	23,780,489
Ashland, Kentucky	42,530	6,013,350
Bellaire, Ohio	17,902	689,764

B.—AMOUNT OF COAL SHIPPED FROM PITTSBURG TO PLACES NAMED.

TO—	Tons.	Miles.	Tons moved one mile.
Total	3,073,232	.....	2,712,162,662
Cincinnati, Ohio	1,287,394	467	601,212,998
Cairo, Illinois	20,000	967	19,340,000
Saint Louis, Missouri	100,000	1,167	116,700,000
Memphis, Tennessee	126,160	1,205	152,022,800
Helena, Arkansas	10,000	1,284	12,840,000
White River, Arkansas	10,000	1,378	13,780,000
Greenville, Mississippi	10,000	1,465	14,650,000
Natchez, Mississippi	46,231	1,708	78,962,548
New Orleans, Louisiana	591,805	1,980	1,171,773,900
Louisville, Kentucky	815,882	598	487,897,436
Baton Rouge, Louisiana	9,460	1,848	17,482,080
Madison, Indiana	44,000	570	25,080,000
Parkersburg, West Virginia	2,300	183	420,900

C.—AMOUNT OF COAL SHIPPED FROM POINT PLEASANT TO PLACES NAMED.

TO—	Tons.	Miles.	Tons moved one mile.
Total	1,067,857	.....	231,087,122
Cincinnati, Ohio	1,010,181	203	205,066,743
Louisville, Kentucky	46,315	334	15,469,210
New Orleans, Louisiana	481	1,716	825,396
Baton Rouge, Louisiana	1,176	1,584	1,862,784
Donaldsonville, Louisiana	183	1,640	300,120
Bayou Sara, Louisiana	1,602	1,549	2,481,498
Vicksburg, Mississippi	2,023	1,336	2,702,728
Greenville, Mississippi	652	1,201	783,052
Memphis, Tennessee	539	941	507,199
Frankfort, Kentucky	506	338	171,028
Orange, Kentucky	1,567	373	584,491
Lawrenceburg, Kentucky	476	226	107,576
Vanceburg, Kentucky	109	111	12,099
Portsmouth, Ohio	1,639	90	147,510
Augusta, Kentucky	408	161	65,688

D.—AMOUNT OF COAL SHIPPED FROM POMEROY TO PLACES NAMED.

TO—	Tons.	Miles.	Tons moved one mile.
Total	136,900	.....	23,780,489
Cincinnati, Ohio	30,324	218	6,610,632
Louisville, Kentucky	8,424	349	2,939,976
Portsmouth, Ohio	25,994	105	2,729,370
Huntington, West Virginia	2,684	60	161,040
Frankfort, Kentucky	1,691	353	596,923
Marysville, Kentucky	49,383	156	7,703,748
Vanceburg, Kentucky	2,400	126	302,400
Ripley, Ohio	8,800	165	1,452,000
Richmond, Ohio	3,200	197	630,400
Manchester, Ohio	2,000	145	290,000
Chilo, Ohio	2,000	182	364,000

E.—AMOUNT OF COAL SHIPPED FROM ASHLAND TO PLACES NAMED.

TO—	Tons.	Miles.	Tons moved one mile.
Total	42,530	.....	6,013,350
Cincinnati, Ohio	40,850	147	6,004,950
Ironton, Ohio	1,680	5	8,400

A similar statement may be made for the movement of salt from Pomeroy, Ohio, which is as follows:

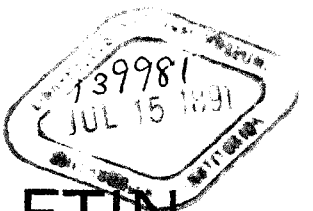
TABLE V.—SALT MOVEMENTS ON THE OHIO,
SHOWING AMOUNT MOVED FROM POMEROY TO PLACES NAMED.

TO—	Tons.	Miles.	Tons moved one mile.
Total	65,550	.....	22,494,900
Cincinnati, Ohio	16,800	218	3,662,400
Louisville, Kentucky	30,000	349	10,470,000
Paducah, Kentucky	3,000	671	2,013,000
Memphis, Tennessee	4,500	956	4,302,000
Steubenville, Ohio (a)	11,250	182	2,047,500

a Also to neighboring towns.

The lesson to be learned from this bulletin is that the water ways of the Ohio river and its tributaries are, under the present conditions of transportation, of great importance, so far as low-class freight is concerned, and the facts here presented will throw some light upon the questions connected with the appropriation of public moneys for the improvement of natural and for the creation of artificial water ways.

[7-010]



CENSUS BULLETIN.

No. 89. WASHINGTON, D. C. July 7, 1891.

Distribution of Population in Accordance with Altitude.

DEPARTMENT OF THE INTERIOR,
CENSUS OFFICE,
WASHINGTON, D. C., June 26, 1891.

Among the publications of the Tenth Census was a bulletin, afterward incorporated in the volume on population, concerning the distribution of the population in altitude above sea level. This distribution was effected by means of a hypsometric map of the country, which was rather crude, owing to the limited knowledge then at hand concerning the topography and altitude of large areas of the country.

During the past ten years, however, the active prosecution of topographic surveys by the United States Geological Survey and the extension of railroads into remote regions have greatly reduced the unexplored regions, and have added correspondingly to the material available for making a contour map of the United States. This material has been compiled in the office of the United States Geological Survey, and among other uses to which it has been put a map has been prepared from it on a scale of 1 : 2,500,000, or about 40 miles to one inch, showing approximate contour lines at 100 feet, 500 feet, 1,000 feet, 1,500 feet, 2,000 feet, and thence by intervals of 1,000 feet to 12,000 feet above sea level. This map has been published by the United States Geological Survey, and has been used in the distribution of population herewith presented.

From this map the counties falling between the different contour lines have been drawn off and tabulated. In cases where a contour divides a county, the portions upon each side have been estimated to tenths of counties, reference being had in each case to the distribution of population within the county. The population in 1870, 1880, and 1890 was then classified in accordance with the tabulated lists of counties and parts of counties. The results are presented in the table in this bulletin, which is explained by its headings, and in the accompanying diagram.

This bulletin has been prepared by Mr. HENRY GANNETT, Geographer of the Census Office.

Robert P. Porter.

Superintendent of Census.

C. O. P.—6m

Distribution of Population in Accordance with Altitude.

BY HENRY GANNETT.

It is seen by the table and diagram accompanying that about one-sixth of the people of the country live less than 100 feet above sea level, namely, along the immediate seaboard and in the swampy and alluvial regions of the south, and that more than three-fourths live below 1,000 feet, while below 5,000 feet are found nearly 99 per cent of the inhabitants. At great altitudes there are found only the most trifling proportion.

In the area below 500 feet is included nearly all that part of the population which is engaged in manufacturing and in the foreign commerce of the country, and most of that engaged in the culture of cotton, rice, and sugar.

The interval between the 500 feet and 1,500 feet contours comprises the greater part of the prairie states and the grain-producing states of the northwest.

East of the 98th meridian the contour of 15,000 feet is practically the upper limit of population, all the country lying above that elevation being mountainous.

The population between 2,000 and 5,000 feet is found mainly on the slope of the great western plains. In this region the belt between 2,000 and 3,000 feet is almost everywhere the debatable ground between the arid region of the Cordilleran plateau and the humid region of the Mississippi valley. Above 3,000 feet irrigation is almost universally necessary for success in agricultural operations.

Between 4,000 and 5,000 feet, and more markedly between 5,000 and 6,000 feet, it will be noticed that the population is decidedly in excess of the grade or grades below it. This is mainly due to the fact that the densest settlement at high altitudes in the Cordilleran region is at the eastern base of the Rocky mountains and in the valleys about Great Salt lake, which regions lie between 4,000 and 6,000 feet. Of these the extensive settlements at the base of the mountains in Colorado are mainly between 5,000 and 6,000 feet.

Above 6,000 feet the population, which is confined, of course, to the Cordilleran region, is almost entirely engaged in the pursuit of mining, and the greater part of it is located in Colorado, New Mexico, Nevada, and California.

While the population is increasing numerically in all altitudes, its relative movement is decidedly toward the region of greater altitudes, and is most marked in the country lying between 1,000 and 6,000 feet above the sea.

The density of population is greatest near sea level in that narrow strip along the seaboard which contains our great seaports. The density diminishes gradually and rather uniformly up to 2,000 feet, where the population becomes quite sparse.

The average elevation of the country, excluding Alaska, is about 2,500 feet. The average elevation at which the inhabitants lived, taking cognizance of their distribution, was 687 feet in 1870; in 1880 it had increased to 739 feet, and in 1890 to 788 feet.

DISTRIBUTION OF POPULATION IN ACCORDANCE WITH ALTITUDE.

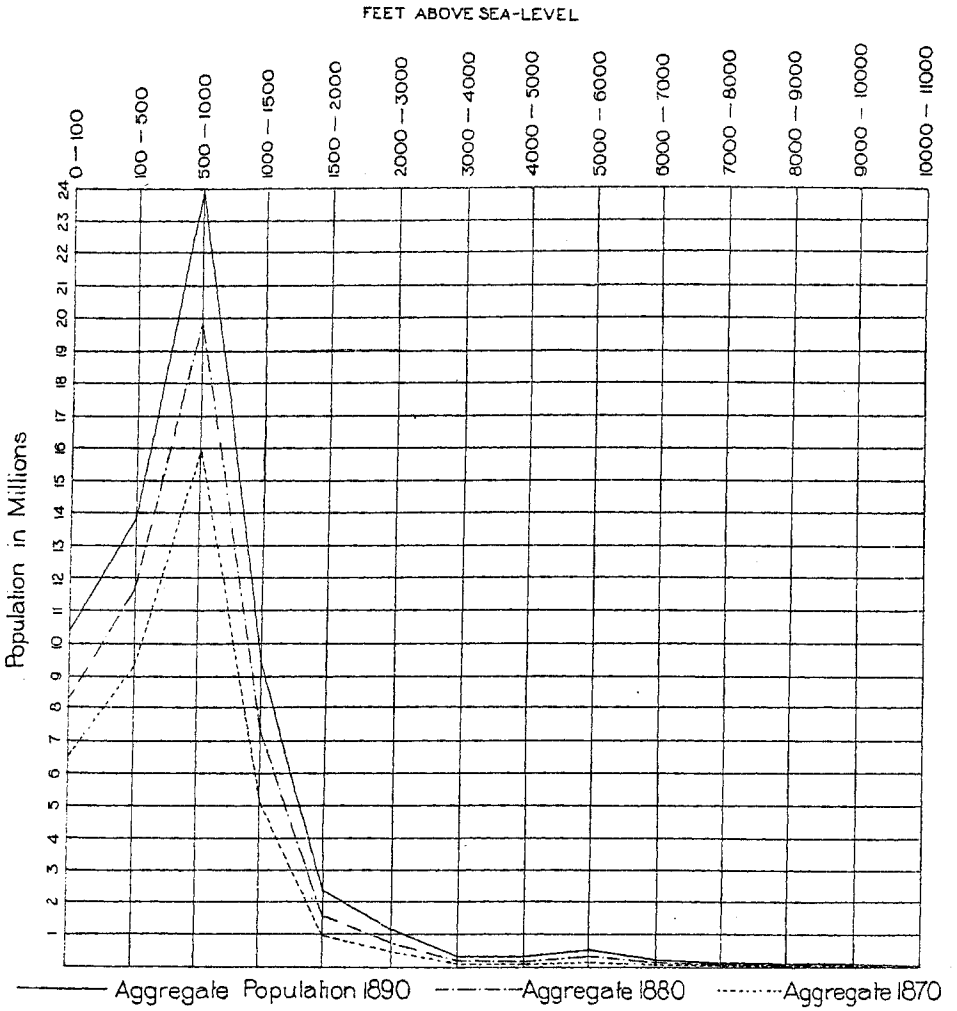
[ABOVE SEA LEVEL.]

ALTITUDE—IN FEET.	POPULATION IN THOUSANDS.			NUMBER IN 100,000 INHABITANTS.			CHANGE IN NUMBER IN 100,000 INHABITANTS.	
	1890.	1880.	1870.	1890.	1880.	1870.	1880–'90.	1870–'80.
0 to 100	10,387	8,273	6,441	16,586	16,496	16,705	+90	—209
100 to 500	13,838	11,654	9,240	22,097	23,236	23,964	—1,139	—728
500 to 1,000	23,947	19,813	15,914	38,240	39,503	41,274	—1,263	—1,771
1,000 to 1,500	9,431	7,256	5,136	15,059	14,468	13,319	+591	+1,149
1,500 to 2,000	2,354	1,597	978	3,758	3,185	2,537	+573	+648
2,000 to 3,000	1,154	723	405	1,843	1,442	1,052	+401	+390
3,000 to 4,000	381	185	124	607	370	322	+237	+48
4,000 to 5,000	296	135	75	473	270	195	+203	+75
5,000 to 6,000	487	270	137	777	540	356	+237	+184
6,000 to 7,000	161	98	56	256	196	144	+60	+52
7,000 to 8,000	94	59	33	158	118	85	+40	+33
8,000 to 9,000	43	39	14	69	69	35	.....	+34
9,000 to 10,000	39	45	3	62	89	8	—27	+81
Above 10,000	10	9	2	15	18	4	—3	+14

ALTITUDE—IN FEET.	NUMBER IN 100,000 BELOW EACH ALTITUDE.			POPULATION PER SQUARE MILE.			INCREASE IN POPULATION PER SQUARE MILE.	
	1890.	1880.	1870.	1890.	1880.	1870.	1880–'90.	1870–'80.
0 to 100	16,586	16,496	16,705	51.8	41.3	32.2	10.5	9.1
100 to 500	38,683	39,732	40,669	35.6	30.0	23.8	5.6	6.2
500 to 1,000	76,923	79,235	81,943	43.9	36.3	29.1	7.6	7.2
1,000 to 1,500	91,982	93,703	95,262	23.8	18.3	13.0	5.5	5.3
1,500 to 2,000	95,740	96,888	97,799	9.8	6.7	4.1	3.1	2.6
2,000 to 3,000	97,583	98,330	98,851	4.4	2.7	1.5	1.7	1.2
3,000 to 4,000	98,190	98,700	99,173	2.1	1.0	0.7	1.1	0.3
4,000 to 5,000	98,663	98,970	99,368	1.1	0.5	0.3	0.6	0.2
5,000 to 6,000	99,440	99,510	99,724	2.2	1.2	0.6	1.0	0.6
6,000 to 7,000	99,696	99,706	99,868	1.0	0.6	0.3	0.4	0.3
7,000 to 8,000	99,854	99,824	99,953	1.0	0.6	0.4	0.4	0.2
8,000 to 9,000	99,923	99,893	99,988	1.1	0.9	0.3	0.2	0.6
9,000 to 10,000	99,985	99,982	99,996	2.0	2.3	0.2	0.3	2.1
Above 10,000	100,000	100,000	100,000	0.5	0.5	0.1	.....	0.4

The figures of distribution in 1870 and 1880, herewith presented, have been obtained by the use of a much more elaborate map than that used in 1880, and therefore differ somewhat from those published in the report of the Tenth Census.

DISTRIBUTION OF POPULATION IN ELEVATION ABOVE SEA-LEVEL



[7-010]

CENSUS BULLETIN.

No. 90. WASHINGTON, D. C. July 8, 1891.

PAUPERS IN ALMSHOUSES IN 1890.

DEPARTMENT OF THE INTERIOR,
CENSUS OFFICE,
WASHINGTON, D. C., June 23, 1891.

The statistics relating to paupers in almshouses in 1890 in the United States, prepared by Rev. FRED. H. WINES, special agent of the Census Office for the collection of statistics relating to pauperism and crime, are given in the present bulletin.

The tables give the number of almshouse paupers by race and nativity and by states and territories, the distribution of male and female paupers, and a comparison of paupers in almshouses in 1890 and 1880 by ratios, with the absolute and relative increase or decrease.

The following items are deduced from the report presented:

Aggregate number of inmates in 1890	73,045
Aggregate number of inmates in 1880	66,203
Increase in the decade	6,842
Number of males, white	37,387
Number of males, colored	3,354
Total number of males	40,741
Number of females, white	29,191
Number of females, colored	3,113
Total number of females	32,304

In the number of colored persons given above are included 16 male and 20 female Indians and 12 male and 1 female Chinese.

Appended to the report is a list of counties having no county almshouses, also a table showing, by states and territories, the number of outdoor paupers in 1890 and 1880, with the increase or decrease.

Robert P. Porter

Superintendent of Census.

PAUPERS IN ALMSHOUSES IN 1890.

BY FREDERICK HOWARD WINES.

The tables herewith submitted show the total number of paupers in almshouses to be 73,045. The number reported in 1880 was 66,203. The population of the United States in 1880 was 50,155,783. The ratio of almshouse paupers to the total population at that time, therefore, was 1 to 758, or 1,320 to the million. The population in 1890 was 62,622,250. The present ratio, therefore, is 1 to 857, or 1,166 to the million. This is, as will be observed, a very marked relative decrease. The almshouse system is not keeping pace with the growth of the population at large. It will be seen, however, by a comparison of the results obtained in 1880 and 1890 in detail, that the decline in the ratio is due to the very much smaller number of paupers cared for in almshouses in the North Atlantic division, where there has been not only a relative but an absolute decrease in the number.

Table I exhibits the distribution of almshouse paupers in 1890 by states and territories, by nativity, and by race.

It will be observed that there are no almshouses reported in Alaska, the Indian territory, Oklahoma, or Wyoming, and that the number of almshouse paupers returned from New Mexico is only 1.

Among the almshouses reported in other states are included not only establishments owned and controlled by the counties and towns in which they are situated, but also paupers permanently supported by contract with private persons, who receive such paupers on their farms or at their places of residence, and whose homes thus become substitutes for almshouses proper, fulfilling the same function and occupying the same relation as if the title to the property were vested in the county or town, and not in an individual. Town almshouses are not usually found outside of New England, where they take the place of county almshouses, except in New Hampshire, which has both the county and the town system. It is not uncommon in the New England states, particularly in Vermont, for several towns to form themselves into an association and establish what is called an "association almshouse." Outside of New England it is not uncommon, particularly in Pennsylvania, for several counties to associate themselves together in like manner and establish what is called a "district almshouse." The names given to almshouses in different states, and sometimes even in the same state, vary. In Arizona, California, Colorado, and Nevada they are termed "hospitals;" in Ohio, "infirmaries;" in Indiana, "asylums;" and in North Carolina the names of most almshouses were changed by a recent act of the legislature to "homes for the aged and infirm." The county system of pauper care prevails through much the larger portion of the territory included within the United States.

In respect to color, this table shows 66,578 white and 6,467 colored. Of the latter 6,418 were negroes, 13 Chinese, and 36 Indians.

Of the negroes, 5,753 are reported to be pure negroes and 665 mulattoes, or persons of mixed blood. Very little importance is to be attached to this distinction.

Of the negro paupers supported in almshouses a little more than two-thirds were found in the South Atlantic and South Central divisions.

The Chinese were distributed as follows: California, 10; Montana, 1; Utah, 1; Pennsylvania, 1.

The Indians were distributed as follows: California, 6; Connecticut, 1; District of Columbia, 1; Illinois, 5; Indiana, 1; Kansas, 2; Massachusetts, 1; Michigan, 4; Montana, 1; New Hampshire, 2; New York, 6; North Carolina, 1; Ohio, 1; Oregon, 1; Texas, 1; Virginia, 1; Wisconsin, 1.

In respect to nativity, not including the colored paupers, who may all be supposed to be natives except the 13 Chinese, of the 66,578 white paupers, 36,656 are native born, 27,648 foreign born, and the place of birth of 2,274 is unknown.

Of the 36,656 native paupers, 21,519 had both parents native, 949 had one parent native and one parent foreign born, 3,580 had both parents foreign born, and in 10,608 cases the birthplace of one or both parents is unknown. Leaving out of view the 10,608 whose parentage is unknown in whole or in part, there remain 26,048 cases in which the proportion of native and foreign blood can be estimated. If to the 21,519 native paupers born of native parents is added one-half of the number with one parent foreign born, the sum is 21,993.5. If to the 3,580 native paupers born of foreign parents is added an equal amount, the sum is 4,054.5. But to this latter figure must also be added 27,648 foreign-born paupers, which gives as a result 31,702.5. In other words, the foreign population of this country contributes, directly or indirectly, in the persons of the foreign born or of their immediate descendants very nearly three-fifths of all the paupers supported in almshouses. The disproportion between the two elements in respect of the burden of pauperism is even greater than that in respect of crime. The foreign-born paupers alone outnumber all of the white native paupers whose parentage is known, whether the same be native or foreign. They also equal in number all of the white native paupers of purely native origin and the colored paupers taken together.

It will also be observed that less than one-fifth of all the paupers supported in almshouses are found in the South Atlantic and South Central divisions.

The numerical order of the states, according to the number of paupers in almshouses reported in each of them, is as follows: New York, 10,272; Pennsylvania, 8,653; Ohio, 7,400; Illinois, 5,395; Massachusetts, 4,725; Indiana, 2,927; New Jersey, 2,718; Wisconsin, 2,641; California, 2,600; Missouri, 2,378; Virginia, 2,193; Michigan, 1,916; Iowa, 1,621; Maryland, 1,599; Kentucky, 1,578; Tennessee, 1,545; North Carolina, 1,493; Connecticut, 1,438; Maine, 1,161; New Hampshire, 1,143; Georgia, 901; West Virginia, 792; Alabama, 623; Kansas, 593; South Carolina, 578; Vermont, 543; Mississippi, 494; Rhode Island, 490; Texas, 464; Minnesota, 365; Delaware, 299; Nebraska, 291; Arkansas, 223; District of Columbia, 221; Montana, 132; Louisiana, 122; Oregon, 99; Colorado, 87; Washington, 71; Utah, 62; South Dakota, 53; Nevada, 43; North Dakota, 35; Florida, 24; Arizona, 23; Idaho, 20; New Mexico, 1.

In respect to sex, 40,741 almshouse paupers are men and 32,304 are women.

Tables II and III show the distribution of each sex separately, by states and territories, and in the aggregate.

It is of interest to compare the results obtained in the present census with those obtained ten years ago. This comparison is given in Table IV.

The summaries, by geographical divisions, the distribution of each sex separately and comparisons for the decade, are given on the following page.

SUMMARY, BY GROUPS, OF ALMSHOUSE PAUPERS IN THE UNITED STATES IN 1890.

GEOGRAPHICAL DIVISIONS.	Aggregate.	WHITE.								COLORED.
		Total.	Native.					Foreign born.	Nativity unknown.	
			Total.	Parents native.	One parent foreign.	Parents foreign.	One or both parents unknown.			
The United States	73,045	66,578	36,656	21,519	949	3,580	10,608	27,648	2,274	*a*6,467
North Atlantic	31,143	30,180	15,251	9,414	483	2,017	3,337	14,330	599	*b*963
South Atlantic	8,100	5,286	4,498	3,703	64	104	627	705	83	*c*2,814
North Central	25,615	24,634	13,062	5,795	304	1,215	5,748	10,265	1,307	*d*981
South Central	5,049	3,406	2,655	1,892	39	38	686	500	251	*e*1,643
Western	3,138	3,072	1,190	715	59	206	210	1,848	34	*f*66

a Includes 36 Indians and 13 Chinese.
b Includes 10 Indians and 1 Chinese.
c Includes 3 Indians.
d Includes 14 Indians.
e Includes 1 Indian.
f Includes 8 Indians and 12 Chinese.

SUMMARY, BY GROUPS, OF DISTRIBUTION OF MALE PAUPERS IN ALMSHOUSES IN 1890.

GEOGRAPHICAL DIVISIONS.	Aggregate.	WHITE.							NEGROES.	
		Native.					Foreign born.	Nativity unknown.	Pure.	Mixed.
		Parents native.	Father native.	Mother native.	Parents foreign.	One or both parents unknown.				
The United States	40,741	11,123	187	351	2,176	5,538	16,938	1,074	3,016	*a*338
North Atlantic	16,893	5,180	88	180	1,199	1,731	7,775	283	401	*b*56
South Atlantic	3,873	1,534	9	30	62	316	445	43	1,331	103
North Central	14,832	3,010	61	105	703	3,033	6,771	600	485	*c*64
South Central	2,381	741	4	9	24	275	351	116	768	*d*93
Western	2,762	658	25	27	188	183	1,596	32	31	*e*22

a Includes 16 Indians and 12 Chinese.
b Includes 5 Indians and 1 Chinese.
c Includes 5 Indians.
d Includes 1 Indian.
e Includes 5 Indians and 11 Chinese.

SUMMARY, BY GROUPS, OF DISTRIBUTION OF FEMALE PAUPERS IN ALMSHOUSES IN 1890.

GEOGRAPHICAL DIVISIONS.	Aggregate.	WHITE.							NEGROES.	
		Native.					Foreign born.	Nativity unknown.	Pure.	Mixed.
		Parents native.	Father native.	Mother native.	Parents foreign.	One or both parents unknown.				
The United States	32,304	10,396	146	265	1,404	5,070	10,710	1,200	2,737	*a*376
North Atlantic	14,250	4,234	81	134	818	1,606	6,555	316	425	*b*81
South Atlantic	4,227	2,169	5	20	42	311	260	40	1,248	*c*132
North Central	10,783	2,785	49	89	512	2,715	3,494	707	361	*d*71
South Central	2,668	1,151	8	18	14	411	149	135	698	84
Western	376	57	3	4	16	27	252	2	5	*e*8

a Includes 20 Indians and 1 Chinese. *b* Includes 5 Indians. *c* Includes 3 Indians. *d* Includes 9 Indians. *e* Includes 3 Indians and 1 Chinese.

SUMMARY, BY GROUPS, OF COMPARISON OF PAUPERS IN ALMSHOUSES IN 1890 AND 1880.

GEOGRAPHICAL DIVISIONS.	1890.			1880.			INCREASE.		DECREASE.	
	Population.	Paupers.	Ratio.	Population.	Paupers.	Ratio.	Absolute.	Relative.	Absolute.	Relative.
The United States	62,622,250	73,045	1,166	50,155,783	66,203	1,320	6,842	.....	.....	154
North Atlantic	17,401,545	31,143	1,790	14,507,407	33,933	2,339	.....	.....	2,790	549
South Atlantic	8,857,920	8,100	914	7,597,197	6,975	918	1,125	.....	.....	4
North Central	22,362,279	25,615	1,145	17,364,111	19,811	1,141	5,804	4	.....	.....
South Central	10,972,893	5,049	460	8,919,371	3,676	412	1,373	48	.....	.....
Western	3,027,613	3,138	1,036	1,767,697	1,808	1,023	1,330	13	.....	.....

TABLE I.—ALMSHOUSE PAUPERS IN THE UNITED STATES IN 1890, BY STATES AND TERRITORIES.

STATES AND TERRITORIES.	Aggregate.	WHITE.								COLORED.
		Total.	Native.					Foreign born.	Nativity unknown.	
			Total.	Parents native.	One parent foreign.	Parents foreign.	One or both parents unknown.			
The United States	73,045	66,578	36,656	21,519	*a*949	3,580	*b*10,608	27,648	2,274	*c*6,467
North Atlantic division	31,143	30,180	15,251	9,414	483	2,017	3,337	14,330	599	*d*963
Maine	1,161	1,156	919	770	29	38	82	221	16	5
New Hampshire	1,143	1,125	858	528	8	68	254	208	59	*e*18
Vermont	543	530	419	308	20	20	71	100	11	13
Massachusetts	4,725	4,646	2,442	1,547	88	410	397	2,141	63	*f*79
Rhode Island	490	461	286	156	6	30	94	164	11	29
Connecticut	1,438	1,379	659	447	10	103	99	660	60	*f*59
New York	10,272	10,047	4,249	2,598	142	631	878	5,595	203	*g*225
New Jersey	2,718	2,578	1,283	660	65	306	252	1,269	26	140
Pennsylvania	8,653	8,258	4,136	2,400	115	411	1,210	3,972	150	*h*395
South Atlantic division	8,100	5,286	4,498	3,703	64	104	627	705	83	*i*2,814
Delaware	299	223	153	119	4	10	20	64	6	76
Maryland	1,599	1,232	790	462	29	63	236	431	11	367
District of Columbia	221	109	60	35	5	7	13	48	1	*f*112
Virginia	2,193	1,139	1,078	1,018	4	8	48	43	18	*f*1,054
West Virginia	792	731	660	512	3	8	137	60	11	61
North Carolina	1,493	935	899	831	2	----	66	6	30	*f*558
South Carolina	578	367	328	312	4	2	10	39	----	211
Georgia	901	533	517	408	8	4	97	10	6	368
Florida	24	17	13	6	5	2	----	4	----	7
North Central division	25,615	24,634	13,062	5,795	304	1,215	5,748	10,265	1,307	*j*981
Ohio	7,400	7,056	4,404	2,299	108	385	1,612	2,394	258	*f*344
Indiana	2,927	2,826	2,043	1,064	34	86	859	635	148	*f*101
Illinois	5,395	5,299	2,112	682	34	165	1,231	2,897	290	*k*96
Michigan	1,916	1,878	959	407	47	90	415	775	144	*l*38
Wisconsin	2,641	2,625	894	262	16	304	312	1,627	104	*f*16
Minnesota	365	361	90	44	8	18	20	268	3	4
Iowa	1,621	1,596	814	316	25	52	421	664	118	25
Missouri	2,378	2,109	1,233	478	15	74	666	696	180	269
North Dakota	35	34	11	4	----	5	2	15	8	1
South Dakota	53	51	24	8	1	9	6	25	2	2
Nebraska	291	287	140	74	8	17	41	140	7	4
Kansas	593	512	338	157	8	10	163	129	45	*e*81
South Central division	5,049	3,406	2,655	1,892	39	38	686	500	251	*f*1,643
Kentucky	1,578	1,254	1,005	794	17	15	179	204	45	324
Tennessee	1,545	1,011	844	590	10	8	236	73	94	534
Alabama	623	322	264	199	----	1	64	49	9	301
Mississippi	494	205	172	117	----	1	54	11	22	289
Louisiana	122	114	24	10	7	6	1	90	----	8
Texas	464	326	225	121	4	7	93	63	38	*f*138
Indian territory	----	----	----	----	----	----	----	----	----	----
Oklahoma	----	----	----	----	----	----	----	----	----	----
Arkansas	223	174	121	61	1	----	59	10	43	49
Western division	3,138	3,072	1,190	715	59	206	210	1,848	34	*m*66
Montana	132	128	53	28	4	15	6	74	1	*n*4
Wyoming	----	----	----	----	----	----	----	----	----	----
Colorado	87	86	36	16	1	8	11	47	3	1
New Mexico	1	1	1	1	----	----	----	----	----	----
Arizona	23	23	8	2	2	2	2	15	----	----
Utah	62	60	16	8	----	5	3	42	2	*h*2
Nevada	43	41	20	9	----	3	8	21	----	2
Idaho	20	20	14	7	1	3	3	6	----	----
Alaska	----	----	----	----	----	----	----	----	----	----
Washington	71	71	23	13	1	5	4	48	----	----
Oregon	99	96	53	27	1	5	20	42	1	*f*3
California	2,600	2,546	966	604	49	160	153	1,553	27	*o*54

a Includes 333 paupers with a native father and foreign-born mother and 616 paupers with a native mother and foreign-born father.
b All white, and all natives of the United States.
c As reported by the enumerators these figures include 5,753 pure negroes, 665 mulattoes, or negroes of mixed blood, 13 Chinese, and 36 Indians.
d Includes 10 Indians and 1 Chinese.
e Includes 2 Indians.
f Includes 1 Indian.
g Includes 6 Indians.
h Includes 1 Chinese.
i Includes 3 Indians.
j Includes 14 Indians.
k Includes 5 Indians.
l Includes 4 Indians.
m Includes 8 Indians and 12 Chinese.
n Includes 1 Indian and 1 Chinese.
o Includes 6 Indians and 10 Chinese.

TABLE II.—DISTRIBUTION OF MALE PAUPERS IN ALMSHOUSES IN THE UNITED STATES IN 1890, BY STATES AND TERRITORIES, IN THE AGGREGATE, AND BY NATIVITY AND RACE.

STATES AND TERRITORIES.	Aggregate.	WHITE.							NEGROES.	
		Native.					Foreign born.	Nativity unknown.	Pure.	Mixed.
		Parents native.	Father native.	Mother native.	Parents foreign.	One or both parents unknown.				
The United States	40,741	11,123	187	351	2,176	5,538	16,938	1,074	3,016	a338
Alabama	276	63	.....	.....	1	17	36	2	143	14
Arizona	23	2	2	.....	2	2	15	.....	.....	.....
Arkansas	100	19	.....	1	.....	23	8	21	26	2
California	2,287	559	19	24	149	133	1,331	26	27	b19
Colorado	76	15	.....	1	4	9	44	3	.....	.....
Connecticut	818	263	4	3	67	66	362	26	25	2
Delaware	155	53	1	1	6	12	38	3	41	.....
District of Columbia	121	22	.....	3	6	9	26	.....	37	18
Florida	16	4	.....	3	2	.....	3	.....	4	.....
Georgia	398	141	1	3	3	30	10	3	193	14
Idaho	19	7	.....	1	3	3	5	.....	.....	.....
Illinois	3,131	371	9	8	96	677	1,810	110	45	c5
Indiana	1,706	552	5	11	57	438	513	60	60	c10
Iowa	984	175	2	12	29	233	456	60	15	2
Kansas	359	93	.....	4	7	94	100	28	30	c3
Kentucky	778	326	.....	4	10	79	154	24	151	30
Louisiana	50	4	2	.....	2	.....	37	.....	5	.....
Maine	611	408	3	14	20	37	116	9	3	1
Maryland	922	277	4	16	34	146	268	7	169	1
Massachusetts	2,343	885	24	22	232	200	919	28	27	c6
Michigan	1,168	209	16	16	57	250	530	68	18	c4
Minnesota	263	31	1	4	8	15	198	3	2	1
Mississippi	235	36	.....	.....	.....	20	8	8	148	15
Missouri	1,312	230	2	5	37	363	438	93	133	11
Montana	118	24	3	.....	13	6	68	.....	2	d2
Nebraska	180	44	.....	4	11	21	93	4	3	.....
Nevada	37	9	.....	.....	3	7	18	.....	.....	.....
New Hampshire	555	244	2	1	36	130	106	27	5	c4
New Jersey	1,385	354	15	18	191	113	616	16	55	7
New Mexico	1	1	.....	.....	.....	.....	.....	.....	.....	.....
New York	5,496	1,457	24	60	366	451	2,933	99	94	e12
North Carolina	653	315	.....	1	.....	24	6	11	272	24
North Dakota	24	4	.....	.....	3	1	8	7	1	.....
Ohio	4,152	1,144	23	36	234	780	1,633	105	170	c27
Oregon	86	24	1	.....	5	16	37	1	2	.....
Pennsylvania	5,148	1,327	13	49	258	650	2,579	70	182	f20
Rhode Island	258	93	3	.....	15	49	86	2	8	2
South Carolina	245	127	.....	1	.....	2	16	.....	96	3
South Dakota	36	7	.....	.....	5	5	17	2	.....	.....
Tennessee	685	220	.....	3	6	92	60	45	236	23
Texas	257	73	2	1	5	44	48	16	59	c9
Utah	47	6	.....	.....	4	3	31	2	.....	g1
Vermont	279	149	.....	13	14	35	58	6	2	2
Virginia	970	368	1	1	6	24	28	14	489	39
Washington	68	11	.....	1	5	4	47	.....	.....	.....
West Virginia	393	227	2	1	5	69	50	5	30	4
Wisconsin	1,517	150	3	5	159	156	975	60	8	1

a Includes 16 Indians and 12 Chinese.
b Includes 4 Indians and 9 Chinese.
c Includes 1 Indian.
d 1 Indian and 1 Chinese.
e Includes 3 Indians.
f Includes 1 Chinese.
g Chinese.

TABLE III.—DISTRIBUTION OF FEMALE PAUPERS IN ALMSHOUSES IN THE UNITED STATES IN 1890, BY STATES AND TERRITORIES, IN THE AGGREGATE, AND BY NATIVITY AND RACE.

STATES AND TERRITORIES.	Aggregate.	WHITE.							NEGROES.	
		Native.					Foreign born.	Nativity unknown.	Pure.	Mixed.
		Parents native.	Father native.	Mother native.	Parents foreign.	One or both parents unknown.				
The United States	32,304	10,396	146	265	1,404	5,070	10,710	1,200	2,737	*a*376
Alabama	347	136	.....	.....	.....	47	13	7	136	8
Arkansas	123	42	.....	.....	.....	36	2	22	16	5
California	313	45	2	4	11	20	222	1	2	*b*6
Colorado	11	1	.....	.....	4	2	3	.....	1	.....
Connecticut	620	184	.....	3	36	33	298	34	26	*c*6
Delaware	144	66	1	1	4	8	26	3	35	.....
District of Columbia	100	13	1	1	1	4	22	1	37	*c*20
Florida	8	2	.....	2	.....	.....	1	.....	3	.....
Georgia	503	267	.....	4	1	67	.....	3	151	10
Idaho	1	.....	.....	.....	.....	.....	1	.....	.....	.....
Illinois	2,264	311	4	13	69	554	1,087	180	40	*d*6
Indiana	1,221	512	4	14	29	421	122	88	26	5
Iowa	637	141	4	7	23	188	208	58	8	.....
Kansas	234	64	2	2	3	69	29	17	44	*c*4
Kentucky	800	468	4	9	5	100	50	21	117	26
Louisiana	72	6	3	2	4	1	53	.....	3	.....
Maine	550	362	2	10	18	45	105	7	1	.....
Maryland	677	185	3	6	29	90	163	4	191	6
Massachusetts	2,382	662	17	25	178	197	1,222	35	38	8
Michigan	748	198	8	7	33	165	245	76	11	*e*5
Minnesota	102	13	3	.....	10	5	70	.....	.....	1
Mississippi	259	81	.....	.....	1	34	3	14	113	13
Missouri	1,066	248	3	5	37	303	258	87	105	20
Montana	14	4	1	.....	2	.....	6	1	.....	.....
Nebraska	111	30	2	2	6	20	47	3	1	.....
Nevada	6	.....	.....	.....	.....	1	3	.....	1	1
New Hampshire	588	284	1	4	32	124	102	32	2	*c*7
New Jersey	1,333	306	19	13	115	139	653	10	66	12
New York	4,776	1,141	25	33	265	427	2,662	104	103	*e*16
North Carolina	840	516	.....	1	.....	42	.....	19	242	*c*20
North Dakota	11	.....	.....	.....	2	1	7	1	.....	.....
Ohio	3,248	1,155	17	32	151	832	761	153	120	27
Oregon	13	3	.....	.....	.....	4	5	.....	.....	*f*1
Pennsylvania	3,505	1,073	14	39	153	560	1,393	80	167	26
Rhode Island	232	63	2	1	15	45	78	9	15	4
South Carolina	333	185	.....	3	2	8	23	.....	104	8
South Dakota	17	1	1	.....	4	1	8	.....	2	.....
Tennessee	860	370	1	6	2	144	13	49	247	28
Texas	207	48	.....	1	2	49	15	22	66	4
Utah	15	2	.....	.....	1	.....	11	.....	1	.....
Vermont	264	159	1	6	6	36	42	5	7	2
Virginia	1,223	650	.....	2	2	24	15	4	466	*c*60
Washington	3	2	.....	.....	.....	.....	1	.....	.....	.....
West Virginia	399	285	.....	.....	3	68	10	6	19	8
Wisconsin	1,124	112	1	7	145	156	652	44	4	*c*3

a Includes 20 Indians and 1 Chinese.
b Includes 2 Indians and 1 Chinese.
c Includes 1 Indian.
d Includes 4 Indians.
e Includes 3 Indians.
f Indian.

TABLE IV.—COMPARISON OF PAUPERS IN ALMSHOUSES IN 1890 AND 1880, BY STATES AND TERRITORIES.

STATES AND TERRITORIES.	1890.			1880.			INCREASE.		DECREASE.	
	Population.	Paupers.	Ratio.	Population.	Paupers.	Ratio.	Absolute.	Relative.	Absolute.	Relative.
The United States	62,622,250	73,045	1,166	50,155,783	66,203	1,320	6,842			154
North Atlantic division	17,401,545	31,143	1,790	14,507,407	33,933	2,339			2,790	549
Maine	661,086	1,161	1,756	648,936	1,505	2,319			344	563
New Hampshire	376,530	1,143	3,036	346,991	1,198	3,453			55	417
Vermont	332,422	543	1,633	332,286	655	1,971			112	338
Massachusetts	2,238,943	4,725	2,110	1,783,085	4,533	2,542	192			432
Rhode Island	345,506	490	1,418	276,531	526	1,902			36	484
Connecticut	746,258	1,438	1,927	622,700	1,418	2,277	20			350
New York	5,997,853	10,272	1,713	5,082,871	12,452	2,450			2,180	737
New Jersey	1,444,933	2,718	1,881	1,131,116	2,462	2,177	256			296
Pennsylvania	5,258,014	8,653	1,646	4,282,891	9,184	2,144			531	498
South Atlantic division	8,857,920	8,100	914	7,597,197	6,975	918	1,125			4
Delaware	168,493	299	1,775	146,608	387	2,640			88	865
Maryland	1,042,390	1,599	1,534	934,943	1,187	1,270	412	264		
District of Columbia	230,392	221	959	177,624	184	1,036	37			77
Virginia	1,655,980	2,193	1,324	1,512,565	2,117	1,400	76			76
West Virginia	762,794	792	1,038	618,457	711	1,150	81			112
North Carolina	1,617,947	1,493	923	1,399,750	1,275	911	218	12		
South Carolina	1,151,149	578	502	995,577	519	521	59			19
Georgia	1,837,353	901	490	1,542,180	550	357	351	153		
Florida	391,422	24	61	269,493	45	167			21	106
North Central division	22,362,279	25,615	1,145	17,364,111	19,811	1,141	5,804	4		
Ohio	3,672,316	7,400	2,015	3,198,062	6,974	2,181	426			166
Indiana	2,192,404	2,927	1,335	1,978,301	3,052	1,543			125	208
Illinois	3,826,351	5,395	1,410	3,077,871	3,684	1,197	1,711	213		
Michigan	2,093,889	1,916	915	1,636,937	1,746	1,067	170			152
Wisconsin	1,686,880	2,641	1,566	1,315,497	1,018	774	1,623	792		
Minnesota	1,301,826	365	280	780,773	227	291	138			11
Iowa	1,911,896	1,621	848	1,624,615	1,165	717	456	131		
Missouri	2,679,184	2,378	888	2,168,380	1,477	681	901	207		
North Dakota	182,719	35	192	36,909			35			
South Dakota	328,808	53	161	98,268			53			
Nebraska	1,058,910	291	275	452,402	113	250	178	25		
Kansas	1,427,096	593	416	996,096	355	356	238	60		
South Central division	10,972,893	5,049	460	8,919,371	3,676	412	1,373	48		
Kentucky	1,858,635	1,578	849	1,648,690	1,366	829	212	20		
Tennessee	1,767,518	1,545	874	1,542,359	1,136	737	409	137		
Alabama	1,513,017	623	412	1,262,505	514	407	109	5		
Mississippi	1,289,600	494	383	1,131,597	345	305	149	78		
Louisiana	1,118,587	122	109	939,946			122			
Texas	2,235,523	464	208	1,591,749	210	132	254	76		
Indian territory										
Oklahoma	61,834									
Arkansas	1,128,179	223	198	802,525	105	131	118	67		
Western division	3,027,613	3,138	1,036	1,767,697	1,808	1,023	1,330	13		
Montana	132,159	132	999	39,159			132			
Wyoming	60,705			20,789						26
Colorado	412,198	87	211	194,327	46	237	41			
New Mexico	153,593	1	7	119,565			1			
Arizona	59,620	23	386	40,440	4	99	19	287		
Utah	207,905	62	298	143,963			62			
Nevada	45,761	43	940	62,266	95	1,526			52	586
Idaho	84,385	20	237	32,610	7	215	13	22		
Alaska										
Washington	349,390	71	203	75,116	11	146	60	57		
Oregon	313,767	99	316	174,768	51	292	48	24		
California	1,208,130	2,600	2,152	864,694	1,594	1,843	1,006	309		

COUNTIES WHICH HAVE NO COUNTY ALMSHOUSES.

The following counties in the states named have no county almshouses:

ALABAMA.—Baldwin, Chambers, Chilton, Clay, Coffee, Covington, Crenshaw, Dallas, Etowah, Fayette, Franklin, Geneva, Macon, Monroe, Randolph, Russell, Wilcox, Winston.

ARIZONA.—Apache, Gila, Mohave, Pima, Yuma.

ARKANSAS.—Ashley, Baxter, Boone, Bradley, Calhoun, Carroll, Chicot, Clay, Cleburne, Cleveland, Columbia, Crawford, Crittenden, Cross, Desha, Drew, Faulkner, Franklin, Fulton, Garland, Grant, Greene, Hot Spring, Howard, Johnson, Lafayette, Lee, Lincoln, Little River, Logan, Marion, Monroe, Montgomery, Newton, Perry, Pike, Poinsett, Polk, Randolph, Saline, Scott, Searcy, Sebastian, Stone, Van Buren.

CALIFORNIA.—Alpine, Del Norte, Modoc, Orange, San Benito.

COLORADO.—Archuleta, Baca, Cheyenne, Conejos, Costilla, Custer, Delta, Dolores, Douglas, Eagle, Elbert, Grand, Hinsdale, Huerfano, Jefferson, Kiowa, Kit Carson, Lake, Las Animas, Lincoln, Logan, Montezuma, Montrose, Morgan, Otero, Ouray, Phillips, Pitkin, Prowers, Pueblo, Rio Blanco, Rio Grande, Routt, Saguache, San Juan, San Miguel, Sedgwick, Summit, Washington, Yuma.

FLORIDA.—Alachua, Baker, Bradford, Brevard, Calhoun, Citrus, Clay, Columbia, Dade, De Soto, Duval, Franklin, Gadsden, Hamilton, Hernando, Hillsboro, Holmes, Jackson, Jefferson, Lafayette, Lake, Lee, Leon, Levy, Liberty, Madison, Manatee, Marion, Nassau, Orange, Osceola, Pasco, Polk, Putnam, Saint John, Santa Rosa, Sumter, Suwannee, Taylor, Wakulla, Walton, Washington.

GEORGIA.—Baker, Berrien, Brooks, Bryan, Bulloch, Burke, Calhoun, Camden, Catoosa, Charlton, Chattahoochee, Chattooga, Clay, Coffee, Colquitt, Columbia, Crawford, Dade, Dodge, Echols, Effingham, Fannin, Gilmer, Glynn, Greene, Habersham, Harris, Irwin, Jones, Liberty, Lincoln, McDuffie, McIntosh, Macon, Madison, Marion, Meriwether, Miller, Monroe, Montgomery, Oconee, Pickens, Pierce, Pulaski, Rabun, Schley, Screven, Stewart, Talbot, Taliaferro, Tattnall, Taylor, Telfair, Towns, Upson, Walker, Ware, Warren, Wayne, Webster, White, Wilcox, Wilkes, Worth.

IDAHO.—Bear Lake, Bingham, Cassia, Custer, Elmore, Idaho, Kootenai, Latah, Lemhi, Nez Perces, Oneida, Owhyee, Shoshone, Washington.

ILLINOIS.—Alexander, Ford, Kankakee, Kendall, Pope.

IOWA.—Clay, Dickinson, Emmet, Hancock, Ida, Monona, O'Brien, Palo Alto, Pocahontas, Pottawattamie, Sac, Winnebago, Worth, Wright.

KANSAS.—Barber, Chase, Cheyenne, Clark, Comanche, Decatur, Edwards, Ellis, Garfield, Gove, Grant, Gray, Greeley, Hamilton, Harper, Haskell, Kearny, Kingman, Kiowa, Lane, Lincoln, Logan, Morton, Ness, Rawlins, Reno, Riley, Rooks, Russell, Scott, Seward, Sheridan, Stanton, Stevens, Trego, Wallace, Wichita.

KENTUCKY.—Breathitt, Bullitt, Caldwell, Elliott, Harlan, Jackson, Leslie, Letcher, Marshall, Martin, Menifee, Owsley, Perry, Pike, Powell, Rowan, Whitley.

LOUISIANA.—Acadia, Ascension, Assumption, Avoyelles, Bienville, Bossier, Caddo, Caldwell, Cameron, Catahoula, Concordia, De Soto, East Baton Rouge, East Carroll, East Feliciana, Franklin, Grant, Iberia, Iberville, Jackson, Jefferson, Lafayette, Lafourche, Lincoln, Livingston, Madison, Morehouse, Natchitoches, Orleans, Ouachita, Plaquemines, Point Coupee, Rapides, Red River, Richland, Sabine, Saint Bernard, Saint Charles, Saint Helena, Saint James, Saint John the Baptist, Saint Landry, Saint Martin, Saint Mary, Saint Tammany, Tangipahoa, Tensas, Terre Bonne, Vermilion, Vernon, Washington, Webster, West Baton Rouge, West Carroll, West Feliciana, Winn.

MARYLAND.—Calvert, Garrett, Howard.

MICHIGAN.—Alger, Arenac, Baraga, Benzie, Charlevoix, Iron, Isle Royal, Leelanaw, Manitou, Montmorency, Oscoda, Presque Isle, Roscommon.

MINNESOTA.—Aitkin, Beltrami, Benton, Big Stone, Brown, Carlton, Carver, Cass, Clay, Cook, Douglas, Grant, Hubbard, Isanti, Itasca, Jackson, Kanabec, Kandiyohi, Kittson, Lake, Le Sueur, Lincoln, McLeod, Marshall, Martin, Meeker, Mille Lacs, Morrison, Murray, Nobles, Norman, Pine, Pipe Stone, Polk, Pope, Renville, Rock, Scott, Sherburne, Sibley, Stearns, Stevens, Swift, Todd, Traverse, Wadena, Waseca, Watonwan, Wilkin, Wright.

MISSISSIPPI.—Amite, Franklin, Greene, Jones, Kemper, Lawrence, Marion, Pearl River, Perry, Quitman, Sharkey, Sunflower, Wayne.

MISSOURI.—Barton, Benton, Carter, Crawford, Dallas, Dent, Gasconade, Hickory, McDonald, Madison, Oregon, Ozark, Ripley, Saint Louis, Shannon, Stone, Taney, Texas.

MONTANA.—Choteau, Dawson, Madison, Yellowstone.

NEBRASKA.—Antelope, Arthur, Banner, Blaine, Boone, Box Butte, Brown, Cedar, Chase, Cherry, Colfax, Dawes, Deuel, Dixon, Dundy, Frontier, Garfield, Gosper, Grant, Greeley, Harlan, Hayes, Hitchcock, Holt, Hooker, Kearney, Keith, Keya Paha, Kimball, Knox, Logan, Loup, McPherson, Madison, Nance, Perkins, Phelps, Pierce, Platte, Red Willow, Rock, Scotts Bluff, Sheridan, Sherman, Sioux, Stanton, Thomas, Thurston, Valley, Wayne, Webster, Wheeler, York.

NEVADA.—Churchill, Douglas, Esmeralda, Lincoln, Nye, Storey.

NEW JERSEY.—Essex, Hunterdon, Mercer, Middlesex, Monmouth, Ocean, Somerset, Union.

NEW MEXICO.—Bernalillo, Chaves, Colfax, Dona Ana, Eddy, Grant, Lincoln, Rio Arriba, San Juan, San Miguel, Santa Fe, Sierra, Socorro, Taos, Valencia.

NEW YORK.—Hamilton, Schuyler.

NORTH CAROLINA.—Carteret, Clay, Graham, Lenoir, Macon, Swain, Yancey.

NORTH DAKOTA.—Alred, Benson, Billings, Bottineau, Bowman, Buford, Cavalier, Church, Dickey, Dunn, Eddy, Emmons, Flannery, Foster, Garfield, Griggs, Hettinger, Kidder, La Moure, Logan, McHenry, McIntosh, McKenzie, McLean, Mercer, Mountraille, Nelson, Oliver, Pembina, Pierce, Ramsey, Ransom, Renville, Rolette, Sargent, Sheridan, Stark, Steele, Stevens, Stutsman, Towner, Wallace, Ward, Wells, Williams.

OHIO.—Cuyahoga.

OREGON.—Benton, Clackamas, Clatsop, Columbia, Crook, Curry, Gilliam, Grant, Harney, Josephine, Klamath, Lake, Lane, Malheur, Morrow, Polk, Sherman, Tillamook, Wallowa, Yamhill.

PENNSYLVANIA.—Armstrong, Butler, Cameron, Carbon, Centre, Clarion, Clearfield, Columbia, Elk, Forest, Fulton, Indiana, Jefferson, Juniata, Lackawanna, Lawrence, Lycoming, Monroe, Montour, Northumberland, Pike, Potter, Snyder, Sullivan, Susquehanna, Union, Wayne, Wyoming.

SOUTH CAROLINA.—Berkeley, Colleton, Florence, Horry, Williamsburg.

SOUTH DAKOTA.—Boreman, Brookings, Brown, Buffalo, Butte, Campbell, Charles Mix, Choteau, Clark, Clay, Custer, Davison, Day, Delano, Deuel, Dewey, Douglas, Edmunds, Ewing, Fall River, Faulk, Gregory, Hamlin, Hand, Hanson, Harding, Hutchinson, Hyde, Jackson, Jerauld, Kingsbury, Lake, Lincoln, Lugenbeel, Lyman, McCook, McPherson, Marshall, Martin, Meade, Meyer, Miner, Moody, Nowlin, Pennington, Potter, Pratt, Presho, Pyatt, Rinehart, Roberts, Sanborn, Schnasse, Scobey, Shannon, Spink, Stanley, Sterling, Sully, Todd, Tripp, Turner, Wagner, Walworth, Washabaugh, Washington, Ziebach.

TENNESSEE.—Anderson, Bledsoe, Campbell, Cumberland, Grundy, Hancock, Houston, Johnson, Lake, Lewis, Moore, Sequatchie, Unicoi, Union, Van Buren.

TEXAS.—Andrews, Angelina, Aransas, Archer, Armstrong, Atascosa, Austin, Bailey, Bandera, Bastrop, Baylor, Bee, Blanco, Borden, Bosque, Bowie, Brazoria, Brewster, Briscoe, Brown, Buchel, Calhoun, Callahan, Cameron, Camp, Carson, Cass, Castro, Chambers, Cherokee, Childress, Clay, Cochran, Coke, Coleman, Collingsworth, Comal, Comanche, Concho, Cottle, Crane, Crockett, Crosby, Dallam, Dawson, Deaf Smith, Delta, De Witt, Dickens, Dimmit, Duval, Eastland, Ector, Edwards, Encinal, Fisher, Floyd, Foley, Fort-Bend, Franklin, Frio, Gaines, Garza, Gillespie, Glasscock, Gray, Gregg, Guadalupe, Hale, Hall, Hamilton, Hansford, Hardeman, Hardin, Harrison, Hartley, Haskell, Hemphill, Henderson, Hidalgo, Hockley, Houston, Howard, Hutchinson, Irion, Jasper, Jeff Davis, Jefferson, Jones, Karnes, Kendall, Kent, Kerr, Kimble, King, Kinney, Knox, Lamb, Lampasas, La Salle, Lavaca, Lee, Leon, Liberty, Lipscomb, Live Oak, Llano, Loving, Lubbock, Lynn, McCulloch, McMullen, Madison, Marion, Martin, Mason, Matagorda, Maverick, Medina, Menard, Midland, Mills, Montgomery, Moore, Morris, Motley, Nacogdoches, Newton, Nolan, Nueces, Ochiltree, Oldham, Orange, Palo Pinto, Panola, Parmer, Pecos, Polk, Potter, Presidio, Rains, Randall, Reeves, Refugio, Roberts, Rockwall, Runnels, Sabine, San Augustine, San Jacinto, San Patricio, San Saba, Schleicher, Scurry, Sherman, Somervell, Starr, Stephens, Stonewall, Sutton, Swisher, Taylor, Terry, Throckmorton, Titus, Tom Green, Trinity, Tyler, Upshur, Upton, Uvalde, Val Verde, Walker, Ward, Webb, Wharton, Wheeler, Wichita, Wilbarger, Winkler, Yoakum, Zapata, Zavalla.

UTAH.—Beaver, Box Elder, Cache, Davis, Emery, Garfield, Iron, Juab, Kane, Millard, Morgan, Piute, Rich, San Juan, Sanpete, Sevier, Summit, Tooele, Uinta, Utah, Wasatch, Washington.

VIRGINIA.—Dickenson, James City.

WASHINGTON.—Adams, Asotin, Chehalis, Clallam, Clarke, Columbia, Cowlitz, Douglas, Franklin, Garfield, Island, Kitsap, Klickitat, Lewis, Lincoln, Mason, Okanogan, Pacific, San Juan, Skagit, Skamania, Stevens, Thurston, Wahkiakum, Walla Walla, Whatcom, Whitman, Yakima.

WEST VIRGINIA.—Clay, Grant, Logan, McDowell, Morgan, Nicholas, Roane, Summers, Tucker, Webster.

WISCONSIN.—Bayfield, Buffalo, Burnett, Calumet, Door, Florence, Forest, Green Lake, Kenosha, La Crosse, Langlade, Manitowoc, Marathon, Marinette, Marquette, Oconto, Oneida, Outagamie, Ozaukee, Pepin, Polk, Portage, Shawano, Sheboygan, Trempealeau, Washburn, Waushara.

WYOMING.—Albany, Carbon, Converse, Crook, Fremont, Johnson, Laramie, Natrona, Sheridan, Sweetwater, Uinta, Weston.

The following towns in the states named, having the township system for the care of the paupers, have no town almshouses:

CONNECTICUT.—Andover, Avon, Beacon Falls, Bethany, Bethel, Bethlehem, Bolton, Bozrah, Bridgewater, Canaan, Chaplin, Chester, Clinton, Colebrook, Columbia, Cromwell, Darien, Derby, Durham, Eastford, East Haven, East Lyme, Easton, Ellington, Fairfield, Franklin, Goshen, Granby, Hampton, Hartland, Harwinton, Kent, Killingsworth, Lebanon, Ledyard, Madison, Marlboro, Middlebury, Middlefield, Milford, Monroe, Morris, New Fairfield, Newington, North Branford, North Canaan, North Haven, North Lyme, North Stonington, Old Saybrook, Orange, Plainville, Pomfret, Prospect, Rocky Hill, Roxbury, Salem, Saybrook, Scotland, Seymour, Sherman, Sprague, Sterling, Stratford, Thomaston, Tolland, Trumbull, Union, Voluntown, Wallingford, Warren, Washington, Watertown, Westbrook, West Hartford, Windsor Locks, Wolcott, Woodbridge.

MAINE.—Abbot, Addison, Albany, Alexander, Alfred, Alna, Alton, Amherst, Andover, Anson, Argyle, Arrowsic, Athens, Aurora, Avon, Baileyville, Baring, Barnard, Beddington, Belmont, Benton, Blanchard, Bluehill, Boothbay, Boothbay Harbor, Bowdoin, Bowdoinham, Bradley, Bremen, Brighton, Brooklin, Brooks, Brooksville, Brookton, Byron, Cambridge, Carthage, Casco, Castine, Centerville, Charlotte, Chelsea, Chester, Chesterville, Clifton, Columbia, Columbia Falls, Concord, Cooper, Corinth, Cornville, Cranberry Isles, Crawford, Cushing, Cutler, Damariscotta, Danforth, Dayton, Deblois, Dedham, Deer Isle, Dennysville, Dresden, Durham, Eastbrook, Eddington, Eden, Edgecomb, Edinburg, Elliottsville Plantation, Edmunds, Embden, Enfield, Etna, Eustis, Farmingdale, Farmington, Fayette, Flagstaff Plantation, Forest City, Franklin, Freedom, Freeman, Friendship, Gilead, Grafton, Greenbush, Greenfield, Greenville, Guilford Hancock,

Hanover, Harpswell, Harrington, Hebron, Hermon, Holden, Hope, Howland, Hudson, Hurricane Isle, Industry, Isle au Haut, Jackson, Jay, Jefferson, Jonesboro, Jonesport, Kenduskeag, Kineo, Kingfield, Kingman, Knox, Kossuth, La Grange, Lamoine, Lee, Liberty, Lincolnville, Lyman, Long Island Plantation, Madison, Madrid, Manchester, Mariaville, Marion, Marshfield, Mason, Matamiscontis, Mattawamkeag, Maxfield, Mayfield, Meddybemps, Medford, Medway, Mercer, Mexico, Milford, Millbridge, Monhegan Plantation, Monson, Morrill, Moscow, Mount Chase, Mount Desert, Mount Vernon, Newburg, New Castle, New Portland, Newry, New Sharon, New Vineyard, Nobleboro, Norridgewock, North Berwick, Northfield, North Haven, Northport, North Yarmouth, Old Orchard, Orrington, Otis, Palermo, Parkman, Passadumkeag, Pembroke, Penobscot, Perkins, Perry, Phillips, Pownal, Prentiss, Princeton, Prospect, Randolph, Rangeley, Raymond, Ripley, Robbinston, Rome, Roxbury, Salem, Sangerville, Searsmont, Sedgwick, Shirley, Smithfield, Solon, Somerville, Southport, South Thomaston, Springfield, Staceyville Plantation, Stoneham, Stow, Strong, Sullivan, Sumner, Surry, Swanville, Sweden, Talmage, Temple, The Forks Plantation, Thorndike, Topsfield, Trenton, Trescott, Union, Upton, Vanceboro, Veazie, Verona, Vienna, Vinal Haven, Waite, Waldo, Waldoboro, Wales, Waltham, Warren, Washington, Webster, Wellington, Wesley, West Bath, West Forks Plantation, West Gardiner, Westport, Whitefield, Whiting, Whitneyville, Williamsburg, Willimantic, Wilton, Windsor, Woolwich.

MASSACHUSETTS.—Abington, Alford, Auburn, Avon, Becket, Belmont, Berlin, Bernardston, Blandford, Bradford, Charlemont, Chelsea, Cheshire, Chester, Chesterfield, Chilmark, Clarksburg, Cottage City, Cummington, Dalton, Danvers, Dover, Dunstable, Eastham, East Hampton, Egremont, Enfield, Erving, Everett, Florida, Gay Head, Gill, Goshen, Gosnold, Granby, Granville, Great Barrington, Halifax, Hamilton, Hampden, Hancock, Hatfield, Hinsdale, Holbrook, Holland, Holyoke, Hopedale, Hubbardston, Hull, Huntington, Hyde Park, Lakeville, Lanesboro, Lenox, Leverett, Leyden, Lincoln, Long Meadow, Ludlow, Lynnfield, Marion, Mashpee, Maynard, Melrose, Mendon, Merrimac, Middlefield, Middleton, Millis, Monroe, Monterey, Montgomery, Mount Washington, Nahant, New Ashford, New Braintree, Newbury, Norfolk, Northfield, Norwood, Oakham, Orleans, Otis, Paxton, Pelham, Peru, Phillipston, Plainfield, Plympton, Prescott, Princeton, Raynham, Revere, Richmond, Rowe, Rowley, Roxbury, Royalston, Russell, Salisbury, Sandisfield, Savoy, Scituate, Shelburne, Shirley, Somerville, Southampton, Southboro, Southwick, Stockbridge, Sunderland, Swampscott, Tinsbury, Tolland, Tyringham, Wales, Washington, Wellfleet, Wenham, Westhampton, West Springfield, West Stockbridge, Whately, Whitman, Wilbraham, Williamsburg, Winchester, Windsor, Winthrop, Worthington.

RHODE ISLAND.—Barrington, Charlestown, East Providence, Howard, Jamestown, New Shoreham, North Providence, North Smithfield, Richmond, Smithfield, West Greenwich, district of Narragansett.

VERMONT.—Addison, Andover, Athens, Barnet, Barre, Belvidere, Benson, Bethel, Bloomfield, Bolton, Braintree, Bridgeport, Brighton, Bristol, Brookfield, Brookline, Brownington, Brunswick, Burke, Cambridge, Canaan, Charleston, Chittenden, Clarendon, Cornwall, Coventry, Dover, Dummerston, Duxbury, East Haven, East Montpelier, Eden, Elmore, Fair Haven, Fairlee, Fayston, Ferrisburg, Georgia, Glastonbury, Glover, Goshen, Grafton, Granby, Grand Isle, Granville, Greensboro, Groton, Guildhall, Guilford, Halifax, Hancock, Holland, Hubbardton, Huntington, Hyde Park, Ira, Isle La Motte, Jamaica, Jay, Kirby, Landgrove, Leicester, Lemington, Lincoln, Londonderry, Lowell, Lunenburg, Maidstone, Manchester, Marlboro, Marshfield, Mendon, Middletown Springs, Middlesex, Monkton, Moretown, Morgan, Mount Holly, Mount Tabor, Newark, Newfane, New Haven, North Hero, Norton, Orange, Panton, Peru, Pittsfield, Plymouth, Plainfield, Pownal, Proctor, Randolph, Reading, Readsboro, Richmond, Ripton, Rochester, Roxbury, Rupert, Ryegate, Saint George, Salisbury, Sandgate, Searsburg, Sherburne, Shoreham, Somerset, South Hero, Stanford, Stannard, Starksboro, Strafford, Stratton, Sudbury, Sutton, Tinmouth, Topsham, Townsend, Troy, Vernon, Vershire, Victory, Waitsfield, Walden, Waltham, Wardsboro, Warren, Waterford, Waterville, Wells, West Fairlee, Westfield, Westford, West Haven, Westminster, Westmore, Weston, Weybridge, Wheelock, Whiting, Whitingham, Williamstown, Windham, Winhall, Woodbury, Woodford, Worcester.

The towns of Highgate, Franklin, Fairfield, Swanton, Saint Albans, Sheldon, Berkshire, and Enosburg keep their poor in the association almshouse at Sheldon Springs.

The towns of Fletcher, Montgomery, and Richford keep their poor in the association almshouse at Bakersfield.

The towns of Essex, Jericho, Williston, Hinesburg, and Shelburne keep their poor in the association almshouse at Williston.

The towns of Johnson, Stowe, and Morristown keep their poor in the association almshouse at Morristown.

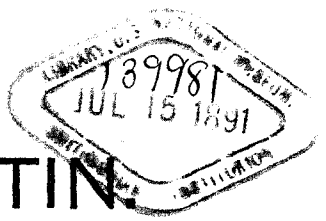
OUTDOOR PAUPERS.

It is impossible to obtain through the machinery of the Census Office any approximation to a complete enumeration of the outdoor poor, meaning by that phrase the poor who are permanently supported at public expense at their own homes or with private families.

The number of outdoor poor returned in 1880 was 21,595; in 1890 it was 24,220. The following table shows the results obtained at each census, by states and territories:

STATES AND TERRITORIES.	1890.	1880.	Increase.	Decrease.	STATES AND TERRITORIES.	1890.	1880.	Increase.	Decrease.
The United States	24,220	21,595	2,625		Michigan	585	554	31	
					Minnesota	792	269	523	
					Mississippi	201	202		1
Alabama	306	279	27		Missouri	302	321		19
Alaska					Montana	24		24	
Arizona	6		6						
Arkansas	271	85	186		Nebraska	195	53	142	
California	133	77	56		Nevada	10	1	9	
					New Hampshire	637	839		202
Colorado	35	1	34		New Jersey	324	518		194
Connecticut	528	381	147		New Mexico	17	37		20
Dakota (North and South)	209	24	185						
Delaware	13	3	10		New York	2,032	2,817		785
District of Columbia					North Carolina	802	668	134	
					Ohio	553	489	64	
Florida	195	62	133		Oregon	82	31	51	
Georgia	762	728	34		Pennsylvania	2,001	2,502		501
Idaho	14	10	4						
Illinois	1,299	591	708		Rhode Island	32	27	5	
Indiana	1,292	913	379		South Carolina	221	187	34	
					Tennessee	454	308	146	
Indian territory					Texas	432	322	110	
Iowa	994	968	26		Utah	9	33		24
Kansas	539	220	319						
Kentucky	832	693	139		Vermont	753	908		155
					Virginia	1,204	1,015	189	
Louisiana	186	141	45		Washington	28	6	22	
Maine	1,143	1,706		563	West Virginia	515	486	29	
Maryland	183	147	36		Wisconsin	469	1,010	459	
Massachusetts	1,591	954	637		Wyoming	1, 15	9	6	

[7-010]



CENSUS BULLETIN.

No. 91. WASHINGTON, D. C. July 9, 1891.

POPULATION OF WISCONSIN

BY MINOR CIVIL DIVISIONS.

DEPARTMENT OF THE INTERIOR,
CENSUS OFFICE,
WASHINGTON, D. C., July 2, 1891.

The tables following show the population of the state of Wisconsin in detail according to the census of 1890 by counties, towns, cities and wards of cities, and villages. The figures according to the census of 1880 are also presented for purposes of comparison.

The total population of the state according to the present census is 1,686,880, an increase of 371,383, or 28.23 per cent, over the population returned in 1880. The returns at that time showed a population of 1,315,497.

During the decade five new counties have been formed: Florence in 1882 from Marinette and Oconto; Forest in 1885 from Langlade, Lincoln, and Oconto; Oneida in 1885 from Lincoln; Sawyer in 1883 from Ashland and Chippewa, and Washburn in 1883 from Burnett. The population of the counties from parts of which new ones have been formed is given as returned in 1880.

Of the sixty-eight counties in the state seven only show decreases, the largest being in Fond du Lac county, where a decrease of 2,771, or 5.91 per cent, is found. The other counties showing a decrease are Dodge, Grant, Iowa, Lafayette, Ozaukee, and Washington. The counties showing the largest numerical increases are Milwaukee, Ashland, Marathon, Douglas, La Crosse, Marinette, and Eau Claire.

The following summary shows the population of each county according to the census of 1880 and 1890, with the increase or decrease during the decade:

SUMMARY BY COUNTIES.

COUNTIES.	POPULATION.		INCREASE.		COUNTIES.	POPULATION.		INCREASE.	
	1890.	1880.	Number.	Per cent.		1890.	1880.	Number.	Per cent.
The State	1,686,880	1,315,497	371,383	28.23	Dodge	44,984	45,931	a947	a2.06
					Door	15,682	11,645	4,037	34.67
Adams	6,889	6,741	148	2.20	Douglas	13,468	655	12,813	1,956.18
Ashland	20,063	1,559	18,504	1,186.91	Dunn	22,664	16,817	5,847	34.77
Barron	15,416	7,024	8,392	119.48	Eau Claire	30,673	19,993	10,680	53.42
Bayfield	7,390	564	6,826	1,210.28	Florence	2,604	.....	2,604	.....
Brown	39,164	34,078	5,086	14.92	Fond du Lac	44,088	46,859	a2,771	a5.91
Buffalo	15,997	15,528	469	3.02	Forest	1,012	.....	1,012	.....
Burnett	4,393	3,140	1,253	39.90	Grant	36,651	37,852	a1,201	a3.17
Calumet	16,639	16,632	7	0.04	Green	22,732	21,729	1,003	4.62
Chippewa	25,143	15,491	9,652	62.31	Green Lake	15,163	14,483	680	4.70
Clark	17,708	10,715	6,993	65.26	Iowa	22,117	23,628	a1,511	a6.39
Columbia	28,350	28,065	285	1.02	Jackson	15,797	13,285	2,512	18.91
Crawford	15,987	15,644	343	2.19	Jefferson	33,530	32,156	1,374	4.27
Dane	59,578	53,233	6,345	11.92	Juneau	17,121	15,582	1,539	9.88

a Decrease.

C. O. P.—15m

SUMMARY BY COUNTIES—CONTINUED.

COUNTIES.	POPULATION.		INCREASE.		COUNTIES.	POPULATION.		INCREASE.	
	1890.	1880.	Number.	Per cent.		1890.	1880.	Number.	Per cent.
Kenosha	15,581	13,550	2,031	14.99	Price	5,258	785	4,473	569.81
Kewaunee	16,153	15,807	346	2.19	Racine	36,268	30,922	5,346	17.29
La Crosse	38,801	27,073	11,728	43.32	Richland	19,121	18,174	947	5.21
Lafayette	20,265	21,279	a1,014	a4.77	Rock	43,220	38,823	4,397	11.33
Langlade	9,465	685	8,780	1,281.75	Saint Croix	23,139	18,956	4,183	22.07
Lincoln	12,008	2,011	9,997	497.12	Sauk	30,575	28,729	1,846	6.43
Manitowoc	37,831	37,505	326	0.87	Sawyer	1,977		1,977	
Marathon	30,369	17,121	13,248	77.38	Shawano	19,236	10,371	8,865	85.48
Marinette	20,304	8,929	11,375	127.39	Sheboygan	42,489	34,206	8,283	24.22
Marquette	9,676	8,908	768	8.62	Taylor	6,731	2,311	4,420	191.26
Milwaukee	236,101	138,537	97,564	70.42	Trempealeau	18,920	17,189	1,731	10.07
Monroe	23,211	21,607	1,604	7.42	Vernon	25,111	23,235	1,876	8.07
Oconto	15,009	9,848	5,161	52.41	Walworth	27,860	26,249	1,611	6.14
Oneida	5,010		5,010		Washburn	2,926		2,926	
Outagamie	38,690	28,716	9,974	34.73	Washington	22,751	23,442	a691	a2.95
Ozaukee	14,943	15,461	a518	a3.35	Waukesha	33,270	28,957	4,313	14.89
Pepin	6,932	6,226	706	11.34	Waupaca	26,794	20,955	5,839	27.86
Pierce	20,385	17,744	2,641	14.88	Waushara	13,507	12,687	820	6.46
Polk	12,968	10,018	2,950	29.45	Winnebago	50,097	42,740	7,357	17.21
Portage	24,798	17,731	7,067	39.86	Wood	18,127	8,981	9,146	101.84

a Decrease.

The population of thirty-five cities and villages, in the order of their rank, is as follows:

CITIES AND VILLAGES.	COUNTIES.	POPULATION.		INCREASE.		CITIES AND VILLAGES.	COUNTIES.	POPULATION.		INCREASE.	
		1890.	1880.	Number.	Per cent.			1890.	1880.	Number.	Per cent.
Milwaukee city	Milwaukee	204,468	115,587	88,881	76.90	Manitowoc city	Manitowoc	7,710	6,367	1,343	21.09
La Crosse city	La Crosse	25,090	14,505	10,585	72.97	Merrill city	Lincoln	6,809		6,809	
Oshkosh city	Winnebago	22,836	15,748	7,088	45.01	Kenosha city	Kenosha	6,532	5,039	1,493	29.63
Racine city	Racine	21,014	16,031	4,983	31.08	Waukesha village	Waukesha	6,321	2,969	3,352	112.90
Eau Claire city	Eau Claire	17,415	10,119	7,296	72.10	Beloit city	Rock	6,315	4,790	1,525	31.84
Sheboygan city	Sheboygan	16,359	7,314	9,045	123.67	Menomonie city	Dunn	5,491	2,589	2,902	112.09
Madison city	Dane	13,426	10,324	3,102	30.05	Oconto city	Oconto	5,219	4,171	1,048	25.13
Fond du Lac city	Fond du Lac	12,024	13,094	a1,070	a8.17	Portage city	Columbia	5,143	4,346	797	18.34
Superior city	Douglas	11,983		11,983		Neenah city	Winnebago	5,083	4,202	881	20.97
Appleton city	Outagamie	11,869	8,005	3,864	48.27	Fort Howard city	Brown	4,754	3,083	1,671	54.20
Marinette city	Marinette	11,523	2,750	8,773	319.02	Kaukauna city	Outagamie	4,667	834	3,833	459.59
Janesville city	Rock	10,836	9,018	1,818	20.16	Baraboo city	Sauk	4,605	3,266	1,339	41.00
Ashland city	Ashland	9,956		9,956		Menasha city	Winnebago	4,581	3,144	1,437	45.71
Wausau city	Marathon	9,253	4,277	4,976	116.34	Antigo city	Langlade	4,424		4,424	
Green Bay city	Brown	9,069	7,464	1,605	21.50	Whitewater city	Walworth	4,359	3,617	742	20.51
Watertown city	Dodge and Jefferson	8,755	7,883	872	11.06	Beaver Dam city	Dodge	4,222	3,416	806	23.59
Chippewa Falls city	Chippewa	8,670	3,982	4,688	117.73	Berlin city	Green Lake and Waushara	4,149	3,353	796	23.74
Stevens Point city	Portage	7,896	4,449	3,447	77.48						

a Decrease.

The following table shows the population of each county in detail by minor civil divisions:

POPULATION BY MINOR CIVIL DIVISIONS.

MINOR CIVIL DIVISIONS.	1890.	1880.
ADAMS COUNTY	6,889	6,741
Adams town	488	447
Big Flats town	322	158
Dell Prairie town	448	500
Easton town	376	450
Jackson town	504	482
Leola town	240	238
Lincoln town	440	434
Monroe town	462	448
New Chester town	344	304
New Haven town	746	836
Preston town	209	136
Quincy town	393	397
Richfield town	335	308
Rome town	238	219
Springville town	474	437
Strongs Prairie town	870	947
ASHLAND COUNTY	20,063	a1,559
Ashland town	1,507	951
Ashland city	9,956	.....
Ward 1 — 1,445		
Ward 2 — 1,714		
Ward 3 — 1,772		
Ward 4 — 2,301		
Ward 5 — 2,724		
Butternut town	1,210	608
Jacobs town (b), including Morse village	1,277	.....
Morse village	331	.....
Knight town (b)	639	.....
Vaughn town (b), including Hurley, Guile, and Pence villages.	5,474	.....
Hurley village	2,267	.....
Guile village	421	.....
Pence village	409	.....
BARRON COUNTY	15,416	7,024
Barron city	829	183
Ward 1 — 135		
Ward 2 — 300		
Ward 3 — 187		
Ward 4 — 207		
Barron town	400	c170
Cedar Lake town	531	351
Chetek town, including Chetek village	1,728	1,286
Chetek village	406	.....
Clinton town	479	203
Cumberland city	1,219	246
Ward 1 — 334		
Ward 2 — 611		
Ward 3 — 274		
Cumberland town	1,546	d396
Dallas town	1,033	694
Maple Grove town	976	505
Oak Grove town (b)	608	.....
Prairie Farm town	1,047	828
Rice Lake city	2,130	362
Ward 1 — 576		
Ward 2 — 531		
Ward 3 — 351		
Ward 4 — 672		
Stanfold town	589	e564
Stanley town (b)	748	.....
Sumner town	365	479
Turtle Lake town	874	f303
Vance Creek town (b)	314	.....
Rice Lake town (g)	.....	454
BAYFIELD COUNTY	7,390	564
Bayfield city	1,373	495
Bayfield town	527	h69
Drummond town (b)	696	.....
Mason town (b)	1,095	.....
Washburn city	3,039	.....
Washburn town (b)	660	.....
BROWN COUNTY	39,164	34,078
Allouez town	363	259
Ashwaubenon town	479	404
Bellevue town	838	777
Depere city	3,625	3,824
Depere town	969	817
Eaton town	1,102	686
Fort Howard city	4,754	3,083
Ward 1 — 1,116		
Ward 2 — 785		
Ward 3 — 683		
Ward 4 — 504		
Ward 5 — 1,099		
Ward 6 — 567		
Glenmore town	1,441	1,070
Green Bay city	9,069	7,464
Ward 1 — 1,897		
Ward 2 — 4,102		
Ward 3 — 3,070		
Green Bay town	1,008	1,085
Holland town	1,249	1,448
Howard town	1,261	1,171
Humboldt town	1,068	1,060
Lawrence town	949	837
Morrison town	1,449	1,543
New Denmark town	1,553	1,386
Pittsfield town	941	712
Preble town	1,160	1,153
Rockland town	800	803
Scott town	1,288	1,352
Suamico town	906	948
Wrightstown town, including Wrightstown village	2,169	2,196
Wrightstown village	476	450
Oneida Indian reservation (part of)	723	.....
BUFFALO COUNTY	15,997	15,528
Alma city	1,428	1,244
Ward 1 — 572		
Ward 2 — 318		
Ward 3 — 538		
Alma town	710	731
Belvidere town	750	723
Buffalo city	223	248
Buffalo town	647	655
Canton town	744	738
Cross town	671	700
Dover town	757	722
Fountain city	972	963
Ward 1 — 415		
Ward 2 — 557		
Gilmanton town, including Gilmanton village	599	540
Gilmanton village	70	53
Glencoe town	692	852
Lincoln town	556	673
Maxville town	602	414
Milton town	389	441
Modena town	828	811
Mondovi city	503	295
Ward 1 — 282		
Ward 2 — 271		
Mondovi town (i)	587	.....
Montana town	840	847
Naples town	727	j1,330
Nelson town	1,919	1,651
Waumandee town	853	950

a Includes that part given to Sawyer county in 1883.
b Organized since 1880.
c Exclusive of Barron city.
d Exclusive of Cumberland city.
e Exclusive of Rice Lake city.
f Includes Lakeland town.
g No corporate existence in 1890.
h Exclusive of Bayfield city.
i Organized since 1880 from Naples town.
j Including Mondovi town and exclusive of Mondovi city.

POPULATION BY MINOR CIVIL DIVISIONS—CONTINUED.

MINOR CIVIL DIVISIONS.	1890.	1880.
BURNETT COUNTY	4,393	a3,140
Grantsburg town	1,447	b1,512
Grantsburg village	410	101
Marshland town	678	302
Rusk town (c)	232	.....
Trade Lake town	825	580
Wood Lake town	801	485
Bashaw town (d)	.....	160
CALUMET COUNTY	16,639	16,632
Brillion town	1,510	1,214
Brillion village	582	278
Brothertown town	1,629	1,752
Charlestown town	1,362	1,354
Chilton city	1,424	1,132
Chilton town	1,349	1,361
Harrison town	1,987	2,036
New Holstein town, including New Holstein village.	1,735	2,059
New Holstein village	426	.....
Rantoul town	1,686	1,761
Stockbridge town	1,948	2,172
Woodville town	1,427	1,513
CHIPPEWA COUNTY	25,143	e15,491
Anson town	533	723
Arthur town (c)	622	.....
Auburn town	1,584	1,232
Big Bend town	820	231
Bloomer town	1,720	f1,278
Bloomer village	631	304
Chippewa Falls city	8,670	3,982
Ward 1	929	
Ward 2	1,174	
Ward 3	1,398	
Ward 4	685	
Ward 5	920	
Ward 6	902	
Ward 7	647	
Ward 8	896	
Ward 9	683	
Ward 10	436	
Cleveland town (c)	395	.....
Colburn town (c)	347	.....
Eagle Point town	1,282	2,564
Edson town, including Boyd village	2,164	882
Boyd village	545	.....
Flambeau town	289	251
Lafayette town	1,514	1,903
Lawrence town (c)	272	.....
Sigel town, including Cadott village	1,587	856
Cadott village	889	72
Tilden town (c)	1,313	.....
Wheaton town	1,400	1,285
CLARK COUNTY	17,708	10,715
Beaver town	355	263
Colby town	1,106	g813
Eaton town	707	453
Fremont town	411	203
Grant town	1,143	881
Green Grove town (h)	242	.....
Hewett town	151	156
Hixon town	578	500
Hoard town (i)	310	.....
Levis town	329	266
Loyal town	979	550
Lynn town	453	247
Mayville town, including Dorchester village	1,450	j1,249
Dorchester village	350	244
Mentor town	684	754
Neillsville city	1,936	1,050
Ward 1	607	
Ward 2	735	
Ward 3	594	
Pine Valley town	886	k682
Sherman town	470	300
Sherwood Forest town	155	115
Thorp town, including part of Thorp village	1,192	l257
Thorp village (part of)	488	.....
Total for Thorp village, in Thorp and Withee towns.	723	.....
Unity town	722	381
Warner town	591	435
Washburn town	200	153
Weston town	863	530
Withee town (m), including part of Thorp village.	959	.....
Thorp village (part of)	235	.....
York town	836	477
COLUMBIA COUNTY	28,350	28,065
Arlington town	828	1,022
Caledonia town	1,336	1,297
Columbus city	1,977	1,876
Columbus town	800	805
Courtland town, including part of Cambria village.	1,245	1,321
Cambria village (part of)	430	409
Total for Cambria village, in Courtland and Randolph towns.	524	504
Dekorra town, including Poynette village	1,386	1,278
Poynette village	517	366
Fort Winnebago town	646	689
Fountain Prairie town	1,315	1,300
Hampden town	861	944
Leeds town	1,171	1,157
Lewiston town	936	993
Lodi town, including Lodi village	1,375	1,462
Lodi village	736	723
Lowville town	733	818
Marcellon town	845	835
Newport town, including Kilbourn City village	1,448	1,520
Kilbourn City village	961	945
Otsego town	1,127	n1,212
Pacific town	255	249
Portage city	5,143	4,346
Ward 1	634	
Ward 2	879	
Ward 3	969	
Ward 4	1,200	
Ward 5	1,461	
Randolph town, including part of Cambria village.	974	1,057
Cambria village (part of)	94	95
Randolph village (part of)	79	64
Total for Randolph village, in Columbia and Dodge counties.	495	421
Rio village	339	230
Scott town	824	830
Springvale town	703	680
West Point town	701	852
Wyocena town	1,303	1,228
CRAWFORD COUNTY	15,987	15,644
Bridgeport town	410	448
Clayton town	2,050	1,976
Eastman town	1,436	1,459
Freeman town, including part of De Soto village.	1,496	1,544
De Soto village (part of)	79	.....
Total for De Soto village, in Crawford and Vernon counties.	355	301
Haney town	738	636

a Includes that part given to Washburn county in 1883.
b Exclusive of Grantsburg village.
c Organized since 1880.
d Attached to Washburn county in 1883.
e Includes that part given to Sawyer county in 1883.
f Exclusive of Bloomer village.
g Includes Green Grove town.
h Organized since 1880 from Colby town.
i Organized since 1880 from Mayville town.
j Includes Hoard town.
k Exclusive of Neillsville city.
l Includes Withee town.
m Organized since 1880 from Thorp town.
n Exclusive of Rio village.

POPULATION BY MINOR CIVIL DIVISIONS—CONTINUED.

MINOR CIVIL DIVISIONS.	1890.	1880.
CRAWFORD COUNTY—Continued.		
Marietta town	1,300	1,037
Prairie du Chien city	3,131	2,777
Ward 1	629	
Ward 2	1,131	
Ward 3	1,063	
Ward 4	308	
Prairie du Chien town	602	724
Scott town	1,079	1,046
Seneca town, including Lynxville village	1,440	1,446
Lynxville village	243	155
Utica town	1,389	1,496
Wauzeka town	916	1,055
DANE COUNTY	59,578	53,233
Albion town	1,516	1,351
Berry town	1,003	1,066
Black Earth town, including Black Earth village.	742	902
Black Earth village	355	
Blooming Grove town	999	927
Blue Mounds town	1,449	1,009
Bristol town	1,093	1,139
Burke town	1,129	1,002
Christiana town, including Cambridge village	2,379	1,859
Cambridge village	452	303
Cottage Grove town	1,305	1,159
Cross Plains town	1,103	1,331
Dane town	1,161	1,161
Deerfield town, including Deerfield village	1,573	972
Deerfield village	338	
Dunkirk town	1,406	1,283
Dunn town, including McFarland village	1,118	1,140
McFarland village	166	168
Fitchburg town	958	978
Madison city	13,426	10,324
Ward 1	2,845	
Ward 2	2,943	
Ward 3	1,512	
Ward 4	2,284	
Ward 5	2,164	
Ward 6	1,678	
Madison town	919	735
Mazomanie town, including Mazomanie village	1,482	1,646
Mazomanie village	1,034	
Medina town, including Marshall village	1,393	1,406
Marshall village	282	332
Middletown town	1,433	1,513
Montrose town, including Belleville village	1,251	1,108
Belleville village	319	
Oregon town, including Oregon village	1,436	1,514
Oregon village	595	527
Perry town	996	924
Pleasant Springs town	1,501	1,278
Primrose town	889	888
Roxbury town	1,073	1,157
Rutland town	1,222	1,133
Springdale town	1,120	1,006
Springfield town	1,111	1,240
Stoughton city	2,470	1,353
Ward 1	1,097	
Ward 2	1,373	
Sun Prairie town, including Sun Prairie village	1,616	1,520
Sun Prairie village	704	
Vermont town	892	961
Verona town	1,225	1,017
Vienna town	1,009	1,051
Westport town, including Mendota and Waunakee villages.	1,893	1,987
Mendota village	627	657
Waunakee village	312	279
Windsor town	1,329	1,210
York town	963	983
DODGE COUNTY	44,984	45,931
Ashippun town	1,344	1,369
Beaver Dam city	4,222	3,416
Ward 1	721	
Ward 2	1,107	
Ward 3	1,235	
Ward 4	1,159	

MINOR CIVIL DIVISIONS.	1890.	1880.
DODGE COUNTY—Continued.		
Beaver Dam town	1,341	1,405
Burnett town, including Burnett Junction village.	1,026	1,117
Burnett Junction village	140	113
Calamus town	1,083	1,166
Chester town	736	750
Clyman town	1,293	1,235
Elba town	1,117	1,341
Emmett town	1,248	1,263
Fox Lake town, including Fox Lake village	1,616	1,791
Fox Lake village	814	955
Herman town	1,478	1,641
Horicon village	1,354	1,250
Hubbard town	1,690	a2,055
Hustisford town, including Hustisford village	1,639	1,666
Hustisford village	513	488
Juneau city	701	454
Lebanon town	1,505	1,580
Le Roy town	1,413	1,588
Lomira town	1,816	1,845
Lowell town, including Lowell and Reeseville villages.	2,492	2,580
Lowell village	304	400
Reeseville village	329	248
Mayville city	1,165	1,051
Oak Grove town	1,599	b1,717
Portland town	1,163	1,271
Randolph village (part of)	326	357
Total for Randolph village, in Columbia and Dodge counties.	405	421
Rubicon town	1,520	1,660
Shields town	919	1,025
Theresa town	1,761	2,018
Trenton town	1,472	1,624
Watertown city (part of)	2,249	2,092
Ward 5	877	
Ward 6	1,372	
Total for Watertown city, in Dodge and Jefferson counties.	8,755	7,883
Waupun city (part of), South ward	1,695	1,314
Total for Waupun city, in Dodge and Fond du Lac counties.	2,757	2,353
Westford town	970	1,098
Williamstown town	1,031	c1,192
DOOR COUNTY	15,682	11,645
Bailey Harbor town	603	549
Brussels town	1,085	999
Clay Banks town	609	653
Egg Harbor town	821	730
Forestville town	1,361	1,042
Gardner town	805	603
Gibraltar town	934	832
Jacksonport town	817	432
Liberty Grove town	1,536	1,092
Nasewaupee town	1,057	762
Sevastopol town	1,313	865
Sturgeon Bay city	2,195	1,199
Ward 1	973	
Ward 2	673	
Ward 3	549	
Sturgeon Bay town, including Bay View village	1,135	d850
Bay View village	386	
Union town	673	610
Washington town	738	427
DOUGLAS COUNTY	13,468	655
Brule town (e)	386	
Gordon town (e)	184	
Nebagamain town (e)	554	
Superior city	11,983	
Ward 1	1,453	
Ward 2	846	
Ward 3	1,295	
Ward 4	4,486	
Ward 5	1,215	
Ward 6	993	
Ward 7	1,695	
Superior town	361	655

a Exclusive of part of Horicon village.

b Exclusive of Juneau city and part of Horicon village.

c Exclusive of Mayville city.

d Exclusive of Sturgeon Bay city.

e Organized since 1880.

POPULATION BY MINOR CIVIL DIVISIONS—CONTINUED.

MINOR CIVIL DIVISIONS.	1890.	1880.
DUNN COUNTY	22,664	16,817
Colfax town	672	460
Dunn town	1,258	1,115
Eau Galle town	1,218	1,154
Elk Mound town	695	588
Grant town	542	457
Hay River town	486	310
Lucas town	705	497
Menomonie city	5,491	2,589
Ward 1	1,417	
Ward 2	1,176	
Ward 3	1,013	
Ward 4	1,885	
Menomonie town (a)	1,633	1,588
New Haven town	521	269
Otter Creek town	342	219
Peru town	342	296
Red Cedar town	1,127	786
Rock Creek town	843	613
Sand Creek town	620	667
Sheridan town	423	687
Sherman town	635	548
Spring Brook town	1,267	1,304
Stanton town, including Knapp village	1,113	967
Knapp village	480	
Tainter town	442	754
Tiffany town	1,118	413
Weston town	690	506
Wilson town (b)	481	
EAU CLAIRE COUNTY	30,673	19,993
Altoona city (b)	805	
Augusta city	1,187	1,116
Ward 1	193	
Ward 2	478	
Ward 3	264	
Ward 4	252	
Bridge Creek town	1,122	c778
Brunswick town, including Porters Mills village	1,765	898
Porters Mills village	1,195	
Clear Creek town (b)	621	
Drammen town	556	401
Eau Claire city	17,415	10,119
Ward 1	3,078	
Ward 2	1,604	
Ward 3	1,975	
Ward 4	1,085	
Ward 5	1,538	
Ward 6	3,893	
Ward 7	2,128	
Ward 8	2,164	
Fairchild town, including Fairchild village	1,215	887
Fairchild village	645	304
Lincoln town	1,786	1,481
Ludington town	558	212
Otter Creek town	688	1,060
Pleasant Valley town	737	941
Seymour town	406	515
Union town	674	631
Washington town	1,138	954
FLORENCE COUNTY (d)	2,604	
Commonwealth town	895	
Florence town, including Florence village	1,709	
Florence village	444	267
FOND DU LAC COUNTY	44,088	46,859
Alto town	1,316	1,335
Ashford town	1,868	2,038
Auburn town	1,509	1,651
Byron town	1,216	1,284
Calumet town	1,399	1,447
Eden town	1,333	1,404
Eldorado town	1,458	1,617
Empire town	873	1,065
FOND DU LAC COUNTY—Continued.		
Fond du Lac city	12,024	13,094
Ward 1	1,759	
Ward 2	1,923	
Ward 3	2,112	
Ward 4	2,037	
Ward 5	739	
Ward 6	900	
Ward 7	1,084	
Ward 8	1,470	
Fond du Lac town	1,126	1,354
Forest town	1,311	1,388
Friendship town	856	1,013
Lamartine town	1,232	1,378
Marshfield town	1,938	2,044
Metomen town, including Brandon village	1,853	1,808
Brandon village	660	601
Oakfield town	1,324	1,304
Osceola town	1,272	1,363
Ripon city	3,358	3,117
Ward 1	1,702	
Ward 2	1,656	
Ripon town	1,185	e1,157
Rosendale town	1,099	1,193
Springvale town	1,092	1,158
Taycheedah town	1,269	1,376
Waupun city (part of), North ward	1,062	1,039
Total for Waupun city, in Fond du Lac and Dodge counties.	2,757	2,353
Waupun town	1,115	1,232
FOREST COUNTY (f)	1,012	
Crandon town	370	
Gagen town, including Three Lakes and Monico villages.	462	
Three Lakes village	134	
Monico village	128	
Pelican town	180	
GRANT COUNTY	36,651	37,852
Beetown town	1,257	1,530
Bloomington town, including Bloomington village.	1,174	1,229
Bloomington village	587	403
Boscobel town, including Boscobel city	1,692	1,616
Boscobel city	1,570	1,428
Cassville town, including Cassville village	1,455	1,301
Cassville village	886	610
Castle Rock town	681	770
Clifton town	1,074	1,078
Ellenborough town	814	777
Fennimore town, including Fennimore village	1,423	1,126
Fennimore village	616	295
Glen Haven town	883	1,022
Harrison town	1,020	1,090
Hazel Green town, including Hazel Green village.	1,549	1,821
Hazel Green village	426	598
Hickory Grove town	798	771
Jamestown town	961	1,215
Lancaster town, including Lancaster city	3,289	2,810
Lancaster city	1,543	1,069
Liberty town	881	895
Lima town	1,040	1,154
Little Grant town	668	718
Marion town	573	639
Millville town	197	204
Mount Hope town	640	742
Mount Ida town	779	871
Muscoda town, including Muscoda village	1,160	1,226
Muscoda village	605	740
Paris town	778	876
Patch Grove town	690	826
Platteville town, including Platteville city	3,687	3,813
Platteville city	2,740	2,687
Potosi town, including Potosi village	2,110	2,375
Potosi village (g)		466
Smelser town	1,295	1,283
Waterloo town	934	1,029

a Exclusive of Menomonie city.

b Organized since 1880.

c Exclusive of Augusta city.

d Organized in 1882 from parts of Marinette and Oconto counties.

e Exclusive of Ripon city.

f Organized in 1885 from parts of Langlade, Lincoln, and Oconto counties.

g Not separately returned in 1890.

POPULATION BY MINOR CIVIL DIVISIONS—CONTINUED.

MINOR CIVIL DIVISIONS.	1890.	1880.
GRANT COUNTY—Continued.		
Waterstown town	488	595
Wingville town, including Montfort village	1,380	1,178
Montfort village	467	64
Woodman town	495	553
Wyalusing town	786	719
GREEN COUNTY	22,732	21,729
Adams town	851	930
Albany town, including Albany village	1,380	1,133
Albany village	698	267
Brooklyn town	1,205	1,176
Cadiz town	1,507	1,358
Clarno town	1,319	1,422
Decatur town, including Brodhead village	2,146	1,920
Brodhead village	1,461	1,254
Exeter town	915	893
Jefferson town	1,278	1,437
Jordan town	1,101	1,094
Monroe city	3,768	3,293
Ward 1	1,787	
Ward 2	1,981	
Monroe town	966	a902
Mount Pleasant town, including Monticello village.	1,248	1,086
Monticello village	407	156
New Glarus town, including New Glarus village	1,180	1,060
New Glarus village	356	.....
Spring Grove town	1,135	1,166
Sylvester town	906	928
Washington town	818	882
York town	1,009	1,049
GREEN LAKE COUNTY	15,163	14,483
Berlin city (part of)	4,118	3,353
Ward 1	766	
Ward 2 (part of)	1,077	
Total ward 2, including part in Waushara county, 1,108.		
Ward 3	886	
Ward 4	676	
Ward 5	713	
Total for Berlin city, in Green Lake and Waushara counties.	4,149	3,353
Berlin town	767	791
Brooklyn town, including Dartford village	1,280	1,364
Dartford village	204	241
Green Lake town	1,343	1,407
Kingston town	816	825
Mackford town, including Markesan village	1,514	1,382
Markesan village	475	361
Manchester town	1,024	1,199
Marquette town	812	938
Princeton town, including Princeton village	2,153	2,074
Princeton village	986	961
Sainte Marie town	751	705
Seneca town	585	445
IOWA COUNTY	22,117	23,628
Arena town, including Arena village	1,479	1,796
Arena village	354	266
Brigham town (b)	1,341	.....
Clyde town	610	715
Dodgeville city	1,722	1,547
Dodgeville town	1,577	c1,993
Eden town	956	909
Highland town, including Highland village	2,328	2,436
Highland village	751	668
Linden town, including Linden village	1,861	1,996
Linden village	462	571

MINOR CIVIL DIVISIONS.	1890.	1880.
IOWA COUNTY—Continued.		
Mifflin town, including Mifflin village	1,465	1,529
Mifflin village	255	269
Mineral Point city	2,694	2,915
Ward 1	1,475	
Ward 2	1,219	
Mineral Point town	1,271	1,490
Moscow town	1,145	921
Pulaski town, including Avoca village	1,239	1,402
Avoca village	278	362
Ridgeway town	990	d2,348
Waldwick town	810	896
Wyoming town	629	735
JACKSON COUNTY	15,797	13,285
Albion town	1,717	e1,462
Alma town	1,060	f799
Black River Falls city	2,261	1,427
Ward 1	538	
Ward 2	436	
Ward 3	452	
Ward 4	835	
Cleveland town (g)	691	.....
Curran town (h)	706	.....
Franklin town	626	531
Garden Valley town	703	i1,111
Garfield town (j)	502	.....
Hixton town	696	1,353
Irving town	909	898
Knapp town (k)	1,005	.....
Manchester town	560	505
Melrose town	1,304	1,320
Merrillon village	639	1,003
Millston town	399	l463
Northfield town	787	m1,175
Springfield town	903	838
Sullivan town	329	400
JEFFERSON COUNTY	33,530	32,156
Aztalan town, including part of Johnson Creek village.	1,349	1,332
Johnson Creek village (part of)	67	69
Total for Johnson Creek village, in Aztalan and Farmington towns.	176	208
Cold Spring town	649	588
Concord town	1,331	1,457
Farmington town, including part of Johnson Creek village.	1,847	2,039
Johnson Creek village (part of)	109	139
Hebron town	1,060	1,118
Ixonia town, including Pipersville village	1,491	1,597
Pipersville village	49	89
Jefferson town, including Jefferson city	4,053	3,788
Jefferson city	2,287	2,115
Ward 1	596	
Ward 2	1,054	
Ward 3	637	
Koshkonong town, including Fort Atkinson city	3,782	3,406
Fort Atkinson city	2,283	1,969
Ward 1	610	
Ward 2	605	
Ward 3	1,068	
Lake Mills town, including Lake Mills village	2,107	1,568
Lake Mills village	1,053	671
Milford town, including Milford village	1,439	1,460
Milford village	128	138
Oakland town	1,168	1,043
Palmyra town, including Palmyra village	1,357	1,361
Palmyra village	567	598
Sullivan town	1,323	1,357
Sumner town	539	532
Waterloo town, including Waterloo village	1,838	1,768
Waterloo village	862	719

a Exclusive of Monroe city.
b Organized since 1880 from part of Ridgeway town.
c Exclusive of Dodgeville city.
d Includes population of Brigham town.
e Exclusive of Black River Falls city.
f Exclusive of Merrillon village.
g Organized since 1880 from Garden Valley town.
h Organized since 1880.
i Includes Cleveland town.
j Organized since 1880 from Northfield town.
k Organized since 1880 from Millston town.
l Includes Knapp town.
m Includes Garfield town.

POPULATION BY MINOR CIVIL DIVISIONS—CONTINUED.

MINOR CIVIL DIVISIONS.	1890.	1880.
JEFFERSON COUNTY—Continued.		
Watertown city (part of)	6,506	5,791
Ward 1	2,150	
Ward 2	1,611	
Ward 3	1,145	
Ward 4	615	
Ward 7	985	
Total for Watertown city, in Dodge and Jefferson counties.	8,755	7,883
Watertown town	1,691	1,951
JUNEAU COUNTY	17,121	15,582
Armenia town	354	296
Clearfield town	274	283
Elroy city	1,413	663
Fountain town	744	815
Germantown town	510	681
Kildare town, including Lyndon Station village	648	557
Lyndon Station village	136	164
Kingston town	211	111
Lemonweir town	1,075	1,011
Lindina town	957	1,062
Lisbon town	444	491
Lyndon town	495	460
Marion town	391	372
Mauston city	1,343	1,013
Necedah town, including Necedah village	2,242	1,855
Necedah village	1,708	1,475
New Lisbon city	990	1,024
Orange town, including Camp Douglas village	694	538
Camp Douglas village	225	.....
Plymouth town	829	a840
Seven Mile Creek town	697	785
Summit town	980	1,014
Wonewoc town	1,211	b1,076
Wonewoc village	619	635
KENOSHA COUNTY	15,581	13,550
Brighton town	926	1,024
Bristol town	1,071	1,069
Kenosha city	6,532	5,039
Ward 1	1,655	
Ward 2	1,632	
Ward 3	1,979	
Ward 4	1,266	
Paris town	871	1,002
Pleasant Prairie town	1,646	1,386
Randall town	658	451
Salem town, including Wilmot village	1,493	1,286
Wilmot village	188	190
Somers town	1,632	1,458
Wheatland town, including New Munster village	752	835
New Munster village	96	87
KEWAUNEE COUNTY	16,153	15,807
Ahnapee city	1,015	948
Ahnapee town	1,384	1,430
Carlton town	1,571	1,604
Casco town	1,211	c1,659
Franklin town	1,623	1,601
Kewaunee city	1,216	1,050
Lincoln town	1,181	1,147
Luxemburg town (d)	1,600	.....
Montpelier town	1,469	1,405
Pierce town	852	c1,743
Red River town	1,411	1,582
West Kewaunee town	1,620	c1,638
LA CROSSE COUNTY	38,801	27,073
Bangor town, including Bangor village	1,138	1,196
Bangor village	499	453
Barre town	670	656
LA CROSSE COUNTY—Continued.		
Burns town	1,020	1,021
Campbell town	955	885
Farmington town	1,810	1,686
Greenfield town	751	869
Hamilton town, including West Salem village	1,942	1,661
West Salem village	542	432
Holland town	1,009	874
La Crosse city	25,090	14,505
Ward 1	2,569	
Ward 2	2,653	
Ward 3	2,780	
Ward 4	2,156	
Ward 5	2,649	
Ward 6	1,593	
Ward 7	2,516	
Ward 8	3,262	
Ward 9	2,648	
Ward 10	2,264	
Onalaska city	1,587	826
Ward 1	502	
Ward 2	643	
Ward 3	442	
Onalaska town	1,030	f1,090
Shelby town	1,003	796
Washington town	796	1,008
LAFAYETTE COUNTY	20,265	21,279
Argyle town, including Argyle village	1,268	1,225
Argyle village	411	322
Belmont town, including Belmont village	1,185	1,244
Belmont village	378	410
Benton town, including Benton village	1,245	1,519
Benton village	414	254
Blanchard town	650	622
Darlington town, including Darlington city	2,682	2,599
Darlington city	1,589	1,372
Elk Grove town	788	959
Fayette town	822	1,148
Gratiot town	1,511	1,634
Kendall town	754	849
Lamont town (g)	516	.....
Monticello town	305	413
New Diggings town	1,374	1,641
Seymour town	783	898
Shullsburg town, including Shullsburg city	2,270	2,245
Shullsburg city	1,393	1,168
Wayne town, including South Wayne village	1,170	1,056
South Wayne village	285	.....
White Oak Springs town	384	451
Willow Springs town	931	1,089
Wiota town, including Wiota village	1,627	1,687
Wiota village	119	143
LANGLADE COUNTY	9,465	h685
Ackley town (i)	374	.....
Antigo city (i)	4,424	.....
Ward 1	434	
Ward 2	640	
Ward 3	627	
Ward 4	1,055	
Ward 5	870	
Ward 6	798	
Antigo town (i)	643	.....
Elcho town (i)	175	.....
Elton town (i)	191	.....
Langlade town	153	368
Neva town (i)	502	.....
Norwood town (i)	663	.....
Parrish town (i)	392	.....
Polar town (i)	444	.....
Price town (i)	233	.....
Rolling town (i)	685	.....
Summit town (i)	270	.....
Vilas town (i)	316	.....
Carpenter town (j)	.....	44
Springbrook town (j)	.....	273

a Exclusive of Elroy city.

b Exclusive of Wonewoc village.

c Includes that part given to Luxemburg town in 1888.

d Organized in 1888 from parts of Casco and Pierce towns.

e Includes that part of Kewaunee town outside of the city.

f Exclusive of Onalaska city.

g Organized in 1889.

h Includes that part given to Forest county in 1885.

i Organized since 1880.

j No corporate existence in 1890.

POPULATION BY MINOR CIVIL DIVISIONS—CONTINUED.

MINOR CIVIL DIVISIONS.		1890.	1880.
LINCOLN COUNTY		12,008	a2,011
Corning town		347	112
Harrison town (b), including Harrison village		457	
Harrison village		430	
Merrill town (b)		539	
Merrill city		6,809	
Ward 1	778		
Ward 2	684		
Ward 3	995		
Ward 4	761		
Ward 5	1,106		
Ward 6	1,371		
Ward 7	1,114		
Pine River town		736	278
Rock Falls town, including Tomahawk village		2,148	101
Tomahawk village		1,816	
Russell town (b)		402	
Scott town (b)		570	
Ackley town (c)			184
Jenny town (c)			1,336
MANITOWOC COUNTY		37,831	37,505
Cato town		1,793	1,875
Centerville town		1,374	1,560
Cooperstown town		1,629	1,700
Eaton town		1,332	1,524
Franklin town		1,886	1,875
Gibson town		1,651	1,739
Kossuth town		1,973	2,168
Liberty town		1,277	1,387
Manitowoc city		7,710	6,367
Ward 1	1,744		
Ward 2	1,056		
Ward 3	1,587		
Ward 4	1,669		
Ward 5	1,654		
Manitowoc town		1,275	1,282
Manitowoc Rapids town		1,914	2,077
Maple Grove town		1,585	1,523
Meeme town		1,434	1,684
Mishicott town		1,417	1,568
Newton town		1,726	1,867
Rockland town		1,267	1,234
Schleswig town, including Keil village		2,053	2,069
Keil village		497	363
Two Creeks town		607	630
Two Rivers city		2,870	2,052
Two Rivers town		1,108	1,324
MARATHON COUNTY		30,369	17,121
Bergen town		177	450
Berlin town		1,083	1,000
Brighton town		686	726
Cleveland town (b)		252	
Day town (b)		816	
Easton town		240	186
Eau Pleine (b)		257	
Eldron town (b)		232	
Emmet town (b)		439	
Frankfort town (b)		331	
Halsey town (b)		654	
Hamburg town		693	563
Harrison town (b)		926	
Holton town		760	490
Hull town		893	720
Johnson town (b)		313	
Knowlton town		333	379
Kronenwetter town (b)		264	
Maine town		1,178	880
Marathon town, including Marathon village		1,438	871
Marathon village		258	
McMillan town (b)		439	
Mosinee town, including Mosinee village		626	882
Mosinee village		427	201
Norrie town (b)		353	
Pike Lake (b)		542	
Rib Falls town		674	574
Rietbrock town		717	409
Spencer town, including Spencer village		1,018	1,091
Spencer village		526	

MINOR CIVIL DIVISIONS.		1890.	1880.
MARATHON COUNTY—Continued.			
Stettin town		962	684
Texas town		220	458
Wausau city		9,253	4,277
Ward 1	1,349		
Ward 2	1,065		
Ward 3	1,101		
Ward 4	967		
Ward 5	1,831		
Ward 6	1,845		
Ward 7	1,095		
Wausau town		1,380	1,061
Wein town		444	452
Weston town		1,776	968
MARINETTE COUNTY		20,304	d8,929
Marinette city		11,523	2,750
Ward 1	1,928		
Ward 2	2,120		
Ward 3	2,700		
Ward 4	2,961		
Ward 5	1,814		
Peshtigo town, including Peshtigo and Peshtigo Harbor villages.		7,202	3,517
Peshtigo village		1,719	
Peshtigo Harbor village		719	
Porterfield town (b)		460	
Wausaukee town (b)		1,119	
Marinette town (c), exclusive of Marinette city			2,662
MARQUETTE COUNTY		9,676	8,908
Buffalo town		805	750
Crystal Lake town		667	644
Douglas town		628	657
Harris town		576	534
Mecan town		724	621
Montello town, including Montello village		1,177	950
Montello village		761	394
Moundville town		324	334
Neshkoro town		561	589
Newton town		711	724
Oxford town		567	532
Packwaukee town		711	691
Shields town		608	620
Springfield town		605	428
Westfield town, including Westfield village		1,012	834
Westfield village		500	288
MILWAUKEE COUNTY		236,101	138,587
Franklin town		1,868	1,819
Granville town		2,272	2,370
Greenfield town		3,190	2,674
Lake town		4,899	e5,430
Milwaukee city		204,468	115,587
Ward 1	9,341		
Ward 2	10,548		
Ward 3	6,823		
Ward 4	10,291		
Ward 5	10,168		
Ward 6	13,020		
Ward 7	6,645		
Ward 8	14,236		
Ward 9	22,469		
Ward 10	19,879		
Ward 11	13,538		
Ward 12	11,791		
Ward 13	14,658		
Ward 14	11,337		
Ward 15	9,584		
Ward 16	6,521		
Ward 17	5,696		
Ward 18	7,923		
Milwaukee town, including Williamsburg village		6,403	3,472
Williamsburg village		3,133	
Oak Creek town		2,087	2,097
Wauwatosa town		10,914	5,088

a Includes that part given to Forest and Oneida counties in 1885.

b Organized since 1880.

c No corporate existence in 1890.

d Includes that part given to Florence county in 1882.

e Includes Bay View village, annexed to Milwaukee since 1880.

POPULATION BY MINOR CIVIL DIVISIONS—CONTINUED.

MINOR CIVIL DIVISIONS.	1890.	1880.
MONROE COUNTY	23,211	21,607
Adrian town	615	715
Angelo town	477	469
Byron town	458	415
Clifton town	955	884
Glendale town, including Kendall village	1,324	1,401
Kendall village	304	282
Greenfield town	592	586
Jefferson town	1,315	1,087
Lafayette town / New Lyme town (a)	512	402 / 140
La Grange town	730	839
Leon town	688	748
Lincoln town	1,065	975
Little Falls town	993	705
Oak Dale town	680	733
Portland town	1,166	1,056
Ridgeville town	1,292	1,286
Sheldon town	813	794
Sparta city	2,795	2,387
Ward 1	928	
Ward 2	662	
Ward 3	694	
Ward 4	511	
Sparta town	996	b1,072
Tomah city	2,199	1,245
Ward 1	623	
Ward 2	851	
Ward 3	725	
Tomah town	698	c861
Wellington town	1,120	1,050
Wells town	642	658
Wilton town	1,086	1,099
OCONTO COUNTY	15,009	d9,848
Chase town (e)	913	
Gillett town	938	637
Howe town	770	178
Little River town	1,194	695
Little Suamico town	624	942
Maple Valley town	1,336	589
Oconto city	5,219	4,171
Ward 1	918	
Ward 2	940	
Ward 3	1,829	
Ward 4	1,532	
Oconto Falls town (e)	494	
Oconto town	1,068	893
Pensaukee town	1,585	1,420
Stiles town, including Stiles village	868	323
Stiles village	466	
ONEIDA COUNTY (f)	5,010	
Eagle River town, including Eagle River village	1,243	
Eagle River village	1,154	
Hazlehurst town	355	
Minocqua town	463	
Pelican town, including Rhinelander village	2,949	
Rhinelander village	2,658	
OUTAGAMIE COUNTY	38,690	28,716
Appleton city	11,869	8,005
Ward 1	2,208	
Ward 2	2,737	
Ward 3	2,436	
Ward 4	1,267	
Ward 5	1,620	
Ward 6	1,601	
Black Creek town	1,377	1,285
Bovina town	663	690
Buchanan town	1,397	1,010
Center town	1,488	1,596
Cicero town	952	777
Dale town	1,207	1,123
Deer Creek town	932	653

MINOR CIVIL DIVISIONS.	1890.	1880.
OUTAGAMIE COUNTY—Continued.		
Ellington town	1,210	1,377
Freedom town	1,602	1,663
Grand Chute town	1,574	1,578
Greenville town	1,246	1,326
Hortonia town, including Hortonville village	1,307	1,193
Hortonville village	449	311
Kaukauna city	4,667	834
Ward 1	914	
Ward 2	1,162	
Ward 3	1,078	
Ward 4	1,072	
Ward 5	441	
Kaukauna town, including Little Chute village	1,728	g1,401
Little Chute village	380	
Liberty town	492	504
Maine town	478	403
Maple Creek town	815	818
New London city (part of)	368	256
Total for New London city, in Waupaca and Outagamie counties.	2,050	1,808
Oneida Indian reservation (part of)	923	
Osborn town	685	612
Seymour city	733	850
Seymour town	977	762
OZAUKEE COUNTY	14,943	15,461
Belgium town	1,690	1,948
Cedarburg town, including Cedarburg city	2,868	2,536
Cedarburg city	1,361	945
Fredonia town	1,666	1,839
Grafton town, including Grafton village	1,444	1,570
Grafton village	434	415
Mequon town	2,902	3,023
Port Washington town, including Port Washington city.	2,726	2,601
Port Washington city	1,659	1,386
Saukville town	1,647	1,941
PEPIN COUNTY	6,932	6,226
Albany town	459	431
Durand city	1,154	642
Ward 1	486	
Ward 2	668	
Durand town	253	h237
Frankfort town	648	639
Lima town	765	605
Pepin town, including Pepin village	1,491	1,515
Pepin village	369	
Stockholm town	711	763
Waterville town	1,287	1,197
Waubeck town	164	197
PIERCE COUNTY	20,385	17,744
Clifton town	633	703
Diamond Bluff town	472	534
Ellsworth town	1,338	i1,070
Ellsworth village	670	432
El Paso town	845	690
Gilman town	1,239	888
Hartland town	1,201	1,215
Isabelle town	330	250
Maiden Rock town	1,176	j1,056
Maiden Rock village	343	319
Martel town	1,292	1,284
Oak Grove town	824	973
Prescott city	911	975
Ward 1	335	
Ward 2	285	
Ward 3	291	
River Falls city (part of)	1,602	1,499
Ward 2	769	
Ward 3	356	
Ward 4	477	
Total for River Falls city, in Pierce and Saint Croix counties.	1,783	1,499

a Not separately returned.
b Exclusive of Sparta city.
c Exclusive of Tomah city.
d Includes that part given to Florence county in 1882 and Forest county in 1885.
e Organized since 1880.
f Organized in 1885 from part of Lincoln county.
g Exclusive of Kaukauna city.
h Exclusive of Durand city.
i Exclusive of Ellsworth village.
j Exclusive of Maiden Rock village.

POPULATION BY MINOR CIVIL DIVISIONS—CONTINUED.

MINOR CIVIL DIVISIONS.	1890.	1880.
PIERCE COUNTY—Continued.		
River Falls town	1,073	a1,017
Rock Elm town	1,047	899
Salem town	845	478
Spring Lake town	998	843
Trenton town	951	737
Trimbelle town	1,594	1,148
Union town	1,001	734
POLK COUNTY	12,968	10,018
Alden town	1,261	1,274
Apple River town	365	b412
Balsam Lake town	431	357
Beaver town (c)	333	.....
Black Brook town	708	722
Bone Lake town (d)	62	.....
Clam Falls town	203	115
Clayton town	618	546
Clear Lake town	951	809
Eureka town	808	595
Farmington town	899	968
Garfield town (e)	540	.....
Georgetown town	85	123
Johnston town (f)	100	.....
Laketown town	668	461
Lincoln town, including Amery village	1,072	g557
Amery village	451	.....
Loraine town	210	109
Luck town	393	h270
Milltown town	459	282
Osceola town, including Osceola village	1,067	i1,297
Osceola village	384	311
Saint Croix Falls town, including Saint Croix Falls village.	798	542
Saint Croix Falls village	745	216
Sterling town	667	406
West Sweden town	270	173
PORTAGE COUNTY	24,798	17,731
Alban town	563	310
Almond town	1,035	872
Amherst town, including Amherst village	1,762	1,375
Amherst village	438	298
Belmont town	622	535
Buena Vista town	1,061	830
Carson town	961	426
Eau Pleine town	748	598
Grant town	417	309
Hull town	1,477	1,044
Lanark town	797	663
Linwood town	368	406
New Hope town	885	801
Pine Grove town	399	339
Plover town, including Plover village	1,274	1,220
Plover village	319	412
Sharon town	1,940	1,639
Stevens Point city	7,896	4,449
Ward 1	1,299	
Ward 2	1,541	
Ward 3	965	
Ward 4	1,985	
Ward 5	1,330	
Ward 6	776	
Stevens Point town	895	569
Stockton town	1,698	1,346
PRICE COUNTY	5,258	785
Brannan town	516	278
Emery town (f)	105	.....
Fifield town, including Fifield village	857	230
Fifield village	646	54
Georgetown town (f)	157	.....
Hackett town (f)	191	.....
Kennan town (f)	96	.....
Lake town (f)	409	.....
Ogema town (f)	775	.....
Prentice town (f), including Prentice village	570	.....
Prentice village	365	.....
Worcester town	1,582	277
RACINE COUNTY	36,268	30,922
Burlington town, including Burlington village	3,140	2,738
Burlington village	2,043	1,611
Caledonia town	2,732	2,654
Dover town	924	927
Mount Pleasant town	2,192	2,166
Norway town	841	981
Racine city	21,014	16,031
Ward 1	1,141	
Ward 2	1,810	
Ward 3	3,185	
Ward 4	3,352	
Ward 5	4,379	
Ward 6	4,581	
Ward 7	2,566	
Raymond town	1,784	1,667
Rochester town	699	775
Waterford town, including Waterford village	1,551	1,451
Waterford village	448	.....
Yorkville town, including Union Grove village	1,391	1,532
Union Grove village	432	412
RICHLAND COUNTY	19,121	18,174
Akan town	982	841
Bloom town	1,361	1,358
Buena Vista town	797	j695
Dayton town	1,119	1,109
Eagle town	1,153	1,303
Forest town	1,151	950
Henrietta town	1,143	1,005
Ithaca town	1,193	1,110
Lone Rock village	342	380
Marshall town	909	989
Orion town	665	733
Richland Center city	1,819	1,227
Ward 1	551	
Ward 2	671	
Ward 3	597	
Richland town	847	k821
Richwood town	1,343	1,515
Rockbridge town	1,148	1,200
Sylvan town	1,013	1,035
Westford town	1,124	1,002
Willow town	1,012	901
ROCK COUNTY	43,220	38,823
Avon town	806	815
Beloit city	6,315	4,790
Ward 1	1,377	
Ward 2	1,399	
Ward 3	1,871	
Ward 4	1,668	
Beloit town	714	707
Bradford town	849	979
Center town	1,073	1,105
Clinton town	1,105	l2,126
Clinton village	856	(m)
Edgerton city	1,595	869
Evansville village	1,523	1,068
Fulton town	1,363	m1,375
Harmony town	1,083	1,085
Janesville city	10,836	9,018
Ward 1	2,737	
Ward 2	2,194	
Ward 3	1,579	
Ward 4	3,052	
Ward 5	1,274	
Janesville town	926	900

a Exclusive of River Falls city.
b Includes Beaver town.
c Organized since 1880 from Apple River town.
d Organized since 1880 from Luck town.
e Organized since 1880 from Lincoln and Osceola towns.
f Organized since 1880.
g Includes that part given to Garfield town.
h Includes that part given to Bone Lake town.
i Includes that part given to Garfield town.
j Exclusive of Lone Rock village.
k Exclusive of Richland Center city.
l Includes Clinton village.
m Not separately returned in 1880.
n Exclusive of Edgerton city.

POPULATION BY MINOR CIVIL DIVISIONS—CONTINUED.

MINOR CIVIL DIVISIONS.	1890.	1880.
ROCK COUNTY—Continued.		
Johnstown town	1,034	1,217
La Prairie town	832	819
Lima town	1,109	1,094
Magnolia town	1,098	1,143
Milton town, including Milton and Milton Junction villages.	2,300	1,794
Milton village	685	508
Milton Junction village	681	.....
Newark town	1,039	1,130
Plymouth town	1,188	1,245
Porter town	1,235	1,224
Rock town	976	1,006
Spring Valley town	1,422	1,172
Turtle town	993	1,133
Union town	950	a1,009
SAINT CROIX COUNTY	23,139	18,956
Baldwin town, including Baldwin village	1,796	1,228
Baldwin village	482	591
Cady town	771	516
Cylon town	701	716
Eau Galle town	1,374	646
Emerald town	543	619
Erin Prairie town	844	1,013
Forest town (b)	190	.....
Glenwood town (b)	1,656	.....
Hammond town, including Hammond village	1,278	1,418
Hammond village	388	361
Hudson city	2,885	2,298
Ward 1	515	
Ward 2	1,166	
Ward 3	1,204	
Hudson town	593	665
Kinnickinnick town	614	778
New Richmond city	1,408	729
Ward 1	457	
Ward 2	491	
Ward 3	460	
Pleasant Valley town	529	593
Richmond town	826	c813
River Falls city (part of)	181	.....
Ward 1	181	
Total for River Falls city, in Pierce and Saint Croix counties.	1,783	1,499
Rush River town	650	677
Saint Joseph town	774	642
Somerset town	1,148	968
Springfield town, including Wilson village	1,431	1,372
Wilson village	393	442
Stanton town	758	752
Star Prairie town	761	c788
Troy town	692	979
Warren town	736	746
SAUK COUNTY	30,575	28,729
Baraboo city	4,605	3,266
Ward 1	1,705	
Ward 2	1,545	
Ward 3	1,355	
Baraboo town	1,386	d1,328
Bear Creek town	883	808
Dellona town	594	580
Delton town	829	857
Excelsior town, including Ableman village	1,299	1,109
Ableman village	332	163
Fairfield town	672	744
Franklin town	1,044	1,010
Freedom town, including North Freedom village.	1,259	1,332
North Freedom village	316	.....
Greenfield town	848	792
Honey Creek town	1,124	1,248
Ironton town, including Ironton village	1,455	1,310
La Valle town, including La Valle village	1,367	1,364
La Valle village	333	300
Merrimack town	847	829
Prairie du Sac town	618	e613
Prairie du Sac village	562	433
Reedsburg city	1,737	1,381

MINOR CIVIL DIVISIONS.	1890.	1880.
SAUK COUNTY—Continued.		
Reedsburg town	1,112	f1,215
Sauk City village	876	917
Spring Green town, including Spring Green village.	1,208	1,090
Spring Green village	625	450
Sumpter town	761	746
Troy town	911	1,029
Washington town	1,206	1,175
Westfield town	1,357	1,462
Winfield town	793	773
Woodland town	1,222	1,368
SAWYER COUNTY (g)	1,977	.....
Hayward village	1,349	.....
SHAWANO COUNTY	19,236	10,371
Almon town	463	303
Angelica town	680	335
Aniwa town (b)	686	.....
Belle Plaine town	1,028	735
Birnamwood town (b)	731	.....
Fairbanks town	792	191
Germania town (b)	131	.....
Grant town	1,026	757
Green Valley town	784	392
Hartland town	1,379	1,196
Herman town	853	462
Hutchins town	620	280
Lessor town	749	465
Maple Grove town	1,400	600
Morris town (b)	400	.....
Navarino town	243	189
Pella town	816	585
Richmond town	1,128	706
Seneca town	350	346
Shawano city	1,505	890
Ward 1	603	
Ward 2	437	
Ward 3	465	
Washington town	1,242	809
Waukechon town	846	645
Wittenberg town (b), including Wittenberg village.	1,384	.....
Wittenberg village	726	.....
Milltown town (h)	.....	485
SHEBOYGAN COUNTY	42,489	34,206
Greenbush town	1,690	1,977
Herman town	1,998	2,133
Holland town	2,874	3,012
Lima town	1,921	2,126
Lyndon town	1,697	1,704
Mitchell town	1,012	1,178
Mosel town	863	1,011
Plymouth city	1,503	1,052
Plymouth town	1,356	1,482
Rhine town	1,612	1,542
Russell town	439	557
Scott town	1,473	1,584
Sheboygan city	16,359	7,314
Ward 1	2,295	
Ward 2	2,323	
Ward 3	1,474	
Ward 4	2,012	
Ward 5	1,727	
Ward 6	1,701	
Ward 7	1,363	
Ward 8	3,464	
Sheboygan Falls town	1,677	1,810
Sheboygan Falls village	1,118	1,148
Sheboygan town	2,117	1,616
Sherman town	1,736	1,750
Wilson town	1,044	1,210

a Exclusive of Evansville village.
b Organized since 1880.
c Exclusive of part of New Richmond city.
d Exclusive of Baraboo city.
e Exclusive of Sauk city and Prairie du Sac villages.
f Exclusive of Reedsburg city.
g Organized in 1883 from parts of Ashland and Chippewa counties.
h No corporate existence in 1890.

POPULATION BY MINOR CIVIL DIVISIONS—CONTINUED.

MINOR CIVIL DIVISIONS.	1890.	1880.
TAYLOR COUNTY	6,731	2,311
Browning town (a)	230	
Chelsea town	613	298
Deer Creek town	573	b763
Little Black town	1,131	
Greenwood town (a)	233	
Grover town (a)	296	
Medford town	1,094	c516
Medford city	1,193	504
Ward 1	469	
Ward 2	345	
Ward 3	379	
Molitor town (a)	117	
Pine Creek town (a)	190	
Rib Lake town (d)	520	
Westboro town	541	230
TREMPEALEAU COUNTY	18,920	17,189
Albion town	847	666
Arcadia town, including Arcadia village	3,147	3,167
Arcadia village	659	665
Burnside town, including Independence village	1,207	1,591
Independence village	382	365
Caledonia town	379	446
Chimney Rock town (e)	682	
Dodge town	448	569
Ettrick town	1,841	1,656
Gale town, including Galesville village	1,816	1,786
Galesville village	537	410
Hale town	1,566	1,301
Lincoln town, including Whitehall village	937	863
Whitehall village	304	267
Pigeon town	1,038	793
Preston town	1,811	1,530
Sumner town	854	693
Trempealeau town, including Trempealeau village. (f)	1,584	1,567
Unity town	763	561
VERNON COUNTY	25,111	23,235
Bergen town	1,011	1,014
Christiana town	1,521	1,305
Clinton town	1,045	1,008
Coon town	1,188	983
Forest town	1,055	889
Franklin town	1,289	1,319
Genoa town	1,026	919
Greenwood town	1,120	1,050
Hamburg town	1,081	1,156
Harmony town	1,100	1,062
Hillsboro town, including Hillsboro village	1,639	1,218
Hillsboro village	461	195
Jefferson town	1,400	1,284
Kickapoo town	1,185	1,233
Liberty town	663	543
Stark town	1,033	954
Sterling town	1,152	1,382
Union town	819	741
Viroqua city	1,270	762
Viroqua town	1,680	g1,606
Webster town	1,092	1,060
Wheatland town, including part of De Soto village.	879	917
De Soto village (part of)	276	
Total for De Soto village, in Crawford and Vernon counties.	355	301
Whitestown town	863	830
WALWORTH COUNTY	27,860	26,249
Bloomfield town	1,197	1,097
Darien town, including Darien village	1,218	1,394
Darien village	354	427
Delavan town, including Delavan village	2,715	2,560
Delavan village	2,038	1,798
East Troy town, including East Troy village	1,406	1,407
East Troy village	402	368
Elkhorn village	1,447	1,122
Geneva town	1,073	h930
Lafayette town	933	1,028
La Grange town	844	921
Lake Geneva city	2,297	1,969
Linn town	854	823
Lyons town	1,328	1,312
Richmond town	799	882
Sharon town, including Sharon village	2,038	1,956
Sharon village	378	657
Spring Prairie town	1,155	1,107
Sugar Creek town	1,004	980
Troy town	972	964
Walworth town	1,372	1,278
Whitewater city	4,359	3,617
Ward 1	1,416	
Ward 2	1,452	
Ward 3	1,491	
Whitewater town	849	i902
WASHBURN COUNTY (j)	2,926	
Bashaw town	394	
Long Lake town	118	
Shell Lake town	1,535	
Spooner town	734	
Veazie town	145	
WASHINGTON COUNTY	22,751	23,442
Addison town	1,863	1,774
Barton town	1,169	1,275
Erin town	1,301	1,273
Farmington town	1,501	1,770
Germantown town	2,026	1,979
Hartford city	1,296	1,343
Ward 1	580	
Ward 2	716	
Hartford town	1,339	k1,396
Jackson town	1,680	1,844
Kewaskum town, including Kewaskum village	1,572	1,436
Kewaskum village	557	471
Polk town, including Schleisingerville village	2,071	2,037
Schleisingerville village	432	358
Richfield town	1,584	1,708
Trenton town	1,760	1,890
Wayne town	1,471	1,594
West Bend city	1,296	1,273
West Bend town	822	850
WAUKESHA COUNTY	33,270	28,957
Brookfield town	1,960	2,096
Delafield town, including part of Hartland village.	1,684	1,451
Hartland village (part of)	381	
Total for Hartland village, in Delafield and Merton towns.	486	287
Eagle town	1,020	1,155
Genesee town	1,327	1,368
Lisbon town	1,443	1,437
Menomonee town, including Menomonee Falls village.	2,480	2,258
Menomonee Falls village	422	366
Merton town, including part of Hartland village.	1,604	1,577
Hartland village (part of)	105	
Mukwonago town, including Mukwonago village.	1,217	1,084
Mukwonago village	356	239
Muskego town	1,390	1,422
New Berlin town	1,519	1,620
Oconomowoc city	2,729	2,174
Oconomowoc town	1,373	1,336
Ottawa town	880	841
Pewaukee town, including Pewaukee village	2,757	2,192
Pewaukee village	680	566
Summit town	1,130	1,188
Vernon town	1,277	1,195
Waukesha town, including Waukesha village	7,480	4,613
Waukesha village	6,321	2,969

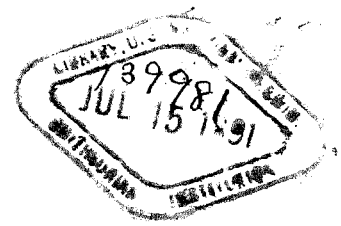
a Organized in 1886.
b Little Black and Deer Creek towns, not separately returned in 1880.
c Exclusive of Medford city.
d Organized in 1885.
e Organized since 1880.
f Not separately returned.
g Exclusive of Viroqua city.
h Exclusive of Lake Geneva city.
i Exclusive of Whitewater city.
j Organized in 1883 from part of Burnett county.
k Exclusive of Hartford city.

POPULATION BY MINOR CIVIL DIVISIONS—CONTINUED.

MINOR CIVIL DIVISIONS.	1890.	1880.
WAUPACA COUNTY	26,794	20,955
Bear Creek town	1,136	984
Caledonia town	943	902
Clintonville city	1,466	573
Dayton town	852	801
Dupont town, including Marion village	1,386	654
Marion village	470	161
Farmington town	1,087	764
Fremont town, including Fremont village	805	879
Fremont village	275	303
Helvetia town	511	243
Iola town	1,315	979
Larrabee town	1,436	a812
Lebanon town	932	843
Lind town	1,016	978
Little Wolf town, including Manawa village	1,487	1,342
Manawa village	350	364
Matteson town	860	520
Mukwa town	1,040	1,022
New London city (part of)	1,682	1,552
Total for New London city, in Outagamie and Waupaca counties.	2,050	1,808
Royalton town	1,198	1,086
Saint Lawrence town	1,004	874
Scandinavia town	1,142	987
Union town	1,153	684
Waupaca city	2,127	1,392
Waupaca town	964	841
Weyauwega town, including Weyauwega village.	1,252	1,243
Weyauwega village	706	722
WAUSHARA COUNTY	13,507	12,687
Aurora town, including part of Berlin city	934	1,081
Berlin city (part of)	31	.....
Total for Berlin city, in Green Lake and Waushara counties.	4,149	3,353
Bloomfield town	1,278	1,384
Coloma town	723	443
Dakota town	573	537
Deerfield town	458	307
Hancock town	660	575
Leon town	731	768
Marion town	623	582
Mount Morris town	668	665
Oasis town	707	628
Plainfield town	799	761
Plainfield village	459	348
Poysippi town	912	1,031
Richford town	573	449
Rose town	577	464
Saxville town	765	719
Springwater town	541	577
Warren town	796	660
Wautoma town	704	708
WINNEBAGO COUNTY	50,097	42,740
Algoma town	757	791
Black Wolf town	837	888
Clayton town	1,170	1,270
Menasha city	4,581	3,144
Ward 1	1,372	
Ward 2	1,090	
Ward 3	829	
Ward 4	1,290	
WINNEBAGO COUNTY—Continued.		
Menasha town	595	631
Neenah city	5,083	4,202
Ward 1	1,558	
Ward 2	1,468	
Ward 3	1,552	
Ward 4	505	
Neenah town	538	588
Nekimi town	1,028	1,226
Nepeuskun town	908	1,050
Omro town, including Omro village	2,270	2,694
Omro village	1,232	1,476
Oshkosh city	22,836	15,748
Ward 1	3,300	
Ward 2	3,591	
Ward 3	3,573	
Ward 4	5,312	
Ward 5	3,099	
Ward 6	3,961	
Oshkosh town	1,489	1,384
Poygan town	747	925
Rushford town	1,608	2,059
Utica town	981	1,045
Vineland town	936	1,069
Winchester town	1,030	1,176
Winneconne town	698	b932
Winneconne village	1,086	978
Wolf River town	919	940
WOOD COUNTY	18,127	8,981
Auburndale town, including Auburndale village.	909	809
Auburndale village	253	.....
Centralia city	1,435	806
Ward 1	255	
Ward 2	578	
Ward 3	602	
Grand Rapids city	1,702	1,350
Ward 1	438	
Ward 2	556	
Ward 3	362	
Ward 4	346	
Grand Rapids town	627	656
Lincoln town	870	532
Marshfield city	3,450	669
Ward 1	841	
Ward 2	1,093	
Ward 3	943	
Ward 4	573	
Marshfield town	701	c332
Milladore town (d)	760	.....
Pittsville city	653	163
Ward 1	278	
Ward 2	192	
Ward 3	183	
Port Edwards town	582	348
Remington town	427	196
Richfield town (d)	194	.....
Rock town	597	261
Rudolph town	1,087	908
Saratoga town	326	316
Seneca town	875	567
Sherry town (d)	487	.....
Sigel town	1,232	656
Vesper town (d)	322	.....
Wood town, including Dexterville village	891	e203
Dexterville village	354	62
Dexter town (f)	.....	209

a Exclusive of Clintonville city.
b Exclusive of Winneconne village.
c Exclusive of Marshfield city.
d Organized since 1880.
e Exclusive of Pittsville city.
f No corporate existence in 1890.

ROBERT P. PORTER,
Superintendent of Census.



CENSUS BULLETIN.

No. 92. WASHINGTON, D. C. July 10, 1891.

POPULATION OF WYOMING

BY MINOR CIVIL DIVISIONS.

DEPARTMENT OF THE INTERIOR,
CENSUS OFFICE,
WASHINGTON, D. C., July 3, 1891.

This bulletin gives in detail the population of the state of Wyoming by counties, cities, and towns, also Laramie city by wards, according to the official returns made under the Eleventh Census, taken as of June 1, 1890. The population according to the census of 1880 is given for the purpose of showing the changes during the decade.

The population of the state of Wyoming under the present census is 60,705; the population in 1880 was 20,789. This shows an increase during the decade of 39,916, or 192.01 per cent.

Since 1880 six counties have been formed from parts of other counties: Fremont in 1884 from Sweetwater, Sheridan in 1887 from Johnson, Converse in 1887 from Albany and Laramie, Weston in 1890 from Crook, Natrona in 1890 from Carbon, and Big Horn in 1890 from Fremont, Johnson, and Sheridan. The supervisor of census for the state of Wyoming in districting the state paid no attention to the limits of the new county of Big Horn; consequently the population of that county is included in the population of the counties from which parts have been taken to form it. In other cases, where parts of counties have been taken to form new counties, the population of the original counties is given as returned under the census of 1880. Comparison is thus made between one area for 1880 and a decreased area for 1890. In all the counties in the state large increases are shown.

C. O. P.—10m

SUMMARY BY COUNTIES.

COUNTIES.	POPULATION.		INCREASE.		COUNTIES.	POPULATION.		INCREASE.	
	1890.	1880.	Number.	Per cent.		1890.	1880.	Number.	Per cent.
The State	60,705	20,789	39,916	192.01	Johnson	2,357	637	1,720	270.02
Albany	8,865	4,626	4,239	91.63	Laramie	16,777	6,409	10,368	161.77
Big Horn					Natrona	1,094		1,094	
Carbon	6,857	3,438	3,419	99.45	Sheridan	1,972		1,972	
Converse	2,738		2,738		Sweetwater	4,941	2,561	2,380	92.93
Crook	2,338	239	2,099	878.24	Uinta	7,881	2,879	5,002	173.74
Fremont	2,463		2,463		Weston	2,422		2,422	

The population of the eight cities and towns having 1,000 inhabitants and over, in the order of their rank, is as follows:

CITIES AND TOWNS.	COUNTIES.	POPULATION.		INCREASE.	
		1890.	1880.	Number.	Per cent.
Cheyenne city	Laramie	11,690	3,456	8,234	238.25
Laramie city	Albany	6,388	2,696	3,692	136.94
Rock Springs town	Sweetwater	3,406	763	2,643	346.40
Rawlins city	Carbon	2,235	1,451	784	54.03
Evanston town	Uinta	1,995	1,277	718	56.23
New Castle town	Weston	1,715		1,715	
Carbon town	Carbon	1,140	365	775	212.33
Buffalo town	Johnson	1,087		1,087	

The following table shows the population of the cities and towns in each county. Laramie city is shown by wards. Owing to the manner in which the schedules were returned by the enumerators, it is impossible to show the population of the various counties by precincts.

POPULATION BY MINOR CIVIL DIVISIONS.

MINOR CIVIL DIVISIONS.	1890.	1880.
ALBANY COUNTY	8,865	*a*4,626
Laramie city	6,388	2,696
Ward 1	1,720	
Ward 2	1,068	
Ward 3	3,600	
CARBON COUNTY	6,857	*b*3,438
Carbon town	1,140	365
Dana town	253	
Hanna town	260	
Rawlins city	2,235	1,451
Saratoga town	274	
CONVERSE COUNTY (*c*)	2,738	
Douglas town	491	
Lusk town	253	
CROOK COUNTY	2,338	*d*239
Sundance town	515	
FREMONT COUNTY (*e*)	2,463	
Lander town	525	193
JOHNSON COUNTY	2,357	*f*637
Buffalo town	1,087	
Fort McKinney	291	279
LARAMIE COUNTY	16,777	*a*6,409
Cheyenne city	11,690	3,456
Fort D. A. Russell	553	508
NATRONA COUNTY (*g*)	1,094	
Casper town	544	
SHERIDAN COUNTY (*h*)	1,972	
Big Horn town	287	
Sheridan town	281	
SWEETWATER COUNTY	4,941	*i*2,561
Green River City town	723	327
Rock Springs town	3,406	763
UINTA COUNTY	7,881	2,879
Evanston town	1,995	1,277
Fort Bridger	295	44
Yellowstone National Park	467	
WESTON COUNTY (*j*)	2,422	
Cambria town	329	
New Castle town	1,715	

a Includes that part given to Converse county in 1887.
b Includes that part given to Natrona county in 1890.
c Organized in 1887 from parts of Albany and Laramie counties.
d Includes that part given to Weston county in 1890.
e Organized in 1884 from part of Sweetwater county.
f Includes that part given to Sheridan county in 1887.
g Organized in 1890 from part of Carbon county.
h Organized in 1887 from part of Johnson county.
i Includes that part given to Fremont county in 1884.
j Organized in 1890 from part of Crook county.

ROBERT P. PORTER,
Superintendent of Census.

[7-010]

CENSUS BULLETIN.

No. 93. WASHINGTON, D. C. July 11, 1891.

POPULATION OF ARIZONA

BY MINOR CIVIL DIVISIONS.

DEPARTMENT OF THE INTERIOR,
CENSUS OFFICE,
WASHINGTON, D. C., July 3, 1891.

This bulletin gives the population of the territory of Arizona by counties, cities, and towns, according to the official count of the returns made under the Eleventh Census, taken as of June 1, 1890. The figures for 1880 are also given for purposes of comparison.

The population of the territory under the present census is 59,620, an increase of 19,180, or 47.43 per cent, over the population in 1880, which was 40,440.

In 1881 three new counties were formed: Cochise from Pima, Gila from Maricopa and Pinal, and Graham from Apache and Pima. The population according to the census of 1880 of the parts of counties taken to form new counties is given to the counties to which they formerly belonged. Decreases appear in Apache and Pima counties by reason of contrasting the figures for 1890 for a reduced area with the figures for 1880 for the original area. Yuma county shows a decrease of 544, or 16.92 per cent. In most of the counties satisfactory increases are shown.

The following summary gives the population of each county according to the present census, together with the figures for 1880, showing also the increase as to number and per cent during the decade:

SUMMARY BY COUNTIES.

COUNTIES.	POPULATION.		INCREASE.		COUNTIES.	POPULATION.		INCREASE.	
	1890.	1880.	Number.	Per cent.		1890.	1880.	Number.	Per cent.
The Territory	59,620	40,440	19,180	47.43	Maricopa	10,986	5,689	5,297	93.11
					Mohave	1,444	1,190	254	21.34
Apache	4,281	5,283	a1,002	a18.97	Pima	12,673	17,006	a4,333	a25.48
Cochise	6,938		6,938		Pinal	4,251	3,044	1,207	39.65
Gila	2,021		2,021		Yavapai	8,685	5,013	3,672	73.25
Graham	5,670		5,670		Yuma	2,671	3,215	a544	a16.92

a Decrease.

C. O. P.—10m

The population of eight cities and towns, in the order of their rank, is as follows:

CITIES AND TOWNS.	COUNTIES.	POPULATION.		INCREASE.	
		1890.	1880.	Number.	Per cent.
Tucson city	Pima	5,150	7,007	a1,857	a26.50
Phœnix city	Maricopa	3,152	1,708	1,444	84.54
Tombstone city	Cochise	1,875	973	902	92.70
Yuma city	Yuma	1,773	1,200	573	47.75
Prescott city	Yavapai	1,759	1,836	a77	a4.19
Bisbee town	Cochise	1,535		1,535	
Florence town	Pinal	1,486	902	584	64.75
Nogales town	Pima	1,194		1,194	

a Decrease.

The following table shows the population of each county, with the cities and towns contained therein; also the city of Tucson by wards. Owing to the manner in which the schedules were returned by the enumerators, it is impossible to give the population of the counties by precincts.

POPULATION BY MINOR CIVIL DIVISIONS.

MINOR CIVIL DIVISIONS.	1890.	1880.
APACHE COUNTY	4,281	a5,283
Fort Apache town	413	
Holbrook town	206	
Springerville town	443	364
Saint John town	482	546
Winslow town	363	
COCHISE COUNTY (b)	6,938	
Benson town	348	
Bisbee town	1,535	
Fairbanks town	478	
Fort Huachuca	296	
Tombstone city	1,875	973
Wilcox town	396	
GILA COUNTY (c)	2,021	
Fort San Carlos	344	
Globe town	803	704
GRAHAM COUNTY (d)	5,670	
Clifton town	600	
Fort Grant (e)	498	243
Morenci town	758	
Solomonville town	287	175
Thomas town	195	
MARICOPA COUNTY	10,986	f5,689
Gila Bend town	135	
Lehi town	269	
Phœnix city	3,152	1,708
MOHAVE COUNTY	1,444	1,190
Kingman town	322	
PIMA COUNTY	12,673	g17,006
Arivaca town	236	
Fort Lowell	545	227
Harshaw town	260	
Nogales town	1,194	
Tucson city	5,150	7,007
Ward 1	2,287	
Ward 2	2,863	
PINAL COUNTY	4,251	h3,044
Casa Grande town	328	33
Florence town	1,486	902
Reymert town	254	
Silver King town	212	
YAVAPAI COUNTY	8,685	5,013
Congress town	242	
Flagstaff town	963	
Jerome town	250	
Prescott city	1,759	1,836
Whipple Barracks	338	
Williams town	199	
YUMA COUNTY	2,671	3,215
Yuma city	1,773	1,200

a Includes that part given to Graham county in 1881.
b Organized in 1881 from part of Pima county.
c Organized in 1881 from parts of Maricopa and Pinal counties.
d Organized in 1881 from parts of Pima and Apache counties.
e Formerly Camp Grant.
f Includes that part given to Gila county in 1881.
g Includes that part given to Cochise and Graham counties in 1881.
h Includes that part given to Gila county in 1881.

ROBERT P. PORTER,
Superintendent of Census.

[7-010]

CENSUS BULLETIN.

No. 94. WASHINGTON, D. C. July 13, 1891.

MINES AND MINING.

COAL PRODUCT OF WEST VIRGINIA, KENTUCKY, TENNESSEE, VIRGINIA, GEORGIA, AND NORTH CAROLINA.

DEPARTMENT OF THE INTERIOR,
CENSUS OFFICE,
WASHINGTON, D. C., July 1, 1891.

The following bulletin in relation to the production of coal in the states of West Virginia, Kentucky, Tennessee, Virginia, Georgia, and North Carolina has been prepared by Mr. JOHN H. JONES, special agent, under the supervision of Dr. DAVID T. DAY, special agent in charge of the Division of Mines and Mining of the Census Office.

The total production of coal in these states in 1889 is reported at 11,649,266 short tons, valued at $10,943,089. The production for the same states at the Tenth Census was 3,469,336 short tons, valued at $4,110,162. The following comparative statement of the Tenth and Eleventh Censuses, by states, shows a remarkable increase in production in 1889:

STATES.	ELEVENTH CENSUS.		TENTH CENSUS.	
	Product. (Short tons.)	Value.	Product. (Short tons.)	Value.
West Virginia	6,231,880	$5,086,584	1,829,844	$2,013,671
Kentucky	2,399,755	2,374,339	946,288	1,134,960
Tennessee	1,925,689	2,338,309	495,131	629,724
Virginia	865,786	804,475	a43,079	a99,802
Georgia and North Carolina	226,156	339,382	154,994	232,005

a In addition to the bituminous coal reported in the table, Virginia produced 2,817 short tons of anthracite coal, valued at $8,290.

The product of West Virginia in 1889 was 6,231,880 short tons, valued at $5,086,584; total capital invested is reported as $10,508,050, total number of employés as 9,952, who were paid in wages $3,888,712, and total expenditures of all kinds as $4,841,796. The coal of this state embraces the highest grades of bituminous, steam, coking, and gas coals.

The product of Kentucky is reported as 2,399,755 short tons, valued at $2,374,339; total capital invested, $6,581,380; total number of employés, 5,260, who received in wages $1,756,363, and total

expenditures of all kinds, $2,156,548. The character of this coal is semi-bituminous, free-burning, and non-coking. This state produces some of the finest cannel coal in the United States, which is widely distributed for domestic grate fuel in the eastern cities, competing successfully with the cannel coal imported from Great Britain. A large quantity of this coal is exported to ports heretofore supplied with English and Australian coals.

The production of Tennessee is given as 1,925,689 short tons, valued at $2,338,309; total capital invested, $4,362,711; total number of employés, 4,108, who received in wages $1,609,310, and total expenditures of all kinds, $2,113,292. The general character of the coal in Tennessee is bituminous, though high grades of gas and cannel coals are abundant. No less than eighteen distinct seams of coal have been identified in this state in the Cumberland mountains, but many of them are not of a character to be worked.

The production of Virginia was 865,786 short tons, valued at $804,475; total capital invested, $1,055,516; total number of employés, 1,555, who were paid in wages $621,266, and total expenditures of all kinds, $682,408. The coal of this state is bituminous, and some of the finest grades of steam, coking, and gas coals are found. In that part of the state lying north of the James river, in the Richmond coal field, there exists an unusual formation of natural coke, strongly resembling artificial coke, which is found to be a very good domestic fuel.

The statistics of Georgia and North Carolina are combined in this report; the product is reported as 226,156 short tons, valued at $339,382; the total capital invested, $724,500; the total number of employés, 740, who were paid in wages $265,464, and the total expenditures of all kinds, $426,065.

Robert P. Porter

Superintendent of Census.

COAL PRODUCT OF WEST VIRGINIA, KENTUCKY, TENNESSEE, VIRGINIA, GEORGIA, AND NORTH CAROLINA.

BY JOHN H. JONES.

COAL PRODUCT OF WEST VIRGINIA.

The Appalachian field passes southward from the Pennsylvania state line, covering almost the entire state of West Virginia. A detached arm, extending southwestward through Allegany and Garrett counties, Maryland, and Mineral and Grant counties, West Virginia, constitutes what is known as the Elk Garden district. This basin continues southwestward through Tucker and Randolph counties along the valley of the Otter Fork creek. Nine distinct seams underlie this district, including the Big Vein, which has a thickness of from 14 to 16 feet, the others varying from 2.5 to 7 feet, all being of a character to admit of profitable development. The main body of this great field in West Virginia lies between a line drawn from the Maryland state line in Preston county southwestward through Mercer county to the Virginia state line and the western boundary of the state and includes all but six of the fifty-four counties, although mining operations on a commercial scale are carried on in only sixteen counties.

The coal measures of West Virginia are a continuation of those described in Pennsylvania. The Pittsburg bed, at the bottom of the upper productive measures, is found in the northern portion, the Middle coal measures in the Kanawha Valley region, and the Lower coal measures in the Flat Top region. No state in the Union is more favored in the extent and diversity of its mineral deposits than West Virginia. Her coal embraces all grades of bituminous, steam, cooking, and gas coals of the highest qualities. The natural water ways, improved slack-water navigation, and increasing railroad facilities are important factors in the development of the resources of the state, which must soon be accorded a leading position in wealth and industrial prosperity.

The coal product of West Virginia for the year ended June 30, 1880, as reported to the Tenth Census, was 1,829,844 short tons, valued at $2,013,671, an average of $1.10 per ton at the mines. The quantity mined during the calendar year 1889, as reported to the Eleventh Census, was 6,231,880 short tons, valued at $5,086,584, an average of $0.82 per ton at the mines.

The table on the following page gives, by counties, the total production of coal in West Virginia in 1889 and disposition of the same.

COAL PRODUCT OF WEST VIRGINIA FOR 1889, BY COUNTIES.

COUNTIES.	NUMBER OF MINES.		Total product of coal of all grades for 1889. (Short tons.)	DISPOSITION OF TOTAL PRODUCT.					Total amount received for coal sold in 1889.	Average price of coal at the mines per 2,000 pounds.
	Regular establishments.	Small banks and local mines.		Loaded at mines for shipment on railroad cars and boats. (Short tons.)	Sold to local trade at mines. (Short tons.)	Used by employés. (Short tons.)	Used for steam at mines. (Short tons.)	Manufactured into coke. (Short tons.)		
Total	115	996	6,231,880	4,764,900	448,527	44,760	37,368	936,325	$5,086,584	$0.82
Barbour		3	1,600		1,600				1,200	0.75
Boone		167	2,888		2,888				2,293	0.79
Braxton		3	160		160				120	0.75
Brooke	2	8	31,119	14,035	16,831	103	150		22,828	0.73
Cabell		5	505		505				485	0.96
Calhoun		5	220		220				165	0.75
Clay		17	256		256				192	0.75
Fayette	28	35	1,450,780	1,074,409	12,211	11,468	7,150	345,542	1,302,438	0.90
Gilmer		9	820		820				615	0.75
Harrison	8	281	174,115	141,343	26,328	1,200	11	5,233	114,427	0.66
Kanawha	21	20	1,218,236	1,168,024	31,393	10,614	3,529	4,676	1,166,038	0.96
Lewis		2	60		60				30	0.50
Lincoln		11	284		284				213	0.75
Logan		19	3,456		3,456				2,592	0.75
McDowell	7		586,529	309,489	56,620	4,788	3,265	212,367	390,232	0.67
Marion	5	122	282,467	157,975	24,066	974	1,932	97,520	199,692	0.71
Marshall	2	7	47,706	33,000	14,106		600		35,956	0.75
Mason	12	11	185,030	83,116	96,844	3,613	1,457		167,783	0.91
Mercer	6	3	921,741	750,507	13	4,302	1,858	165,061	594,885	0.65
Mineral	4	1	493,464	487,622	3,862	1,924	56		394,827	0.80
Monongalia	1	106	74,031	64,927	7,177	438	1,489		53,318	0.72
Monroe		3	30		30				23	0.77
Nicholas		17	1,408		1,408				1,056	0.75
Ohio	7	23	143,170	28,121	113,615	1,020	414		126,909	0.89
Pocahontas		2	240		240				180	0.75
Preston	4	34	129,932	41,807	3,893	2,156	5,124	76,952	86,024	0.66
Putnam	4	12	218,752	210,214	6,140	1,384	1,014		244,203	1.12
Raleigh		4	1,480		1,480				1,110	0.75
Ritchie		2	1,627		1,528	36	63		998	0.61
Taylor	2	7	83,012	58,318	16,685	337	21	7,651	52,725	0.64
Tucker	2		173,492	141,993	538	403	9,235	21,323	120,574	0.69
Tyler		1	12		12				9	0.75
Upshur		33	2,114		2,114				1,586	0.75
Wayne		5	880		880				660	0.75
Wetzel		18	264		264				198	0.75

The following table shows the office force employed and the amount expended in coal-mining operations during the year 1889:

EXPENDITURES AT WEST VIRGINIA COAL MINES IN 1889, BY COUNTIES.

COUNTIES.	OFFICE FORCE.						Total number of employés.	Total amount of wages.	Total value of supplies and materials of all kinds during 1889.	Total of all other expenditures for the mines or works.	Total mining expenditures.	Amount paid for contract work during 1889.	Grand total of all expenditures.
	Males.		Females.		Total.								
	No.	Amount of wages.	No.	Amount of wages.	No.	Amount of wages.							
Total	173	$139,540	1	$451	174	$139,991	9,952	$3,888,712	$462,591	$443,394	$4,794,697	$47,099	$4,841,796
Brooke	2	868			2	868	50	17,805	1,025	1,450	20,280		20,280
Fayette	54	43,362			54	43,362	2,644	1,073,540	139,427	124,307	1,337,274	6,483	1,343,757
Harrison	6	3,320			6	3,320	233	64,488	6,620	5,632	76,740	846	77,586
Kanawha	38	37,468			38	37,468	2,484	975,936	108,186	90,511	1,174,633	10,235	1,184,868
McDowell	16	11,194			16	11,194	764	301,634	17,498	36,752	355,884	771	356,655
Marion	6	4,018	1	451	7	4,469	333	118,289	12,262	15,692	146,243		146,243
Marshall	2	1,000			2	1,000	72	29,500	3,000	1,600	34,100		34,100
Mason	9	4,754			9	4,754	363	128,052	18,252	36,959	183,263		183,263
Mercer	16	14,027			16	14,027	1,121	415,348	70,652	73,615	559,615		559,615
Mineral	3	1,960			3	1,960	608	261,105	18,242	3,668	283,015	12,414	295,429
Monongalia	1	160			1	160	61	25,930	3,475	2,500	31,905		31,905
Ohio	4	1,920			4	1,920	204	88,056	6,101	8,644	102,801		102,801
Preston	4	3,879			4	3,879	239	85,290	11,465	7,809	104,564		104,564
Putnam	6	7,620			6	7,620	451	171,202	25,989	24,055	221,246	11,350	232,596
Taylor	3	2,610			3	2,610	96	37,957	6,174	5,200	49,331		49,331
Tucker	3	1,380			3	1,380	229	94,580	14,223	5,000	113,803	5,000	118,803

The following table gives the value of mines and improvements and the power used at the mines:

VALUE OF WEST VIRGINIA COAL MINES AND IMPROVEMENTS IN 1889 AND POWER USED IN MINING, BY COUNTIES.

COUNTIES.	VALUE OF MINES AND IMPROVEMENTS.									POWER USED IN MINING.				
	In land owned.		In land leased.		In buildings and fixtures.	In tools, implements, live stock, machinery, and supplies.	Total.	Cash capital not reported in the foregoing items.	Total capital.	Steam boilers.		Motors.		Number of animals.
	Acres.	Value.	Acres.	Value.						No.	Horse power.	No.	Horse power.	
Total	61,531	$3,694,987	45,990	$2,806,280	$2,160,249	$1,255,965	$9,917,481	$590,569	$10,508,050	62	1,815	8	320	1,305
Brooke	.....	.....	505	20,500	1,800	3,500	25,800	2,500	28,300	...	.....	....	.....	5
Fayette	18,903	1,023,221	13,102	831,930	1,015,189	279,464	3,149,804	187,190	3,336,994	5	160	....	.....	389
Harrison	1,972	107,910	160	8,000	28,340	21,990	166,240	9,450	175,690	....	.....	....	.....	42
Kanawha	17,408	393,948	16,970	1,161,732	388,626	188,823	2,133,129	142,550	2,275,679	8	270	3	110	313
McDowell	2,883	468,800	2,720	146,953	159,102	149,346	924,201	43,644	967,845	12	395	1	25	63
Marion	2,855	356,667	.....	.....	48,290	14,890	419,847	14,200	434,047	3	90	....	.....	41
Marshall	.....	.....	320	2,000	42,000	9,700	53,700	3,250	56,950	3	150	....	.....	8
Mason	1,045	136,125	2,220	72,750	35,050	44,505	288,430	15,900	304,330	6	149	3	135	80
Mercer	.....	.....	3,677	228,055	151,446	228,755	608,256	68,197	676,453	12	210	....	.....	108
Mineral	5,635	616,337	600	2,860	29,048	25,709	673,954	28,338	702,292	....	.....	....	.....	57
Monongalia	15	2,500	.....	.....	5,000	1,500	9,000	3,000	12,000	1	15	....	.....	4
Ohio	1,587	61,316	256	34,000	12,000	28,000	135,316	13,250	148,566	2	70	....	.....	55
Preston	4,207	393,120	700	14,000	78,800	59,375	545,295	10,200	555,495	9	286	....	.....	47
Putnam	3,816	74,543	3,760	223,500	103,358	134,608	536,009	31,500	567,509	....	.....	....	.....	51
Taylor	205	20,500	.....	.....	12,200	25,800	58,500	4,400	62,900	1	20	1	50	16
Tucker	1,000	40,000	1,000	60,000	50,000	40,000	190,000	13,000	203,000	....	.....	....	.....	26

The following table shows the labor employed at the mines, both above and below ground, the average wages per day, and the total amount of wages paid in 1889, by counties. The average wages per day given in this and all similar tables in this bulletin were obtained from statements of operators and are independent of the gross amount paid in wages.

EMPLOYÉS AT WEST VIRGINIA COAL MINES IN 1889, BY COUNTIES.

COUNTIES.	Total employés about mines.	ABOVE GROUND.											Total number employed.
		Foremen or overseers.			Mechanics.			Laborers.			Boys under 16 years.			
		Number employed.	Average wages per day.	Average number of days worked.	Number employed.	Average wages per day.	Average number of days worked.	Number employed.	Average wages per day.	Average number of days worked.	Number employed.	Average wages per day.	Average number of days worked.	
Total	9,778	117	$2.48	270	244	$1.90	246	1,135	$1.36	211	62	$0.76	203	1,558
Fayette	2,590	29	2.50	267	39	2.15	227	290	1.40	220	4	0.63	208	362
Harrison	227	2	1.50	121	4	1.85	163	26	1.13	219	10	1.00	200	42
Kanawha	2,446	26	2.41	287	66	1.90	263	391	1.37	215	21	0.73	238	504
McDowell	748	9	2.39	268	32	1.93	274	42	1.30	225	5	0.77	187	88
Marion	326	5	2.30	286	10	1.63	231	39	1.13	222	2	0.90	200	56
Mason	354	9	1.79	254	11	1.76	264	29	1.28	238	2	0.50	263	51
Mercer	1,105	8	3.44	290	19	1.98	243	113	1.40	130	6	0.50	172	146
Mineral	605	4	2.00	220	9	1.85	220	55	1.46	252	6	1.10	150	74
Ohio	200	3	2.46	284	6	1.50	240	10	1.39	223	.....	.....	.....	19
Preston	235	3	2.25	204	8	1.71	235	27	1.19	197	2	0.63	128	40
Putnam	445	10	2.87	288	23	1.84	237	69	1.36	208	1	0.50	150	103
Other counties (a)	497	9	2.42	279	17	1.77	222	44	1.33	230	3	0.57	195	73

a The counties here grouped, in order that the business of individual establishments may not be disclosed to the public, are Brooke, Marshall, Monongalia, Taylor, and Tucker.

EMPLOYÉS AT WEST VIRGINIA COAL MINES IN 1889, BY COUNTIES—CONTINUED.

COUNTIES.	BELOW GROUND.												Total number employed.	Total amount of wages paid during 1889.
	Foremen or overseers.			Miners.			Laborers.			Boys under 16 years.				
	Number employed.	Average wages per day.	Average number of days worked.	Number employed.	Average wages per day.	Average number of days worked.	Number employed.	Average wages per day.	Average number of days worked.	Number employed.	Average wages per day.	Average number of days worked.		
Total	118	$2.46	269	6,367	$1.86	223	1,504	$1.47	224	231	$0.66	219	8,220	$3,748,721
Fayette	28	2.60	273	1,624	1.99	219	508	1.40	222	68	0.75	219	2,228	1,030,178
Harrison	3	1.75	219	155	1.52	196	23	1.28	157	4	1.00	200	185	61,168
Kanawha	23	2.48	280	1,519	1.79	232	328	1.56	223	72	0.60	224	1,942	938,468
McDowell	6	3.11	281	497	1.77	232	140	1.45	242	17	0.67	242	660	290,440
Marion	5	1.80	224	225	1.64	234	35	1.13	238	5	0.96	166	270	113,820
Mason	12	1.76	255	246	1.58	222	39	1.33	260	6	0.68	254	303	123,298
Mercer	11	3.02	308	745	1.94	204	173	1.67	207	30	0.57	210	959	401,321
Mineral	7	2.34	253	479	1.97	224	45	1.57	243	.....	.....	.....	531	259,145
Ohio	3	1.97	235	124	2.14	231	51	1.45	219	3	0.42	280	181	86,136
Preston	5	2.17	265	116	1.78	218	71	1.29	227	3	0.55	208	195	81,411
Putnam	5	2.90	232	265	1.96	205	57	1.59	237	15	0.65	207	342	163,582
Other counties (a)	10	2.36	275	372	1.82	237	34	1.40	220	8	0.56	200	424	199,754

a The counties here grouped, in order that the business of individual establishments may not be disclosed to the public, are Brooke, Marshall, Monongalia, Taylor, and Tucker.

COAL PRODUCT OF KENTUCKY.

The coal areas of this state represent both the Appalachian and the Central or Illinois fields. The Appalachian field covers the entire eastern section of the state to the extent of 10,000 square miles, and underlies wholly or in part thirty counties. Operations on a commercial scale are conducted in the following counties in the southeastern district, namely, Bell, Knox, Laurel, Pulaski, and Whitley, and in the northeastern district in Boyd, Carter, Johnson, and Lawrence counties. In addition, small local mines are reported in Breathitt, Clay, Elliott, Floyd, Harlan, Jackson, Knott, Leslie, Letcher, Madison, Magoffin, Martin, Menifee, Morgan, Owsley, Perry, Pike, Powell, Rockcastle, Wayne, and Wolfe counties.

In the western part of this state the lower extremity of the Central or Illinois field extends over an area of about 4,000 square miles, underlying the counties of Butler, Christian, Crittenden, Daviess, Edmonson, Grayson, Greenup, Hancock, Henderson, Hopkins, McLean, Muhlenberg, Ohio, Todd, Union, and Webster. Twelve coal seams are identified in this district, but only five are worked to any extent. While in the eastern as well as in the western portion of this state as many as ten or twelve distinct seams have been noted, but one or two of them attain such uniformity of thickness and persistency of area as to warrant extensive mining operations.

The character of the coal is generally semi-bituminous, free-burning, and non-coking, but the various seams comprise all varieties, from bituminous shale to the finest grades of cannel coal. Some fair coking coals are mined in Hopkins county, in the western district, and in Bell county, in the southeastern district. This state possesses some of the finest beds of cannel coal known in the country, which are found in both the eastern and western districts, and the product is distributed widely for domestic grate fuel in the eastern cities, competing successfully with the English cannels. Indeed, much of it is shipped abroad into markets hitherto controlled by Australian and English coals.

The product of coal in Kentucky during the census year ended June 30, 1880, was 946,288 short tons, valued at $1,134,960, an average of $1.20 per ton at the mines. During the year 1889 the total product was 2,399,755 short tons, valued at $2,374,339, an average of $0.99 per ton at the mines.

The following table shows, by counties, the production of coal in Kentucky in 1889 and disposition of the same:

COAL PRODUCT OF KENTUCKY IN 1889, BY COUNTIES.

COUNTIES.	NUMBER OF MINES.		Total product of coal of all grades for 1889. (Short tons.)	DISPOSITION OF TOTAL PRODUCT.					Total amount received for coal sold in 1889.	Average price of coal at the mines per 2,000 pounds.
	Regular establishments.	Small banks and local mines.		Loaded at mines for shipment on railroad cars and boats. (Short tons.)	Sold to local trade at mines. (Short tons.)	Used by employés. (Short tons.)	Used for steam at mines. (Short tons.)	Manufactured into coke. (Short tons.)		
Total	79	1,762	2,399,755	2,111,010	225,234	21,072	23,981	18,458	$2,374,339	$0.99
Bell	3	32	20,095	3,270	13,084	114	57	3,570	28,144	1.40
Boyd	2	12	163,124	161,030	1,294	800	.....	.....	179,385	1.10
Breathitt	.....	42	353	.....	353	.....	.....	.....	324	0.92
Butler	.....	37	6,489	.....	6,489	.....	.....	.....	8,054	1.24
Carter	8	16	172,776	167,301	2,833	944	1,698	.....	196,892	1.14
Christian	1	4	27,281	23,154	1,112	15	3,000	.....	34,348	1.26
Clay	.....	90	5,170	.....	5,170	.....	.....	.....	6,207	1.20
Crittenden	1	6	5,286	3,976	1,270	40	.....	.....	5,604	1.06
Daviess	1	70	30,870	.....	30,600	194	76	.....	40,231	1.30
Edmonson	.....	13	78	.....	78	.....	.....	.....	78	1.00
Elliott	.....	59	1,100	.....	1,100	.....	.....	.....	1,247	1.13
Floyd	.....	102	2,236	.....	2,236	.....	.....	.....	2,433	1.09
Grayson	.....	6	492	.....	492	.....	.....	.....	615	1.25
Greenup	.....	11	632	.....	632	.....	.....	.....	792	1.25
Hancock	2	16	21,588	16,110	5,418	60	.....	.....	34,087	1.58
Harlan	.....	79	785	.....	785	.....	.....	.....	820	1.04
Henderson	4	7	65,682	39,473	22,829	1,822	1,558	.....	82,457	1.26
Hopkins	9	30	555,119	508,927	16,005	7,323	7,976	14,888	434,606	0.78
Jackson	.....	35	568	.....	568	.....	.....	.....	568	1.00
Johnson	3	174	32,347	24,544	7,550	5	248	.....	54,178	1.67
Knott	.....	66	1,158	.....	1,158	.....	.....	.....	1,052	0.91
Knox and Lee	1	1	48,703	47,503	1,200	.....	.....	.....	42,200	0.87
Laurel	14	28	280,451	273,244	6,165	739	303	.....	251,122	0.90
Lawrence	1	37	79,787	77,683	1,504	600	.....	.....	107,103	1.34
Leslie	.....	21	1,271	.....	1,271	.....	.....	.....	1,271	1.00
Letcher	.....	66	1,573	.....	1,573	.....	.....	.....	1,257	0.80
McLean	2	23	35,177	23,345	11,764	48	20	.....	41,199	1.17
Madison	.....	2	175	.....	175	.....	.....	.....	265	1.51
Magoffin	.....	96	5,404	.....	5,404	.....	.....	.....	6,623	1.23
Martin	.....	19	660	.....	660	.....	.....	.....	800	1.21
Menifee	.....	3	1,160	.....	1,160	.....	.....	.....	1,450	1.25
Morgan	.....	94	1,061	.....	1,061	.....	.....	.....	1,061	1.00
Muhlenberg	7	48	206,855	194,339	8,721	2,593	1,202	.....	180,654	0.87
Ohio	6	61	246,253	221,385	19,284	3,383	2,201	.....	200,497	0.81
Owsley	.....	77	2,201	.....	2,201	.....	.....	.....	2,751	1.25
Perry	.....	39	349	.....	349	.....	.....	.....	349	1.00
Pike	.....	66	1,962	.....	1,962	.....	.....	.....	1,962	1.00
Powell	.....	8	69	.....	69	.....	.....	.....	69	1.00
Pulaski	3	7	84,363	78,420	2,085	658	3,200	.....	109,587	1.30
Rockcastle	.....	16	1,432	.....	1,432	.....	.....	.....	1,790	1.25
Todd	.....	3	530	.....	530	.....	.....	.....	663	1.25
Union	5	13	56,556	41,278	13,651	273	1,354	.....	63,803	1.13
Wayne	.....	12	1,457	.....	1,457	.....	.....	.....	1,821	1.25
Webster	2	15	32,729	26,776	5,855	92	6	.....	26,379	0.81
Whitley	4	68	184,874	179,252	3,171	1,369	1,082	.....	203,264	1.10
Wolfe	.....	32	11,474	.....	11,474	.....	.....	.....	14,277	1.24

The following table shows the office force employed and the amount expended in coal-mining operations during the year 1889:

EXPENDITURES AT KENTUCKY COAL MINES IN 1889, BY COUNTIES.

COUNTIES.	OFFICE FORCE.						Total number of employés.	Total amount of wages.	Total value of supplies and materials of all kinds during 1889.	Total of all other expenditures for the mines or works.	Total mining expenditures.	Amount paid for contract work during 1889.	Grand total of all expenditures.
	Males.		Females.		Total.								
	No.	Amount of wages.	No.	Amount of wages.	No.	Amount of wages.							
Total	111	$84,639	5	$2,200	116	$86,839	5,260	$1,756,363	$237,321	$117,765	$2,111,449	$45,099	$2,156,548
Bell	2	920	.....	.....	2	920	110	20,139	22,476	8,632	51,247	.....	51,247
Boyd	1	900	.....	.....	1	900	247	98,320	8,000	5,000	111,320	800	112,120
Carter	15	10,975	1	100	16	11,075	448	150,425	12,640	11,813	174,878	.....	174,878
Christian	2	1,720	.....	.....	2	1,720	105	26,723	13,716	2,047	42,486	.....	42,486
Crittenden	2	900	.....	.....	2	900	11	2,706	1,000	200	3,906	.....	3,906
Daviess	1	540	.....	.....	1	540	14	5,040	3,500	.....	8,540	.....	8,540
Hancock	1	600	.....	.....	1	600	71	22,362	1,950	750	25,062	.....	25,062
Henderson	2	1,320	.....	.....	2	1,320	150	59,255	6,074	4,101	69,430	.....	69,430
Hopkins	17	11,185	2	600	19	11,785	923	353,095	21,882	18,206	393,183	.....	393,183
Johnson	3	2,100	.....	.....	3	2,100	92	31,734	4,389	697	36,820	100	36,920
Knox and Lee	1	750	.....	.....	1	750	124	36,950	4,000	1,000	41,950	.....	41,950
Laurel	18	14,620	.....	.....	18	14,620	817	243,846	31,503	11,375	286,724	16,174	302,898
Lawrence	3	2,730	.....	.....	3	2,730	177	65,944	5,674	1,400	73,018	.....	73,018
McLean	.....	.....	.....	.....	.....	.....	45	12,643	2,200	2,000	16,843	200	17,043
Muhlenberg	13	9,936	.....	.....	13	9,936	407	123,258	14,129	6,223	143,610	2,025	145,635
Ohio	7	4,450	1	300	8	4,750	406	164,713	8,800	3,440	176,953	.....	176,953
Pulaski	8	5,670	.....	.....	8	5,670	286	93,569	47,312	26,688	167,569	13,380	180,949
Union	2	1,012	.....	.....	2	1,012	171	50,637	1,111	5,088	56,836	.....	56,836
Webster	3	4,500	.....	.....	3	4,500	81	34,388	15,050	1,000	50,438	7,500	57,938
Whitley	10	9,811	1	1,200	11	11,011	575	160,616	11,915	8,105	180,636	4,920	185,556

The following table shows the value of Kentucky coal mines and improvements and the power employed in the mines:

VALUE OF KENTUCKY COAL MINES AND IMPROVEMENTS IN 1889 AND POWER USED IN MINING, BY COUNTIES.

COUNTIES.	VALUE OF MINES AND IMPROVEMENTS.									POWER USED IN MINING.				
	In land owned.		In land leased.		In buildings and fixtures.	In tools, implements, live stock, machinery, and supplies.	Total.	Cash capital not reported in the foregoing items.	Total capital.	Steam boilers.		Cylinders.		Number of animals.
	Acres.	Value.	Acres.	Value.						No.	Horse power.	No.	Size.	
Total	106,622	$2,827,755	21,478	$1,050,240	$1,364,523	$1,007,951	$6,250,469	$330,911	$6,581,380	70	2,559	....	.....	723
Bell	.....	.....	2,800	164,000	25,000	26,750	215,750	16,000	231,750	....	.....	....	.....	28
Boyd	12,000	120,000	.....	.....	5,000	20,000	145,000	15,000	160,000	1	100	2	18 x 24	43
Carter	15,980	159,600	25	625	69,400	66,600	296,225	24,900	321,125	2	40	....	.....	71
Christian	.....	.....	593	76,000	14,800	17,500	108,300	8,000	116,300	3	250	....	.....	11
Crittenden	200	1,500	.....	.....	3,500	1,000	6,000	1,500	7,500	....	.....	....	.....	4
Daviess	53	5,300	.....	.....	3,500	1,200	10,000	900	10,900	....	.....	....	.....	2
Hancock	3,700	170,000	.....	.....	15,300	10,100	195,400	3,600	199,000	1	40	....	.....	7
Henderson	.....	.....	463	18,700	20,500	24,106	63,306	5,985	69,291	5	220	....	.....	17
Hopkins	4,361	133,525	14,270	702,800	165,897	208,302	1,210,524	57,916	1,268,440	12	590	....	.....	139
Johnson	5,050	186,400	.....	.....	17,500	10,600	214,500	4,120	218,620	....	.....	....	.....	4
Knox and Lee	2,500	40,000	.....	.....	60,000	25,000	125,000	6,000	131,000	....	.....	....	.....	10
Laurel	6,368	166,709	322	8,150	67,203	180,083	422,145	30,668	452,813	7	209	....	.....	71
Lawrence	6,000	300,000	.....	.....	150,000	150,000	600,000	7,600	607,600	2	150	....	.....	20
McLean	40	8,000	.....	.....	6,000	3,000	17,000	6,000	23,000	1	20	....	.....	20
Muhlenberg	6,360	378,680	1,000	11,500	188,500	82,550	661,230	49,900	711,130	10	290	....	.....	45
Ohio	3,000	217,120	360	10,880	79,500	33,095	340,595	39,847	380,442	4	76	....	.....	71
Pulaski	29,550	147,000	.....	.....	272,970	36,974	456,944	22,500	479,444	8	220	....	.....	48
Union	2,072	25,000	835	37,335	20,985	15,250	98,570	8,200	106,770	8	245	....	.....	34
Webster	30	1,500	810	20,250	7,350	6,100	35,200	1,775	36,975	2	60	....	.....	8
Whitley	9,358	767,421	.....	.....	171,618	89,741	1,028,780	20,500	1,049,280	4	49	....	.....	70

The following table shows the labor employed at the mines, both above and below ground, the average wages paid per day, and the total amount of wages paid in 1889, by counties:

EMPLOYÉS AT KENTUCKY COAL MINES IN 1889, BY COUNTIES.

COUNTIES.	Total employés about mines.	ABOVE GROUND.												Total number employed.
		Foremen or overseers.			Mechanics.			Laborers.			Boys under 16 years.			
		Average number employed.	Average wages per day.	Average number of days worked.	Average number employed.	Average wages per day.	Average number of days worked.	Average number employed.	Average wages per day.	Average number of days worked.	Average number employed.	Average wages per day.	Average number of days worked.	
Total	5,144	76	$2.44	270	152	$1.81	242	627	$1.30	204	38	$0.75	205	893
Carter	432	8	2.02	302	9	1.70	268	57	1.31	227	6	0.59	237	80
Henderson	148	2	2.03	333	7	1.66	293	25	1.27	247	3	0.75	240	37
Hopkins	904	9	2.57	315	30	1.91	241	150	1.22	243	8	0.75	201	197
Laurel	799	14	2.30	267	12	1.98	235	95	1.31	230	.....	.....	.....	121
Muhlenberg	394	6	2.67	293	14	1.89	218	47	1.21	162	.....	.....	.....	67
Ohio	398	6	2.33	263	8	2.06	266	32	1.53	205	2	0.90	200	48
Pulaski	278	7	2.23	253	36	1.54	263	45	1.31	110	.....	.....	.....	88
Union	169	6	2.33	245	5	2.40	214	30	1.25	165	2	1.00	208	43
Whitley	564	6	2.85	221	10	2.07	163	61	1.42	185	7	0.75	146	84
Other counties (a)	1,058	12	2.85	247	21	1.81	236	85	1.33	181	10	0.78	219	128

COUNTIES.	BELOW GROUND.												Total number employed.	Total amount of wages paid during 1889.
	Foremen or overseers.			Miners.			Laborers.			Boys under 16 years.				
	Average number employed.	Average wages per day.	Average number of days worked.	Average number employed.	Average wages per day.	Average number of days worked.	Average number employed.	Average wages per day.	Average number of days worked.	Average number employed.	Average wages per day.	Average number of days worked.		
Total	59	$2.33	255	3,406	$1.75	193	674	$1.56	219	112	$0.70	213	4,251	$1,669,524
Carter	6	1.69	295	297	1.54	220	35	1.30	245	14	0.54	273	352	139,350
Henderson	3	1.71	264	84	1.86	227	20	1.34	244	4	0.50	240	111	57,935
Hopkins	8	2.80	288	404	1.98	181	266	1.61	252	29	0.73	225	707	341,310
Laurel	7	2.17	246	595	1.80	215	60	1.49	228	16	0.84	233	678	229,226
Muhlenberg	7	2.57	275	262	1.96	152	49	1.53	142	9	0.78	137	327	113,322
Ohio	6	3.08	263	290	1.97	201	54	1.60	204	.....	.....	.....	350	159,963
Pulaski	2	2.25	250	170	1.73	189	16	1.61	193	2	1.12	276	190	87,899
Union	2	2.00	208	98	1.60	180	24	1.46	151	2	1.00	208	126	49,625
Whitley	3	2.50	204	415	1.90	139	46	1.84	160	16	0.68	153	480	149,605
Other counties (a)	15	2.10	228	791	1.51	212	104	1.48	206	20	0.62	211	930	341,289

a The counties here grouped, in order that the business of individual establishments may not be disclosed to the public, are Bell, Boyd, Christian, Crittenden, Daviess, Hancock, Johnson, Knox, Lawrence, McLean, and Webster.

COAL PRODUCT OF TENNESSEE.

The great Appalachian coal field passes through the state of Tennessee, bearing from northwest to southeast, a width of about 70 miles westward from Cumberland Gap, through the counties of Fentress, Scott, Campbell, and Claiborne at the north, to Franklin and Marion counties, about 30 miles westward from the Tennessee river, at the south, and embraces twenty-one counties in which coal deposits are known to exist.

The local or trade divisions of the coal fields of Tennessee are designated as follows:

EAST TENNESSEE DIVISION.—Jellico district, Elk Valley district, Careyville district, and Big Creek district, Campbell county; Cumberland Gap district, Claiborne county; Poplar Creek district, Morgan county, and Coal Creek district, Anderson county.

MIDDLE TENNESSEE DIVISION.—Sequatchie district, Marion county; Valley district, Hamilton county; Walden Ridge district, Rhea and Roane counties; Tracy City district, Grundy and Franklin counties, and Plateau district, Scott county.

Small local mines exist in several counties not named above, but the product is small and irregular, and consumed mainly for domestic purposes and for smithing.

While the general character of the coal of this state is bituminous, considerable diversity exists in the various sections. In the northern portion high grades of gas and cannel coal are abundant, while to the southward the coal is more soft and friable and better adapted for coking and steam purposes.

No less than eighteen distinct seams of coal have been identified in some of the higher points of the Cumberland mountains, but many of these are not of a character to permit development. The workable veins range from two to seven feet in thickness, and generally belong to the Upper measures.

Below is a list of the railroads which furnish transportation facilities for the Tennessee coal:

East Tennessee, Virginia and Georgia railway.
Cincinnati, New Orleans and Texas Pacific railway.
Alabama Great Southern railway.
Nashville, Chattanooga and Saint Louis railway.
Louisville and Nashville railway.

The product during the year ended June 30, 1880, as reported to the Tenth Census, was 495,131 short tons, valued at $629,724 at the mines, an average of $1.27 per ton. During the year 1889 the total production was 1,925,689 short tons, valued at $2,338,309 at the mines, an average of $1.21 per ton. The increase in production during the decade was nearly fivefold, while the value at the mines was nearly four times as great as in the previous census year.

The following table shows, by counties, the total production of coal in Tennessee in 1889 and the disposition of the same:

COAL PRODUCT OF TENNESSEE IN 1889, BY COUNTIES.

COUNTIES.	NUMBER OF MINES.		Total product of coal of all grades for 1889. (Short tons.)	DISPOSITION OF TOTAL PRODUCT.					Total amount received for coal sold in 1889.	Average price of coal at the mines per 2,000 pounds.
	Regular establishments.	Small banks and local mines.		Loaded at mines for shipment on railroad cars and boats. (Short tons.)	Sold to local trade at mines. (Short tons.)	Used by employés. (Short tons.)	Used for steam at mines. (Short tons.)	Manufactured into coke. (Short tons.)		
Total	39	43	1,925,689	1,334,424	13,212	15,889	23,034	539,130	$2,338,309	$1.21
Anderson	7		457,069	442,319		2,700	5,050		531,920	1.16
Bledsoe		5	225		225				280	1.24
Campbell	5	6	123,103	117,017	691	2,985	1,410	1,000	146,610	1.19
Claiborne (a)	2									
Cumberland		10	124		124				155	1.25
Fentress		5	25		25				30	1.20
Franklin, Roane, and White	3		174,551	53,608	1,401	2,118	10,796	106,628	318,686	1.83
Grundy	2	1	400,107	253,891	280	700	2,100	143,136	395,767	0.99
Hamilton	3		241,067	212,845	893	60	2,110	25,159	313,991	1.30
Marion	5		203,923	103,288	2,663	11	633	97,328	230,116	1.13
Morgan	6	3	68,229	64,037	3,452	100	640		91,511	1.34
Overton and Putnam		2	10		10				10	1.00
Rhea	3	2	149,194	2,000	1,505	50		145,639	164,118	1.10
Scott	3	2	108,027	85,419	1,908	165	295	20,240	145,075	1.34
Van Buren		2	10		10				10	1.00
Warren		5	25		25				30	1.20

(a) Not operated in 1889.

The following table shows the office force employed and the amount expended in coal-mining operations during the year 1889:

EXPENDITURES AT TENNESSEE COAL MINES IN 1889, BY COUNTIES.

COUNTIES.	OFFICE FORCE.						Total number of employés.	Total amount of wages.	Total value of supplies and materials of all kinds during 1889.	Total of all other expenditures for the mines or works.	Total mining expenditures.	Amount paid for contract work during 1889.	Grand total of all expenditures.
	Males.		Females.		Total.								
	No.	Amount of wages.	No.	Amount of wages.	No.	Amount of wages.							
Total	74	$59,328	3	$1,590	77	$60,918	4,108	$1,609,310	$271,390	$219,268	$2,099,968	$13,324	$2,113,292
Anderson	15	10,700	1	400	16	11,100	986	436,354	100,544	62,256	599,154	.....	599,154
Campbell	13	14,580	.....	.....	13	14,580	393	117,686	7,483	8,245	133,414	800	134,214
Franklin, Roane, and White.	5	4,846	.....	.....	5	4,846	390	170,614	14,424	26,864	211,902	.....	211,902
Grundy	5	6,840	.....	.....	5	6,840	501	210,067	14,752	15,371	240,190	.....	240,190
Hamilton	16	8,279	.....	.....	16	8,279	625	204,168	39,440	48,626	292,234	9,874	302,108
Marion	7	5,508	.....	.....	7	5,508	423	183,631	59,597	36,670	279,898	150	280,048
Morgan	2	1,800	.....	.....	2	1,800	135	39,049	14,850	12,340	66,239	2,500	68,739
Rhea	6	2,700	.....	.....	6	2,700	475	154,452	8,000	4,171	161,623	.....	161,623
Scott	5	4,075	2	1,190	7	5,265	180	93,289	17,300	4,725	115,314	.....	115,314

The following table gives the value of Tennessee coal mines and improvements and the power employed at the mines:

VALUE OF TENNESSEE COAL MINES AND IMPROVEMENTS IN 1889 AND POWER USED IN MINING, BY COUNTIES.

COUNTIES.	VALUE OF MINES AND IMPROVEMENTS.									POWER USED IN MINING.		
	In land owned.		In land leased.		In buildings and fixtures.	In tools, implements, live stock, machinery, and supplies.	Total.	Cash capital not reported in the foregoing items.	Total capital.	Steam boilers.		Number of animals.
	Acres.	Value.	Acres.	Value.						No.	Horse power.	
Total	78,289	$1,363,500	55,623	$1,094,350	$1,046,454	$638,095	$4,142,399	$220,312	$4,362,711	24	1,475	611
Anderson	.....	.....	3,665	392,500	80,500	38,200	511,200	58,800	570,000	4	140	132
Campbell	10,220	244,000	1,560	22,000	497,429	86,350	849,779	24,060	873,839	.....	.....	37
Franklin, Roane, and White.	500	10,000	12,102	240,900	35,100	65,000	351,000	18,500	369,500	8	515	72
Grundy	13,700	205,500	20	400	10,100	27,321	243,321	23,200	266,521	4	400	110
Hamilton	2,514	25,000	20,065	195,000	92,000	181,854	493,854	32,700	526,554	2	160	115
Marion	39,855	775,000	500	12,500	153,275	58,470	999,245	25,650	1,024,895	2	80	46
Morgan	.....	.....	3,211	76,050	27,050	16,400	119,500	12,600	132,100	.....	.....	25
Rhea	.....	.....	14,500	155,000	85,000	140,000	380,000	13,700	393,700	3	160	54
Scott	11,500	104,000	.....	.....	66,000	24,500	194,500	11,102	205,602	1	20	20

The following table shows the labor employed at the mines, both above and below ground, the average wages paid per day, and the total amount of wages paid in 1889, by counties:

EMPLOYÉS AT TENNESSEE COAL MINES IN 1889, BY COUNTIES.

COUNTIES.	Total employés about mine.	ABOVE GROUND.												Total number employed.
		Foremen or overseers.			Mechanics.			Laborers.			Boys under 16 years.			
		Average number employed.	Average wages per day.	Average number of days worked.	Average number employed.	Average wages per day.	Average number of days worked.	Average number employed.	Average wages per day.	Average number of days worked.	Average number employed.	Average wages per day.	Average number of days worked.	
Total	4,031	48	$2.46	249	101	$1.86	244	393	$1.21	223	27	$0.55	190	569
Anderson	970	17	2.22	252	13	1.80	262	113	1.27	235	.....	.....	.....	143
Campbell	380	5	2.97	286	9	1.72	166	47	1.50	164	7	0.71	145	68
Hamilton	609	4	2.71	266	8	1.72	234	50	0.98	239	9	0.50	241	71
Marion	416	4	1.87	256	13	1.80	264	70	1.17	261	2	0.50	264	89
Morgan	133	5	1.80	191	2	1.88	210	15	1.22	134	1	0.40	70	23
Other counties(a)	1,523	13	2.89	245	56	1.92	251	98	1.19	213	8	0.54	168	175

COUNTIES.	BELOW GROUND.												Total number employed.	Total amount of wages paid during 1889.
	Foremen or overseers.			Miners.			Laborers.			Boys under 16 years.				
	Average number employed.	Average wages per day.	Average number of days worked.	Average number employed.	Average wages per day.	Average number of days worked.	Average number employed.	Average wages per day.	Average number of days worked.	Average number employed.	Average wages per day.	Average number of days worked.		
Total	55	$2.13	245	2,538	$1.98	227	696	$1.26	228	173	$0.71	232	3,462	$1,548,392
Anderson	8	2.36	268	713	1.89	246	89	1.65	242	17	1.02	233	827	425,254
Campbell	4	2.34	175	269	1.83	142	31	1.61	144	8	0.76	143	312	103,106
Hamilton	13	2.00	228	375	1.78	230	102	1.00	225	48	0.88	224	538	195,889
Marion	3	2.50	304	266	2.12	237	44	1.23	243	13	0.53	284	327	178,123
Morgan	4	2.21	213	92	2.10	165	14	1.33	94	.....	.....	.....	110	37,249
Other counties(a)	23	2.04	256	823	2.12	241	416	1.22	235	87	0.60	230	1,348	608,771

a The counties here grouped, in order that the business of individual establishments may not be disclosed to the public, are Franklin, Grundy, Rhea, Roane, Scott, and White.

COAL PRODUCT OF VIRGINIA.

The coal fields of Virginia may be divided into three prominent areas: First, the Richmond coal field, embracing the counties of Amelia, Chesterfield, Goochland, Henrico, and Powhatan, with traces in Dinwiddie and Hanover, situated in the Triassic sandstone areas in the vicinity of Richmond. The coal from this field is a bright black bituminous, varying materially in hardness and in the quantities of impurities. In that part of the field lying north of the James river an unusual and interesting formation of natural coke exists, which bears a striking resemblance to the artificial product and is found to be a very desirable domestic fuel. Second, the Middle or Subcarboniferous coal field, along the western border of the state, in that portion designated the "Appalachia." No mining operations have as yet been opened in this district. Third, the Pocahontas coal field, which embraces parts of Buchanan, Dickerson, Lee, Russell, Scott, Tazewell, and Wise counties, at the southern edge of the famous Flat Top region, including the Clinch Valley field, containing the lower productive coal measures of the Appalachian field. The finest grades of steam, gas, and coking coals are obtained from these districts, and the exceptional transportation facilities provided by the Norfolk and Western railroad system to the westward and to tide water at Norfolk have distinguished this region as one of the most important in the country.

The total output of the state of Virginia during the year ended June 30, 1880, as reported to the Tenth Census, was 43,079 short tons of bituminous coal, valued at $99,802 at the mines, and 2,817 short

tons of anthracite, valued at $8,290 at the mines During the calendar year 1889 the quantity of bituminous coal mined in this state, as reported to the Eleventh Census, was 865,786 short tons, valued at $804,475, an average of $0.93 per ton at the mines. This great increase during the decade is attributed entirely to the developments in the Flat Top and Clinch Valley districts.

The following table gives, by counties, the total production of coal in Virginia in 1889 and disposition of the same:

COAL PRODUCT OF VIRGINIA IN 1889, BY COUNTIES.

COUNTIES.	NUMBER OF MINES.		Total product of coal of all grades for 1889. (Short tons.)	DISPOSITION OF TOTAL PRODUCT.					Total amount received for coal sold in 1889.	Average price of coal at the mines per 2,000 pounds.
	Regular establishments.	Small banks and local mines.		Loaded at mines for shipment on railroad cars. (Short tons.)	Sold to local trade at mines. (Short tons.)	Used by employés. (Short tons.)	Used for steam at mines. (Short tons.)	Manufactured into coke. (Short tons.)		
Total	11	47	865,786	732,881	7,546	5,633	7,516	112,210	$804,475	$0.93
Buchanan	.....	3	169	.....	89	80	.....	.....	345	2.04
Chesterfield and Henrico	3	.....	49,411	44,648	798	45	3,920	.....	77,692	1.57
Dickenson	.....	4	35	.....	23	12	.....	.....	106	3.03
Lee and Wythe	.....	4	370	.....	370	.....	.....	.....	703	1.90
Montgomery	5	7	8,165	3,062	4,642	226	235	.....	19,644	2.41
Pulaski and Tazewell	3	23	807,046	685,171	1,062	5,242	3,361	112,210	705,121	0.87
Russell	.....	2	402	.....	398	4	.....	.....	603	1.50
Wise	.....	4	188	.....	164	24	.....	.....	261	1.39

The following table shows the office force employed and the amount expended in coal-mining operations during the year 1889:

EXPENDITURES AT VIRGINIA COAL MINES IN 1889, BY COUNTIES.

COUNTIES.	OFFICE FORCE.						Total number of employés.	Total amount of wages.	Total value of supplies and materials of all kinds during 1889.	Total of all other expenditures for the mines or works.	Total mining expenditures.	Amount paid for contract work during 1889.	Grand total of all expenditures.
	Males.		Females.		Total.								
	No.	Amount of wages.	No.	Amount of wages.	No.	Amount of wages.							
Total	27	$14,370	5	$2,100	32	$16,470	1,555	$621,266	$46,754	$13,456	$681,476	$932	$682,408
Chesterfield and Henrico.	5	1,220	.....	.....	5	1,220	257	62,268	6,500	5,584	74,352	.....	74,352
Montgomery	2	850	.....	.....	2	850	56	9,935	4,275	2,200	16,410	.....	16,410
Pulaski and Tazewell	20	12,300	5	2,100	25	14,400	1,242	549,063	35,979	5,672	590,714	932	591,646

The following table shows the value of Virginia mines and improvements and the power employed at the mines:

VALUE OF VIRGINIA COAL MINES AND IMPROVEMENTS IN 1889 AND POWER USED IN MINING, BY COUNTIES.

COUNTIES.	VALUE OF MINES AND IMPROVEMENTS.									POWER USED IN MINING.					
	In land owned.		In land leased.		In buildings and fixtures.	In tools, implements, live stock, machinery, and supplies.	Total.	Cash capital not reported in the foregoing items.	Total capital.	Steam boilers.		Number of cylinders.	Motors.		Number of animals.
	Acres.	Value.	Acres.	Value.						No.	Horse power.		No.	Horse power.	
Total.....	13,900	$290,100	3,790	$103,600	$363,270	$273,168	$1,030,138	$25,378	$1,055,516	57	1,234	20	7	180	109
Chesterfield and Henrico.	2,200	40,000	2,100	50,800	165,000	46,000	301,800	9,500	311,300	37	455	8	.....	.....	7
Montgomery	200	2,100	1,690	52,800	3,900	1,600	60,400	2,130	62,530	2	39	1	.....	.....	4
Pulaski and Tazewell.	11,500	248,000	.....	.....	194,370	225,568	667,938	13,748	681,686	18	740	11	7	180	98

The following table shows the labor employed at the mines, both above and below ground, the average wages paid per day, and the total amount of wages paid in 1889, by counties:

EMPLOYÉS AT VIRGINIA COAL MINES IN 1889, BY COUNTIES.

COUNTIES.	Total employés about mine.	ABOVE GROUND.												Total number employed.
		Foremen or overseers.			Mechanics.			Laborers.			Boys under 16 years.			
		Average number employed.	Average wages per day.	Average number of days worked.	Average number employed.	Average wages per day.	Average number of days worked.	Average number employed.	Average wages per day.	Average number of days worked.	Average number employed.	Average wages per day.	Average number of days worked.	
Total	1,523	16	$2.01	251	51	$1.77	268	407	$1.16	282	47	$0.49	210	521
Chesterfield and Henrico.	252	4	1.94	205	12	1.61	202	65	0.88	210	40	0.45	202	121
Montgomery.....	54	5	1.30	195	2	1.25	125	9	0.81	176	3	0.40	200	19
Pulaski and Tazewell.	1,217	7	2.32	304	37	2.15	298	333	1.20	299	4	1.00	300	381

COUNTIES.	BELOW GROUND.												Total number employed.	Total amount of wages paid during 1889.
	Foremen or overseers.			Miners.			Laborers.			Boys under 16 years.				
	Average number employed.	Average wages per day.	Average number of days worked.	Average number employed.	Average wages per day.	Average number of days worked.	Average number employed.	Average wages per day.	Average number of days worked.	Average number employed.	Average wages per day.	Average number of days worked.		
Total	12	$2.44	264	712	$1.53	285	253	$1.59	269	25	$1.14	274	1,002	$604,796
Chesterfield and Henrico.	3	2.17	206	68	1.95	210	55	1.05	196	5	0.75	168	131	61,048
Montgomery.....	2	1.38	200	28	0.96	177	5	0.87	155	.....	.....	.....	35	
Pulaski and Tazewell.	7	2.71	308	616	1.51	298	193	1.70	293	20	1.20	300	836	9,085 534,663

COAL PRODUCT OF GEORGIA AND NORTH CAROLINA.

GEORGIA.—In the northeastern counties of the state of Georgia an area of about 200 square miles is underlaid by the eastern edge of the Appalachian coal field near its southern extremity, embracing portions of Dade and Walker counties. The Georgia Mining, Manufacturing and Investment Company has an extensive colliery at Coal City, which is connected by a lateral line with the Nashville, Chattanooga and Saint Louis railroad. The character of the coal is semi-bituminous and yields a fair quality of coke. A large portion of the product at this mine is manufactured into coke for use at the furnaces of the company.

NORTH CAROLINA.—Coal deposits exist in Stokes and Rockingham counties along the Dan river and Chatham and Moore counties in the valley of Deep river. The state board of agriculture has given much attention to the exploration of these beds. Mr. H. B. Robson, the engineer, who has been conducting these explorations, in his report to the Department of Agriculture upon the Dan river fields, says:

> From a careful observation of the coal areas encountered hitherto I think I have found rapid transformation from soft to hard crystalline coal in the hill-slope beds. I hope to find this latter condition in the deposits of the valley. This result will be of vast importance to the state, as well as to the district, adding to the coal resources not less than 40,000,000 tons of accessible coal. * * * The Dan river coal deposits may be taken as available for fuel consumption between Leaksville and Germantown, a distance of about 50 miles, the width of the basin between outcrops being about 3½ miles. No coal has been found on the northwestern edge of the basin, but in the southeastern edge two available coal seams are found which reach their maximum thickness (3 and 7 feet) southwest of the Dan river and within 10 miles of the southwestern end of the deposit.

The census investigation for the calendar year 1889 failed to find any coal operations in this region excepting a few unimportant country banks, the product of which was so small and uncertain that answers to inquiries could not be obtained.

The only company in the state mining coal upon a commercial basis is the Egypt Coal Company, who are developing a property of about 2,700 acres in Chatham county, near Egypt Depot. The product for 1889 was small, as mining was only begun in December of that year, but the progress made bespeaks a profitable industry. A capacity of 500 tons per day has already been reached. This mine is connected with the Cape Fear and Yadkin Valley railway.

The coal product of three counties in Georgia and North Carolina, namely, Dade county, Georgia, and Chatham and Stokes counties, North Carolina, was as follows:

	SHORT TONS.
Loaded at mines for shipment on railroad cars and boats	46,321
Sold to local trade at mines	31
Used by employés	158
Used for steam at mines	15,001
Manufactured into coke	164,645
Total product of coal of all grades for 1889	226,156

The amount received for coal sold in the year 1889 was $339,382, and the average price of coal at the mines per 2,000 pounds was $1.50.

The total number of employés in 1889 in these states, including office force, was 740, to whom was paid in wages $265,464. The expenditures were as follows:

For wages	$265,464
For supplies and materials of all kinds	102,655
All other expenditures for mines or works	6,546
For contract work	51,400
Total	426,065

The number of acres owned in these counties was 20,733, and the value of mines and improvements was as follows:

In land	$348,300
In buildings and fixtures	58,000
In tools, implements, live stock, machinery, and supplies	283,000
Cash capital	35,200
Total	**724,500**

The total number of employés about mines in Georgia and North Carolina was 733, and the total amount paid in wages was $258,016. The following table gives the different classes employed above and below ground:

EMPLOYÉS AT GEORGIA AND NORTH CAROLINA COAL MINES IN 1889.

EMPLOYÉS.	Average number employed.	Average wages per day.	Average number of days worked.
ABOVE GROUND:			
Foremen or overseers	12	$2.29	264
Mechanics	34	2.15	210
Laborers	277	0.96	255
Boys under 16 years	6	0.45	24
Total	329	.....	.....
BELOW GROUND:			
Foremen or overseers	13	1.64	210
Miners	271	1.46	291
Laborers	120	0.98	288
Total	404	.....	.....

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