9-25-1894

Report of the Governor of Arizona, 1894.

REPORT

OF

THE GOVERNOR OF ARIZONA.

TERRITORY OF ARIZONA, EXECUTIVE OFFICE,
Phœnix, Ariz., September 25, 1894.

SIR: In compliance with the request made in your letter of instruction, dated July 14, 1894, I have the honor to submit the following report of the affairs, progress, and development of the Territory of Arizona for the fiscal year ending June 30, 1894, together with such suggestions and recommendations touching the interests of the Territory as I deem worthy of your consideration and the action of Congress.

Respectfully,

L. C. HUGHES,
Governor of Arizona.

Hon. HOKE SMITH,
Secretary of the Interior.

PRESENT CONDITIONS.

Notwithstanding the general depression prevailing throughout the country during the year, Arizona has enjoyed a period of more than average prosperity.

The two previous years of drought, resulting in a loss of more than 50 per cent of the range cattle of the Territory, were followed by a generous supply of rain during the past year, which has given abundance of pasture, resulting in a general recuperation of the stock interests.

The closing of the silver mines, caused by the low price of silver, has resulted in a marked increase in our gold production and in the development of our gold resources, and the prospects are that Arizona will soon become a larger gold producer than any other Territory or State. The gold output during the year was $2,080,250; the silver output, $1,700,800; the copper production, 48,270,500 pounds, and the value of our total output for the last eighteen years of these three metals was $101,784,017.

The progress made in agriculture has been most gratifying, and much land has been added to the farming area.

The increase in population, the advancement on moral, educational, and social lines, the general health of the people, and the absence of distress, so prevalent in other sections of our country, have been such as to inspire a spirit of generous gratitude.

POPULATION.

No provision is made by law for the collection of statistics, hence only an approximate estimate can be given of the population. My last report placed it at 65,000, of which, according to the census of 1890, 18,593 were foreign born. Of these 11,334 were Mexican and 1,199

The above shows a shrinkage in the value of property in the Territory of $1,424,208.04 under the year 1893, and a shrinkage of $8,944,912.05 since 1883.

The following shows the total value of the different classes of taxable property for the following years:

	1893.	1894.		1893.	1894.
Land	$5,198,515.35	$5,829,248.68	Hogs	$19,286.65	$18,282.21
Improvements thereon	1,604,014.00	1,603,257.50	Bulls	3,597.00	.....
City and town lots	2,986,591.40	3,003,445.50	Cows	.....	206.00
Improvements thereon	2,642,682.40	2,966,404.50	Stallions	1,410.00	1,260.00
Cattle	3,742,936.65	3,064,221.90	Burros	335.00	468.00
Sheep	847,463.48	538,990.71	Railroads	5,969,781.26	5,651,053.62
Horses	1,072,378.89	970,242.35	All other property	4,326,998.42	3,913,022.99
Mules	51,050.00	43,459.00			
Asses	13,589.50	12,642.00		28,486,183.00	27,061,974.96
Goats	5,553.00	4,226.00			

It only requires a glance at the foregoing rates of assessment to determine that they are extremely low. It is fair to estimate that not more than one-half of the personal property is assessed, and only a small portion is listed at more than one-half its value, and instead of Arizona's taxable property being placed at a fraction over $27,000,000, it should not be less than $100,000,000. This very low rate of assessment necessarily makes the rates of taxation excessively high, much to the disadvantage of the Territory, as those seeking investments become alarmed with what appears to be a very high rate of taxation.

FINANCIAL CONDITION.

Arizona has a financial record second to no other Territory, and more reliable than many of the States.

Since the date of its organization neither the Territory nor a single county has defaulted in the payment of interest or principal of any legal obligation.

The following statement from Hon. P. J. Cole, Territorial treasurer, shows the financial condition of the Territory:

Statement of the bonded and floating debt of Arizona Territory, June 30, 1894.

Date of issue.	Title of bonds.	Rate.	Amount.	Time.
		Per cent.		*Years.*
Mar. 1, 1879	Territorial Prison, first issue	10	$15,000.00	15
Mar. 1, 1880	Territorial Prison, second issue	10	15,000.00	15
Apr. 1, 1879	Gillette and Tiger Wagon Road	10	20,000.00	15
Apr. 16, 1879	Florence and Globe Wagon Road	10	10,000.00	15
Apr. 1, 1879	Tucson and Globe Wagon Road	10	10,000.00	15
Aug. 1, 1879	Agua Fria and Verde Wagon Road	10	10,000.00	15
Mar. 14, 1881	Yuma and Ehrenberg Wagon Road	10	10,000.00	15
July 1, 1885	Insane asylum bonds	7	100,000.00	20
Nov. 1, 1885	Wagon road and bridge bonds	8	12,000.00	20
May 15, 1885	Gila bridge bonds	8	15,000.00	20
Jan. 1, 1887	Arizona University bonds	7	25,000.00	20
Jan. 15, 1888	Territorial funding bonds	6	150,000.00	25
July 1, 1892	World's Fair bonds	5	30,000.00	20
July 15, 1892	Territorial funding bonds	5	1,614,000.00	50
			2,036,000.00	
	Floating debt		170,523.60	
	Deduct amount of county and city indebtedness		2,206,523.60	
	Funded		1,331,899.57	
	Net Territorial debt		874,624.03	

While the Territory assumes the payment of all the above debt, the counties and cities pay the interest on their portion of the debt, and the last figures show the actual amount of the debt incurred for Territorial purposes.

BANKS.

There are eight banking institutions operating under the law of the Territory, with a total capital of	$324,450
Surplus and undivided profits	139,093
National banks (5), with a total capital of	400,000
Surplus and undivided profits	87,000
Total capital and surplus	950,54

During the year there has been but one bank failure.

SETTLEMENT OF LANDS.

Arizona comprises two land districts, the Gila and Prescott. The Gila land district (the U. S. land office of which is situated in Tucson) is comprised of the counties of Cochise, Pima, Pinal, and Gila, and portions of Maricopa, Graham, Apache, and Yuma. The line of demarcation between the Gila and Prescott land districts is the first correction line north, or the first standard parallel north of the base line of Arizona, which passes through the confluence of the Gila and Salt rivers, easterly and westerly, commencing on the Colorado, 72 miles in an air line north of Yuma, and runs directly east, passing north of Phœnix, 12 miles south of Wickenberg, and 20 miles north of Globe, and strikes the New Mexican line 42 miles north of Clifton, Ariz. The area of this district comprises 45,318 square miles, or nearly 30,000,000 of acres, exceeding in size the great State of Pennsylvania 318 square miles, or 203,520 acres; but notwithstanding the enormous size of the Gila district, it is less than the Prescott district by 23,000 square miles, or 14,720,000 acres.

The following is a tabulated statement, formulated by the U. S. land office, of land in the respective counties, appropriated and unappropriated, etc.:

The Gila or Tucson land district.

County.	Area in acres unappropriated and unreserved.			Area in acres reserved and disposed of.		
	Surveyed.	Unsurveyed.	Total.	Reserved.	Disposed of.	Total area.
Apache	14,320	27,700	42,020	274,980	.....	317,000
Cochise	1,255,420	2,491,365	3,746,785	130,960	104,255	3,982,000
Gila	50,708	410,000	460,708	745,807	4,985	1,211,500
Graham	688,417	2,194,068	2,882,485	1,100,000	155,515	4,138,000
Maricopa	559,807	3,313,700	3,873,507	193,000	612,493	4,679,000
Pima	1,058,210	5,241,600	6,299,810	256,630	157,560	6,714,000
Pinal	713,360	2,300,000	3,013,360	368,000	93,140	3,474,500
Yuma	518,420	4,174,000	4,692,420	50,000	189,580	4,932,000
Total	4,858,662	20,152,433	25,011,095	3,119,377	1,317,528	29,448,000

Reserved consists of military, Indian reservation, and private land grants; disposed of consists total acreage filed upon; total area is total area of county.

Prescott land district.

County.	Area in acres unappropriated and unreserved.			Area in acres reserved and disposed of.		
	Surveyed.	Unsurveyed.	Total.	Reserved.	Disposed of.	Total area.
Apache	3,113,755	1,577,960	4,691,715	6,586,240	1,955,045	13,233,000
Coconino	676,350	9,952,150	10,628,500	2,079,770	521,730	13,230,000
Mohave	961,760	5,748,112	6,709,872	384,000	42,128	7,136,000
Yavapai	771,222	3,988,520	4,759,742	92,160	405,098	5,257,000
Gila	43,800	1,295,600	1,339,400	376,320	2,280	1,718,000
Maricopa	66,920	1,306,080	1,373,000	.....	2,200	1,375,000
Yuma	.....	1,193,900	1,193,900	201,600	.....	1,395,000
Total	5,633,807	24,962,322	30,696,129	9,720,090	2,928,481	43,445,000

LANDS ENTERED, ETC.

The amount of land entered in the Tucson or Gila land district for the year approximates 50,000 acres, and final proof of land was made during the same period approximating 35,000 acres.

In the Prescott land district the total number of entries were 101; cash entries, 14; desert land entries, 11; mining entries, 8.

Total number of acres entered under homestead act	12,819.89
Total number of acres entered under cash entry	1,004.53
Total number of acres entered under desert-land act	1,961.54
Total number of acres entered under mining act	139.94
Total entries	16,925.90
Total amount of land upon which final action was taken	5,477.83
Total amount of land selected by Atlantic and Pacific Railroad, upon which final action has been taken	163,520.00

LANDS SURVEYED.

Contracts were entered into through the surveyor-general's office of Arizona for the survey of 345,000 acres of land, and there is now pending in the office, contracts for the survey of lands within the Atlantic and Pacific grant amounting in the aggregate to 1,033,000 acres, which, it is anticipated, will be accepted by the Interior Department during the next six months.

RECLAMATION OF LANDS.

The area of land reclaimed to agriculture in the Territory will aggregate over 650,000 acres, of which about 70,000 has been added during the past year, notwithstanding the fact three important irrigating enterprises were forced to cease construction owing to the unfavorable condition of the financial market.

These reclaimed lands are principally confined to the valleys of the Salt and Gila rivers, in the counties of Maricopa, Yuma, Graham, Pinal, and Pima, in which there are several hundred miles of irrigating canals of varying capacity used for diverting the water from its natural channels and distributing the same on the lands irrigated.

IRRIGATING ENTERPRISES.

Several important enterprises have been inaugurated, having for their purpose the storage of water or the utilizing of the underflow streams, which, if carried to completion, will more than quadruple the area of land now under cultivation.

It is estimated that under reorganization the Florence Canal and the Coronado Canal will add nearly 500,000 acres to the cultivated districts of the Territory. The development of the Consolidated, Agua Fria Reservior, Rio Verde and Pennsylvania Irrigation Company's canal projects will add largely to the irrigated land in the Salt River Valley. The storage system on Bill Williams Fork and several projected works on the Colorado River will bring under cultivation large tracts in the western part of Arizona.

Several large reservoir sites have been surveyed, showing them to be so located that they might easily be made to impound the drainage of large areas of mountainous country where comparatively heavy rainfall forms torrential streams of insufficient continuity of flow for successful farming operations unless the waters be conserved.

There are also new water developing or storage enterprises inaugurated in the valleys of the Santa Cruz and Upper Gila, as well as in Apache County, on the Little Colorado, all of which mean the reclamation to agriculture of large bodies of very fertile land.

On this subject I commend the following from Prof. Edward M. Boggs, Territorial irrigation engineer, and of the faculty of the University of Arizona:

At the date of taking the census of 1890 there were in the Territory 1,075 farms dependent upon irrigation. The average original cost of water rights was $7.07 per acre. The cost of clearing, grubbing, fencing, leveling, plowing, or otherwise preparing these irrigated farms for cultivation was estimated at $8.60 per acre. These two items, added to the usual Government purchase price of $1.25 per acre, show that the total cost of the land to the original owners was $16.92 per acre.

PRICE OF LAND AND WATER RIGHTS.

The estimated selling price of these lands was $48.68, showing an apparent increase of value, less cost of buildings, of $31.76 per acre. An average of $1.55 per acre per annum was being paid by the farmers for the use of irrigation water, either in the form of cost of operation and maintenance of private works or as assessments or rentals to canal companies. Where transferable, the value of water rights had advanced from the cost of $7.07 to a selling price of $12.58 per acre.

RECENT DEVELOPMENTS.

The period of over four years since the census was taken has witnessed an exceptionally rapid development of the agricultural resources of the Territory. The investment of capital in irrigation works has been heavy; the increase in mileage of canals has been great; a large total area of desert land has been reclaimed; the growth of population has been rapid; the value of agricultural products has arisen enormously. That these are facts is well known, but unfortunately statistics bearing upon these facts are not in existence.

The number of farms stated above comprise less than one-tenth of 1 per cent of the total area of the Territory. Lieut. Wheeler, of the U. S. Geographical Survey, has estimated that 25 per cent of the area of Arizona is irrigable and arable land, whereas only 2 per cent of the area of California and Nevada is of that character.

AREA OF RECLAIMABLE LAND.

It is impossible to even approximately estimate the area of land in Arinona which is actually capable of reclamation. It is limited to the area for which water can be profitably obtained. It seems probable that, vast as are the possibilities for the development and extension of irrigation, there will ultimately remain a considerable area of fertile and otherwise desirable land for which no water supply can be found.

PREHISTORIC WORKS.

Notwithstanding the progress which has been made in the great valleys of the Territory, it is doubtful if there has yet been reclaimed an area equal to that cultivated by the prehistoric inhabitants of this region. The numerous remains of their canals, reservoirs, and structures scattered over a wide extent bear evidence to the extensive cultivation of the soil by an industrious and ingenious people dwelling in permanent settlements.

SURFACE STREAMS.

Except in a few localities the available flow of the natural surface streams has been applied already to as large an acreage as it is capable of serving under the present practice. A notable exception to this statement is the Colorado River, whose practically inexhaustible supply has been merely touched. Improved means of diversion, conveyance, and distribution, and studied economy in the methods of application would result in a largely increased duty of water and a corresponding addition to the acreage served by the same quantity of water.

FLOOD WATER AND THE UNDERFLOW.

The brightest outlook for the extension of irrigation in this Territory lies in the direction of the utilization of waters now permitted to run to waste as floods and underflow. The topography is such as to secure a heavy precipitation of moisture along the high mountain ranges when there may be little or none in the valleys. Few of the observations of the Weather Bureau are taken in the regions where the heaviest precipitation is known to occur, and published statistics are misleading in that they are far below the average. The mean precipitation for the Territory is probably much greater than would be supposed from published observations. The steep slopes of the mountains cause the loss of most of the run off; each year, and many times each year, the rivers carry to the sea quantities of water which, if conserved and regulated by storage reservoirs, would be sufficient to irrigate for many months far more land than has yet been touched by the plow. The means for controlling the flow are not wanting. Excellent reservoir sites are known to exist on the Salt, the Upper and Lower Gila, Rio Verde, Aqua Fria, Bill Williams, New and Hassayampa rivers, and at many places in the valley of the Santa Cruz and elsewhere. In a number of instances companies have been formed, and extended surveys and much preliminary work done toward the development of these enterprises.

AN ENCOURAGING OUTLOOK.

The financial stringency has interfered seriously with the early completion of these great works. Notwithstanding this fact, much progress has been made, and prospects are generally bright. The dam near Gila Bend has been completed; extensive contracts have been let out for the construction of the canals and storage reservoirs of the Rio Verde Canal Company. Work has been carried on at the storage reservoirs of the South Gila Canal Company and Aqua Fria Irrigation Company.

Each of these and other less advanced enterprises commands many thousands of acres of Government land which is still subject to entry under the forms of the General Land Office. This land, although smooth and fertile and equal to any now under cultivation, is practically worthless, except for grazing, until a supply of water for irrigation is promised. The advent of water, or even a reasonable hope of being able to obtain water in the future, causes a rapid rise in values.

TOPOGRAPHICAL SURVEY.

It is evident that a complete topographical survey, or a systematic reconnaissance of the most promising localities, would discover many more reservoir sites not yet known. It is hoped that the hydrographical and topographical work of the U. S. Geological Survey will be resumed in the Territory under the appropriations for the current fiscal year.

But large storage projects require ample capital and much time for their completion; the period of waiting is tedious. Opportunities are not lacking whereby individual efforts may realize large and immediate returns upon the labor and capital invested. Such are the development of underground waters by means of subsurface dams, open cuts, tunnels, artesian, and other wells. These methods are safe, and often require but moderate outlays. In a number of localities artesian wells are flowing, and there is justification for the strong hopes entertained that important artesian belts may be opened.

IRRIGATION BY PUMPING.

At first thought, a proposition to pump water for irrigation may seem absurd; nevertheless it is well worthy of consideration, for where the conditions are found to be favorable, water can be pumped for irrigation profitably. Where the supply is ample, and the lift not too great, a complete pumping plant can be erected at a cost per acre not to exceed the usual charges for water rights under canals, and the annual cost of application will be no greater than the customary annual assessments

or rental charges of canal companies. In Egypt and India pumps have been used in great numbers, and have been the means of reclaiming millions of acres of land. In America pumping machinery has been brought to a high degree of perfection and the growing demand for irrigation pumps gives ground for the belief that they will prove an important factor in the settlement of the Territory. Several pumping plants on a large scale are now in successful operation. Notable among these are those of the Yuma Water Company, the Yuma Pumping and Irrigation Company, and the Willcox Agricultural and Improvement Company, and several individual owners in the Santa Cruz Valley and at other points. Although steam pumps are preferable, much may be done by means of windmills and horse power; garden patches and other small areas are being profitably irrigated in this manner.

IRRIGATION AND FORESTRY.

The subject of forestry being so intimately connected with that of irrigation, it is not too early to direct attention to the necessity for protecting and improving the forests of the Territory. Were the importance of the subject generally recognized, the rights of the State to conserve the growing forests for the public good would be as stoutly maintained as are the public rights to air, light, and water. Measures directed to the preservation of the forest area need not in any way interfere with legitimate lumbering operations. In all forests the percentage of trees suitable for marketable lumber is small; the wanton destruction of all else should be prevented. An act of Congress authorizes the President, upon petition of the people interested, to set apart suitable portions of the public domain as forest reservations. Several States in the arid region have secured the establishment of a number of these reservations, thus gaining an advantage for the near as well as the distant future.

THE ARID REGION.

In a communication to Congress the Commissioner of the General Land Office estimates the present area of arid lands to be 529,000,000 acres, an empire larger than most of the countries of Europe. This total is divided among the several States and Territories. Arizona is credited with 49,000,000 acres. Of this area it is safe to estimate that 10,000,000 is of a character capable of reclamation to agriculture if the necessary water can be supplied.

During the last few months the discussion of this problem has assumed almost the first place in the public mind of the West, which indicates in a measure its vital importance.

The fact is the public lands of the rain belt are exhausted. The thousands of home-seekers of the Atlantic slope and Middle States are land hungry. The arid region is the last resort. The land without water is valueless. Under irrigation it becomes amazingly productive.

THE IMPORTANT CONSIDERATION.

To bring this land under irrigation, generally, entails large investments of capital. The important consideration is: How can the necessary capital be secured to accomplish the desired result? In my last report the following suggestions were offered: "That the Federal Government cede the arid lands to the Territory or State in which they are located, with such limitations as to their disposal as might be deemed advisable."

The Carey bill, passed at the last session of Congress, meets this suggestion in a measure in this, that it provides that 1,000,000 acres shall be granted to each of the States and Territories free of all charges for surveys, etc., for experimental reclamation, to be disposed of by them in such manner as each shall determine, with the condition that no more than 160 acres shall be conveyed to any one person and other minor conditions, the land to revert to the General Government if not reclaimed and occupied in a given time. This is an important step in

the right direction, and reflects credit upon the author of the bill and the Federal lawmaking power, but the provisions of this bill are not applicable to the Territories until they are admitted to Statehood. This is a grave injustice. Arizona, as a Territory, can legislate for the reclamation of these lands, and when we come into Statehood the Territorial law governing the same would obtain under the State.

SHOULD BE AMENDED.

I would most respectfully recommend and urge that the Carey law be so amended by the next session of Congress that Arizona can avail herself of its beneficent provision at once, and as our Territorial legislature holds its biennial session next February, such legislation can be had as may be deemed necessary touching the same. With these lands under the control of the Territory or State, I have no hesitation in saying that they can and will be reclaimed right speedily, and that without any expense to the Federal Government.

PLANS SUGGESTED.

There are many plans suggested for securing the capital for the construction of reservoirs to supply the necessary water for the reclamation of these lands. The following is worthy of consideration:

That the Territorial or State legislature create irrigation districts; commissioners to be elected by the people of the district to administer the affairs of the district.

That the land officials of the Territory or State be authorized and directed to issue to the district commissioners reservoir-lien bonds against each irrigable quarter section of land lying below said reservoirs, these bonds to be payable at the end of twenty-five years, more or less, and to bear interest at a fixed rate per annum; the bonds to stand as a lien against each quarter section of land and to be assumed by the settler when he shall obtain title to the land; the amount of the bonds to be determined by the estimates of the cost of the reservoir and canal system, and the number of acres of irrigable land to be determined by surveys.

All lands to be sold at not less than double the present minimum price, and the proceeds applied to the payment of the lien bonds on the land.

The annual water rental to be only sufficient to pay the annual expenses of maintaining the system.

The reservoir works to be constructed under the direction of Government engineers.

In support of this proposition the following arguments are adduced: With the system there would be no chance for monopoly of either the land or water. The works would be constructed by and for the actual settler, who would receive the full benefit. The Government would incur neither expense nor responsibility.

ANOTHER PLAN.

Another, and perhaps simpler plan, would be "the sale of bonds secured by the land, the bonds to be redeemed by the sale of the land. For illustration, require $1,000,000 to store sufficient water to irrigate 100,000 acres of land, which land under irrigation would readily sell at from $25 to $50 an acre. It would only be sold to bona fide settlers in

small holdings on the installment plan, and the money so realized to be used as a sinking fund for the redemption of the bonds. When redeemed, the water system itself would belong to the Territory or to the land it served, according to the law made to govern the same."

The adoption of either this or a similar policy would create a source of investment so safe, that capital would not hesitate to accept these irrigation securities, and the problem of the reclamation of these arid lands would be solved.

A NATIONAL QUESTION.

The arid-land region comprises an area of more than 500,000,000 acres, which in its present condition is comparatively valueless and uninhabitable, but when reclaimed by irrigation this same land becomes fourfold more productive than the most favored lands in the rain belt. Twenty-five acres under cultivation will give a generous support to an ordinary family; hence one-fifth of this vast area which can be utilized will provide homes for 4,000,000 families. This fact suggests the national importance of this question.

In the reclamation of this land a vast amount of labor must be employed in the construction of reservoirs, waterways, etc.; a greater number than has ever been engaged in railroad building. Arizona alone will require not less than 3,000 men, and sixteen other States and Territories would each require as many more, thus giving employment to more than 50,000 toilers.

Again, the productions of this land would require railroads to distribute the same, and railroad building would follow in the wake, thus giving another source of employment.

This suggests a safety valve for the overcrowded cities of the East, work for their armies of tramps, and the conversion of the surplus energy of the anarchist into breadstuff, instead of destructive bombs.

The arid region offers a practical solution of the surplus-labor problem.

AGRICULTURE.

Nowhere within the limits of the United States is the farmer so bountifully rewarded for his toil as in this favored region of almost perpetual sunshine, which gives from ten to eleven months of growing season in the year. In many of the valleys snow seldom falls and frost is light, and then only occasionally, being confined to not more than three months in the year. The new soil is fat with vitality and when brought under irrigation returns marvelous crops, for this system of farming is "science against chance." Crops are watered only when the conditions demand, instead of waiting on chance rains; hence the cereals ripen to perfection, the grain fills out as plump as an egg, and the yield as a rule reaches the maximum.

ALFALFA.

One of the remarkable products of the soil is alfalfa (French lucerne). This field grass, a perennial, yields under irrigation a product of 4 to 8 tons of hay per acre, yearly; and as it is of the highest fattening value, the result for the growth of cattle or hogs is from two to three times that of any cereal crop. The net profit often reaches $40 per acre under favorable conditions for hay, and when devoted to the growth of stock or seed crop the return is likely to be largely increased.

The results of experiments of the agricultural department of the University of Arizona have been very useful to the agriculturists of the Territory, as so many new and diverse conditions exist without precedent in the older agricultural regions of the country.

HORTICULTURE.

Horticulturists predict that southern Arizona will prove a most prolific fruit-producing region, as it possesses many natural advantages not found in other climes. Chief among these is the early maturity of fruits. Up to the present, the fruit industry has received more attention, followed by more definite results, in the Salt River Valley, Maricopa County, than in any other section of the Territory. Soil, altitude, extremes in temperature, humidity of the atmosphere, character and quantity of the water used in irrigation, and proper periods for irrigation, are all to be studied by those who would be successful in the growth of any single variety. Methods of planting, pruning, and harvesting also differ according to varying conditions.

CITRUS FRUIT BELT.

The citrus fruit belt includes the Lower Gila and Salt River valleys, located principally in Maricopa and Yuma counties. In the growth and marketing of citrus fruits Arizona has an advantage over California, of which she can never be deprived. In California, oranges ripen late in the winter; in the Salt River Valley picking commences in November and is concluded by the middle of December, before any possible danger of damage by frost. This early ripening also has the advantage of bringing the fruit into the market while the high prices of the holiday season prevail, a considerable time before the ripening of the main competing crop.

Here no evil is suffered by the crop from the use of insecticides, there being no insect pests to prey upon them. The absence of these pests is due to the effect of the long, dry, hot summers.

THE ORANGE AND LEMON.

The orange, king of fruits, thrives in the higher sections of the valley as in few other localities of the West. The Washington navel is best adapted to the local conditions, and most of the trees planted here are of this variety. There are now planted in this belt 96,000 orange trees one year of age and over. Of this number 2,500 have come into bearing and the fruit is of the finest description—large and perfectly formed, and possesses a delicious flavor. These points of superiority were recognized by an award of the first class given to the oranges in the Maricopa County exhibit at the Midwinter Fair in San Francisco.

Lemons are grown to a limited extent. Several varieties of the fruit that have matured are of good quality, thin-skinned, and juicy.

DECIDUOUS FRUITS.

The peach, pear, apricot, grape, and others of the more hardy varieties of deciduous fruits give very satisfactory returns in all sections of the Territory.

APRICOTS.

Next to the orange in importance is the apricot, of which fruit about 1,000 acres are now in bearing. The prevailing varieties are the Royal and the Newcastle. Ripe apricots have been picked as early as the 25th of April, while the bulk of the crop ripens in early May. Local conditions are especially favorable for this fruit, light crops being seldom known, and the quality being uniform and of a high grade.

PEACHES.

This last remark is also true of peaches, the delicious flavor of the product being especially noticeable. There are over 500 acres planted to bearing peach trees, and the fruit is constantly maturing from June to Christmas. A large portion of the peach and apricot crops are dried, yet several carloads of the fresh fruit were shipped to eastern points during the past season. A portion of the yield has also been consumed by canneries at Phœnix and Mesa.

PEARS AND APPLES.

Of late, pears have been planted about as extensively as peaches. With the Bartlett and a half dozen other varieties that might be noted production is heavy, and quality, color, and size are all that can be desired. Late contributions to the exhibit of the chamber of commerce in Phœnix averaged 1⅓ pounds to the pear.

Several varieties of apples, notably the White Winter Pearmain, are grown with success and profit.

ALMONDS.

Almonds have proved a profitable product, the trees thriving under much the same conditions as does the apricot. The paper-shell variety is most extensively cultivated, and yields about as heavily as the hard or medium shell. It brings a much higher price in the market. Improved methods of bleaching have been adopted, and next year heavy shipments of high-grade fruit will be sent eastward. About 500 acres of almonds are under cultivation in the Salt River Valley.

FIGS AND OLIVES.

Figs and olives are found everywhere growing by the roadside and in the house yards as ornamental and shade trees. Of the former there are 400 acres set to orchard in the Salt River Valley.

The White Adriatic and Brown Smyrna drying varieties have been tried, and samples sent abroad have received high commendation. The generous sun and the fertile loamy soil of the Southwest develops the fruit to a degree that renders it little short of a confection and insures its success as a profitable product.

The olive is thrifty and hardy, and there are a few trees in the valley that have come into bearing. These have demonstrated the fact that the tree does best when planted in an upland, well-drained, limestone soil, irrigated but little. In the parks of Phœnix, olive trees are to be seen by the score, their light-green foliage contrasting agreeably with the darker shades of the lawn grass surrounding them.

GRAPE CULTURE.

Grape vines cover an area of fully 4,000 acres, and fully two-thirds of the yield is of raisin grapes, comprising, mainly, the Muscat of Alexandria, the Muscatel, Malaga, Seedless Sultana, and Thompson's Seedless. The table varieties are led by the Lady Downing, the Flame Tokay, Rose of Peru, Black Hamburg, and the ever familiar and popular Mission.

As the wine production is mainly confined to the heavier brands, little attention is paid to wine grapes, a few acres of Zinfandel alone being cultivated for the manufacture of claret. Vineyardists pay particular attention to the production of raisins, and it has been proven by the test of years that the grapes of the Salt River Valley carry fully 30 per cent more saccharine matter than those in the great raisin districts of Spain and California.

Modern methods are now being used in drying and packing, and in the near future the Arizona pack of raisins may be expected to take a front rank throughout the United States. The quality of the seedless raisins is especially admirable, and they find a ready sale at remunerative prices.

SEMITROPICAL FRUITS.

Pomegranates, a delicious novelty to the greater portion of the Union, are grown to such an extent that entire carloads have been shipped to Chicago for market.

Many of the subtropical fruits are grown, though only for ornamental purposes. The date palm, like the fan palm, thrives here, and dates of the true African kind ripen in excellent quality. Pineapples and bananas have also been brought to maturity.

SMALL FRUITS.

Among the small fruits, blackberries and strawberries produce well. Each season thousands of boxes are shipped by express from Phœnix to points as far distant as Texas, the Southwest generally being supplied. The coming of the new railroad from the north will have an excellent effect upon the fruit industry of Arizona. Now the fruits shipped eastward are subjected to a long journey across the heated plains before entering the cooler upland of northern New Mexico. The fruits of California must ever be subjected to a similar hot journey of twenty-four hours across either the Mojave or the Colorado desert, much to the injury of the keeping qualities of the fruit. From next February, however, the fruit-shipper of central Arizona will attach his car of fresh fruit to a train that will within three hours take it into an elevation of 4,000 feet, and thence east without the intervention of a mile of desert travel. The advantage of this can readily be appreciated.

It is believed by those who have best studied this region that the entire Salt and Lower Gila valleys, nearly 2,000,000 acres in extent, will eventually be turned into a gigantic orchard whence will be obtained a vast portion of the fruit supply of the nation. The water can be developed at comparatively little cost for the irrigation of even so great an area, while for soil and climate there is little left to be desired.

THE CROP SEASON OF ARIZONA.

The following extracts from the weekly crop bulletins published by the Weather Bureau office at Tucson during the fiscal year ending June 30, 1894, will serve to show the condition and progress from time

to time of the agricultural and kindred interests during the period mentioned. The conditions mentioned in each bulletin are those prevailing at that time in the principal productive sections.

July 3, 1893.—Grapes and watermelons are being shipped to distant points; apricots about gone; early peaches in abundance. Crops are in fine condition; early corn making good growth; harvesting about over in some sections.

July 10.—So far all fruits have done well; oranges are looking fine, and the trees have made a satisfactory growth; second crop of figs ripening. Third crop of alfalfa light; first two crops very heavy. Everything in the crop line is progressing favorably.

July 17.—Figs appear to have been benefited by the increased moisture in the air. Cattle in fine condition.

July 24.—Grapes of nearly every variety are ripe. The recent rains have been of great benefit, and all kinds of crops are making rapid growth. Fruit ripens well and is of excellent quality.

August 7.—The rivers, reservoirs, and canals contain an abundance of water for irrigation, and the fields and ranges are well moistened. Cattle are fattening rapidly.

August 21.—The prospects for citrus fruits continue propitious; both trees and fruit are presenting a fine appearance. Raisin-curing is in full progress, the crop being the largest and best ever known.

August 28.—Late peaches now ripening; grape packing and curing well begun. The rainy weather has had its full effect in bringing out the feed on the ranges and cattle are in fine condition.

September 4.—As many as 5 crops of alfalfa are reported to have grown from the same land in some of the southern and southwestern districts. Range grass has made wonderful growth during the season, and since the rains ceased it is curing on the ground in excellent condition, so that feed for stock will be abundant during the fall and winter.

September 18.—All the conditions continue especially favorable to the agricultural interests. The harvesting of late alfalfa, raisin-making, and the ripening of citrus fruits are going forward with the promise of gratifying results. The ranges continue to afford abundant forage and the condition of live stock is good, with prospects excellent for the ensuing fall and winter.

April 9.—Reports indicate that the prospects of an excellent fruit crop are good. General farming operations are apparently at a normal stage and are going forward under favorable conditions. The stock ranges in all sections are in fine condition as the effect of the timely recurrence of precipitation during the winter. Live stock have come through the winter in excellent condition.

April 23.—The Yuma correspondent reports strawberries in the market. In Salt River Valley the outlook for fruit of all kinds is good. Orange trees are nearly done blooming, and the fruit is setting well. Almond trees are loaded with nuts nearly full-grown, and the crop will be very large. Mission olives are in bloom; blackberries are in bloom and will give a heavy crop; strawberries are ripe.

April 30.—Cutting of alfalfa hay is in active progress. The grain crop is rapidly maturing; most of it will need no further irrigation; the crop is better than last year. Oranges are as large as marbles and the blossoms all gone; the trees were late in blooming, but have since made up for the delay. Olive trees throughout the Salt River Valley are heavily laden with blossoms.

May 7.—Strawberries have been in the market for several weeks and are still very plentiful; several hundred pounds are daily shipped from Phœnix. Fig trees set out last year, and which have had no water since October, are loaded with fruit. Apricots will be ripe within a few days; the crop is very heavy, and arrangements are made to ship the fruit to the East in large quantities, String beans, green pease, and lettuce are coming into the markets in different sections.

May 14.—Apricots and plums were ripe on the 8th. Fig trees are loaded with fruit. Grapes look fine and promise a big yield. The honey crop is now well under way, and, like all other crops this year, it promises to be phenomenal in quantity and excellent in quality.

May 28.—Hay, grain, and fruit harvests are going on under auspicious conditions in all the principal sections of the Territory. Thrashing has begun in some sections. Canneries and drying factories are busy on apricots; large shipments of the fruit continue to be made daily. Blackberries are in the market, also figs.

June 4.—Harvesting and thrashing are in full progress. Early peaches will be ripe in a few days.

June 11.—Watermelons have been ripe several days, and are now plentiful. Almonds are nearly ripe. Oranges are in fine condition. Peaches are ripe, and becoming plentiful on the fruit stands throughout the Territory. Apricots are in abundance.

June 18.—People are busy harvesting peaches and apricots. Grain is mostly cut

in some sections, and thrashing in full progress. Barley and wheat are yielding well.

June 25.—In the Salt River Valley grain is about all cut and most of it thrashed. Apricot season about passed. Peaches, grapes, figs, and blackberries are in the markets.

PRIVATE LAND CLAIMS.

There has been considerable progress made during the year by the court of private land claims in the hearing and disposing of cases before the court. There are 21 of these claims located in Arizona claiming title from the Spanish Crown or the Mexican Government, namely:

San Rafael, San Ygnacio del Babocomori, San Ignacio de la Canoa, Tumacacori, Calabasas, San José de Sonoita, San Rafael de la Sanja, Aribac, San Juan de las Boquillas y Nogales, Los Nogales de Elias, Otero and House lot, El Sapori, Maria Santisima del Cormenor Buena Vista, El Paso de las Algodones, San Bernardino, Peralta, Agua Prieta, Huebabi, Tes Alamos, San Pedro, Buena Vista.

Of these, the Algodones was determined in favor of the claimant, and is now before the U. S. Supreme Court on appeal by the Government; the San Rafael del Valli, Los Nogales de Elias, San José de Sonoita, and San Ygnacio del Babocomori were tried, decision in favor of the Government, and an appeal taken by claimants to the Supreme Court. The remainder of the cases are now before the court and docketed for trial.

Sessions of the land court were held in Tucson, Ariz., December, 1893, and March last, when the cases decided were heard and determined. The next term will be held in Tucson, January, 1895, when it is reasonably certain that all cases on the docket will be disposed of. From the present outlook it is more than probable that all of these cases will go to the Supreme Court for final adjudication.

There is no one thing which is more devoutly prayed for by the settlers in the region of these private land claims than an early, final settlement of title, and when it is considered that an area of more than 6,000,000 acres comprises the sum total of these claims, the interest manifested by our people may in a measure be realized. Until a final determination of title is had, the settlement and development of these vast areas of land must remain as at present, unoccupied and unproductive.

I would therefore recommend, in the interest of claimants, home seekers, and the Territory, an early hearing of all these cases which are or may be appealed to the Supreme Court.

RAILROADS AND COMMERCE.

There are now ten railroads being operated in the Territory, as follows:

	Miles.
Southern Pacific, of Arizona	383
Atlantic and Pacific, of Arizona	393
New Mexico and Arizona	87
Arizona and New Mexico	56
Arizona and Southeastern (being extended)	38
Sante Fe, Prescott and Phœnix (being extended)	124
United Verde and Pacific	27
Gila Valley, Globe and Northern (being extended)	41
Maricopa and Phœnix	34
Prescott and Arizona Central (not being operated)	73
Total	1,256

The Southern Pacific passes through the southern part of the Territory, from Yuma on the Colorado River to the eastern boundary of Cochise County, passing through the counties of Yuma, Maricopa, Pinal, Pima, and Cochise.

The Atlantic and Pacific crosses north of the center of the Territory near the thirty-fifth parallel, and passes through the counties of Apache, Yavapai, Coconino, and Mohave.

The New Mexico and Arizona runs from Benson, on the Southern Pacific, in Cochise County, to Nogales, in the same county, on the Mexican line.

The Prescott and Arizona Central runs from Prescott Junction, on the Atlantic and Pacific, to Prescott, and is all in Yavapai County. This road is not being operated, its business having been absorbed by the Santa Fe, Prescott and Phœnix Railroad.

The Maricopa and Phœnix runs from Maricopa, Pinal County, on the Southern Pacific Railroad, to Phœnix, Maricopa County.

The Arizona and Southeastern runs from Bisbee to Fairbanks, and is now being extended to Benson, a distance of 18 miles, where it will connect with the Southern Pacific. This road is run and operated by the Copper Queen Company, and its traffic is largely confined to the business of the company.

The United Verde and Pacific runs from Clear Springs, on the line of the Santa Fe, Prescott and Phœnix, to Jerome (where are situated the famous United Verde copper mines, owned by Hon. W. A. Clark), and was built to handle the mineral product of the district.

The Gila Valley, Globe and Northern is being operated from Bowie Station, on the line of the Southern Pacific Railroad, to Solomonsville, the seat of Graham County, and is being extended to Globe, the mining center of Gila County. The line when completed will be 140 miles in length.

The Santa Fe, Prescott and Phœnix Railroad has been constructed from Ash Fork via Prescott, the former capital of the Territory, to Congress, to which point it is now being operated. It is proposed to extend this line to Phœnix, Florence, Tucson, and Nogales, connecting with the Santa Fe road at the last-named point, and terminating on the Gulf of California at Guaymas, thus connecting this portion of central Arizona with one of the most important ports on the Pacific coast. Work of construction is being rapidly pushed, and the line will certainly reach Phœnix by February 1, 1895, and thereafter it will be extended rapidly southward.

The advantages arising from the construction of this road will be very great, as it will pass through the richest agricultural regions of the Territory, and will be in the immediate vicinity of a continuous series of mining districts.

This will bring about an interchange of home products between the mining and the agricultural districts and northern and southern Arizona, keeping in home circulation a large sum of money which is annually sent to foreign markets for products of the soil which, owing to the lack of transportation facilities, is not now purchased in the Territory.

It is worthy of note that during the last two years railroad building has been at a standstill in other parts of the country; yet not less than four important roads have been undergoing construction in this Territory and nearing completion.

CUSTOMS.

The following is a statement of the business transacted in this district for the fiscal year ending June 30, 1894, at the port of Nogales:

Commodities free of duty	$1,035,200.00
Dutiable commodities	77,694.68
Total importation	1,112,894.68
Duties collected	34,362.10
Exports	433,004.00

For 1893 the imports were:

Commodities free of duty	3,751,805.00
Dutiable commodities	143,735.00
Total importations	3,895,540.00
Duties collected	60,673.71
Decrease of imports for 1894	2,783,147.32
Decrease of duties collected	25,910.61

The reason assigned by the U. S. customs collector for the reduction in the volume of business transacted during the year is due no doubt to the shippers' lack of information as to when the new tariff bill would be enacted.

INTERNAL REVENUE.

The following is a statement of the internal revenue collected in the Territory for the fiscal year:

Special tax	$14,585.50
Tobacco stamps	283.50
Calls on list	551.17
Beer stamps	123.02
Spirit stamps	227.20
Cigar stamps	405.10
Total	16,175.49
Collections for fiscal year ending June 30, 1893	22,787.53
Collections as above	16,175.49
Decrease for 1894	6,612.04

SPECIAL-TAX PAYERS.

Statement showing number of special-tax payers in Arizona for the fiscal year ending June 30, 1894:

Retail liquor dealers	672
Wholesale liquor dealers	10
Retail malt dealers	10
Wholesale malt dealers	22
Retail oleomargarine dealers	5
Wholesale oleomargarine dealers	1
Brewers of less than 500 barrels	2
Total	722

Number of Chinese registered in the Territory of Arizona, 1,362.

STOCK INDUSTRY.

Arizona is particularly adapted to breeding and fattening of all kinds of live stock. The climate is of such an even temperature that stock do well every month of the year. No expense is incurred for buildings to

shelter stock, nor is it necessary to store feed for winter use. The ranges are well supplied with all varieties of wild grasses, and most of them with an abundance of spring or river water. Cattle, sheep, and horses constitute the range stock, and the methods of handling them are similar to those of other Western States. Round-ups are usually held in the fall and spring when the young stock is branded and the marketable stock gathered.

GRAZING AREAS, EXTENT OF, AND FORAGE GRASSES.

The area of the Territory is nearly 114,000 square miles. Of this vast region it is estimated that 60,000 square miles, or more than one-half, can be utilized for grazing purposes, the balance being either farming land or mountainous. This great pasture field includes an acreage of 38,400,000, almost equal to the whole of New England, but owing to the lack of the proper distribution of water it has not yet been possible to make practical use of large portions of the range.

Every county in the Territory has some grazing lands, but the principal areas are in Pima, Cochise, Apache, Coconino, and Yavapai counties, whose elevation above sea level varies from 2,500 to 3,000 feet.

The range lands of the Territory form one vast plateau out of which rise broken mountain ranges. The whole country is covered with grass, but is comparatively treeless except on the foothills and mountains, which bear forests of live oak with green foliage summer and winter. The wild grass is luxuriant to the summits of many of the high peaks. In the northern portion of the Territory immense pine and cedar forests are found on many of the mountain ranges. While the snowfall on many of these high elevations sometimes reaches several feet in depth, the foothills and plains afford excellent winter pasturage.

FORAGE GRASSES.

Our range grasses are valuable and of great variety. More than 250 species are found within the borders of our Territory. Of this great number many are annuals, which, after the rainy season, cover the northern plateaus and southern mesas with a luxuriant growth of valuable forage. Although short-lived, coming up, maturing, and ripening their seeds within the short period of six or seven weeks, they are valuable food for cattle long after they have withered and dried. Large areas of the Colorado plateau are more or less thickly covered with many species of strong-rooted perennial grasses which remain green the greater portion of the year. These are known among ranchmen as "spear grass," black and white "gramma," "gietta grass" and "deer grass," and are mostly species of Hiliria, Bouteloua, Panicum, and Sporobosus.

Further south stock feed to a great extent upon evergreen and deciduous bushes. The foothills and low mountains are nearly everywhere covered with a thick growth of these bushes, and during a portion of the year produce the principal forage over large areas in south and central Arizona.

As a rule, the grasses of Arizona, more especially the gramma grasses (Bouteloua), have a much higher percentage of nourishment than the more succulent grasses of the East; they cure upon the ground and are the staple food of horses, cattle, and sheep, until the grasses start the following spring.

RANGE INDUSTRIES DURING THE PAST THREE YEARS.

During the years of 1892–'93 the stock industries of Arizona suffered greatly. This was due to several causes: First, the range became overstocked by the large importation of cattle previous to 1890 from other States, and by cattlemen not selling off their older cattle as closely as usual on account of the low prices. Second, during these same years the rainfall was not as large as usual, resulting in a lack of feed and water. These two conditions made it impossible to fatten the 3 and 4 year old steers on the range, as had been the custom, and they were sold at low prices as feeders, to be shipped to other States. This insufficient supply of feed and water reduced the numbers of cattle on some of the ranges from 25 to 50 per cent.

RAINFALL OF PAST YEAR.

The average rainfall throughout the Territory during the past year, as reported by the Weather Bureau, was 0.99 inch per month, or about 12 inches during the year. The principal rains came during the months of July, August, and September, during which time there was a precipitation of 7.64 inches.

PRESENT CONDITION OF THE RANGE.

Reports from every county in the Territory are that the summer rains have been plentiful and the ranges are covered with grass and the springs and rivers are filled with an abundance of water. The calf crop is exceptionally good, and all range stock is in better condition than it has been for years. Wild hay is being cut on many of the ranges in the southern counties

FORAGE PLANTS ON THE IRRIGATED LANDS.

The chief forage plants of the irrigated lands are alfalfa and barley. Both grow very rapidly and in great quantities. The alfalfa may be fed off, or cut for hay from three to five times a year, according to the amount of irrigation or water furnished it, and produces from 1 to 3 tons per acre to the cutting.

There are many valleys in Arizona in which alfalfa can and will be produced, but at the present time this product is confined to the Salt and Gila River valleys in Maricopa, Graham, and Pinal counties.

QUALITY OF STOCK RAISED ON IRRIGATED LANDS.

Though range stock of the Territory has been greatly improved by importations of blooded stock that have been turned on the range, yet it has been left to the alfalfa stockman to raise thoroughbred or fancy stock of the Territory. This climate has proven so healthful and the alfalfa and other kinds of feed so plentiful and nutritious that the choicest animals of the improved breeds of stock have been brought here. As there are no cold winters, the entire amount of feed consumed is contributed to producing growth and fat. Cattle and horses develop as much size here at 2 years as most climates give at 3.

ARIZONA ALALFA FOR FATTENING RANGE CATTLE.

For several years cattlemen have been shipping their feeders to California, Kansas, and Montana to be fattened for market, but the expense attending shipping materially lessened the profits. During the last few years many cattlemen have found that the Salt and Gila River valleys, in the central part of the Territory, offer better inducements for fattening cattle than the States. Many thousands have been driven to these valleys and fattened for the California markets. No more favorable conditions could be produced for fattening cattle than the warm, dry winter climate and luxuriant alfalfa of the Salt and Gila River valleys. These valleys are now producing alfalfa on about 100,000 acres; more is being planted each year, and is fast becoming the feeding center for the range cattle of the Territory.

BREEDING AND TRAINING FAST HORSES.

Horsemen in southern Arizona track work their horses of all ages during the entire year with impunity, and find the climate during the winter months exceptionally favorable for such work. It rains so little that there is seldom a day in the year in which a track can not be kept in good condition. The climate, though warm, is dry, and the temperature varies so little that animals are not subject to the many pulmonary diseases so common in colder climates. These conditions render it unnecessary to make large investments in buildings for shelter.

There are already many studs of fast horses in Salt River Valley, as well as on the ranges, and more are being brought each year. No doubt in the near future choice stock will be brought here from the North and East to be wintered, where they can be worked instead of housing them up during the chilling weather of colder climes.

The horsemen of the Territory have organized an association for the advancement of this interest in the Territory, called the Arizona Blood Horse Association.

ALFALFA AND SWINE.

Formerly it was thought that alfalfa was of little value as food for swine, and few ranchmen produced even enough pork for their own consumption. Experience has proven that there is no feed that will produce more growth on the hog of any age than alfalfa, and considering its cost there is no more profitable food.

The best results are obtained by feeding on alfalfa until about four or six weeks before marketing, when the swine is finished off, as it is termed, on barley, either the threshed grain or the grain as it is ripening in the field. This finishing-off process hardens the flesh and gives it a finer flavor and better preserving qualities.

Though the accompanying assessment returns give Maricopa County but 3,000 head of hogs, it is thought from present indications that not less than twelve or fifteen stockmen of the county will each market over 1,000 head of fat hogs during this season, at a net value of $5 per head, or a total of $60,000.

Judging from the rapid growth of this industry during the past two years, there is every reason to believe that it will soon result in one of the most important sources of income to alfalfa-growing sections of the Territory.

The number and value of live stock for ten years in Arizona, 1884 to 1894, inclusive, as returned by the Territorial board of equalization for each year since 1884, is as follows:

Cattle.

Counties.	1884.		1885.		1886.		1887.	
	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.
Apache	(*)		24,274	$333,355	38,461	$485,784	54,297	$649,484
Cochise	33,605	$415,865		692,628	60,492	708,886	73,285	879,420
Gila	8,497	160,881	9,450	162,939	15,970	201,389	17,101	205,528
Graham	17,167	307,984	22,086	339,629	29,217	444,542	37,089	491,767
Maricopa	5,974	98,740	7,680	127,679	9,586	147,832	9,505	124,237
Mohave	9,850	147,765	14,218	213,270	15,556	205,988	23,172	281,808
Pima	80,000	1,200,000	70,000	885,000	66,500	764,750	83,234	999,892
Pinal	21,513	(†)	28,383	434,116	28,566	335,696	34,386	408,785
Yavapai	64,008	832,104	89,688	1,030,512	116,286	1,279,146	131,259	1,608,552
Yuma	2,066	22,660	2,030	19,097	3,111	34,681	3,510	41,992
Total	242,680	3,185,999	267,899	4,238,225	383,745	4,608,694	466,838	5,691,467

Counties.	1888.		1889.		1890.		1891.	
	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.
Apache	65,472	$699,878.94	(†)		68,927	$585,897.50	74,132	$630,112.00
Cochise	73,294	769,587.00	94,021	$819,863.12	83,792	691,041.42	95,850	756,992.25
Coconino							55,062	405,825.00
Gila	19,984	201,196.00	42,282	431,914.00	49,733	452,645.10	58,645	496,470.45
Graham	45,541	478,180.50	36,855	375,180.00	55,623	507,438.00	66,730	585,718.50
Maricopa	12,698	167,893.00	15,514	223,808.00	23,843	231,065.30	26,509	254,350.95
Mohave	20,752	254,212.00	22,317	280,067.75	24,020	221,612.00	29,360	252,155.00
Pima	94,734	1,012,290.00	109,206	952,961.50	113,974	885,280.50	121,377	960,892.12
Pinal	31,460	330,554.70	39,347	401,432.00	40,032	348,399.00	48,565	403,551.78
Yavapai	145,058	1,710,323.00	159,773	2,005,151.15	172,627	1,370,814.50	142,460	1,205,057.70
Yuma	3,340	35,411.00	3,378	29,456.16	3,445	27,630.00	2,250	19,461.60
Total	512,333	5,720,526.14	522,747	5,519,833.68	636,016	5,321,823.32	720,940	5,970,587.35

Counties.	1892.		1893.		1894.	
	Number.	Value.	Number.	Value.	Number.	Value.
Apache	49,314	$480,078.00	39,933	$310,202.06	29,741	$227,068.00
Cochise	82,122	647,075.00	45,056	316,426.00	43,841	306,867.00
Coconino	58,428	408,803.00	51,315	398,081.07	42,558	298,302.50
Gila	55,828	451,630.09	53,952	405,202.58	50,977	357,407.00
Graham	68,526	620,044.00	64,800	489,583.85	50,237	351,942.30
Maricopa	24,506	230,925.00	22,974	235,274.60	20,622	207,316.10
Mohave	28,572	210,096.00	26,811	200,835.79	23,691	178,558.50
Pima	116,604	852,097.00	49,599	347,542.77	60,614	421,162.00
Pinal	35,102	254,747.00	27,002	203,356.71	21,245	150,242.50
Yavapai	121,392	853,562.00	107,018	802,228.22	78,141	547,637.00
Yuma	3,815	38,150.00	3,352	34,203.00	1,845	17,519.00
Total	644,209	5,047,207.00	491,812	3,742,936.65	423,292	3,064,221.90

*No return. †Not valued.

SHIPMENTS OUT OF THE TERRITORY.

The records of the inspectors at the various shipping points in the Territory show that nearly 100,000 head of cattle have been shipped out of the Territory during the past year. These shipments were made to California and Kansas City markets, and to Kansas and Montana as feeders. This is a much less number than was shipped last year, due mainly to the fact that a larger number are being fed in the Territory this year than last.

LIVE-STOCK SANITARY COMMISSION.

Arizona has always been noted for comparative freedom from contagious diseases among her domestic animals. This is due to our healthful climate and stringent sanitary law.

Under this law the governor appoints a live stock sanitary commission, composed of experienced stockmen and a veterinary surgeon, who have supervision of the health of the live stock of the Territory, and who see that proper quarantine regulations are enforced for the prevention of diseased stock entering the Territory. They are also required to have inspected the brands of all cattle and horses shipped or driven from the Territory. This inspection has been made so complete that it has practically done away with stealing by unprincipled men on the range.

COMPARATIVE HEALTH OF THE LIVE STOCK OF THE TERRITORY.

In Arizona live stock of all kinds are exceptionally free from even the common forms of disease so prevalent in the colder regions. The climate is so dry that few disease germs can exist for any length of time, and animals affected with contagious diseases usually present the benign or chronic form.

During the past year the sanitary commission has been more severely taxed than for several years previous, but it was mainly with diseased stock which were affected when they entered the Territory. During the year a herd of 45 Jersey cattle shipped from Missouri were allowed to enter the Territory upon a certificate of health. Soon after their arrival it was discovered that they were affected with tuberculosis, and upon investigation it was found that 25 out of the 45 cows and 14 calves were affected. They were at once destroyed and cremated, and the balance of the herd are still in quarantine.

The commission has caused to be destroyed during the past year some 50 head of horses that were affected with glanders. During former years only a few have been found, and those were usually driven into the Territory while they were affected. In this outbreak the disease had been prevalent in a community for some two years, but was not reported to the commission as it was not supposed to be glanders. The commission and veterinarian have used every possible means to detect every diseased horse in the community, and though this large number was found and many more quarantined, they have practically stamped out the plague.

AID FROM THE U. S. BUREAU OF ANIMAL INDUSTRY.

The sanitary commission and Territorial veterinarian were greatly aided in detecting benign cases of glanders among horses and tuberculosis among cattle by the mallein and tuberculin furnished by the U. S. Bureau of Animal Industry.

MINES AND MINING

Arizona will for years maintain her reputation as a region rich and prolific in gold, silver, copper, and nearly all other known minerals. During the last eighteen years ending December 31, 1893, Arizona gave to the world $101,784,017 worth of gold, silver, and copper.

Although the stringency of the money market and the general depression prevented the development of our gold industry as rapidly

as was anticipated in my last report, the gold output for the fiscal year ending June 30 was $2,080,250, as against $1,002,505 for the previous year. The silver output reached $1,700,800, and the five copper-producing companies which gave an output for the year ending June 30, 1893, of 38,712,507 pounds, returned an output of 48,270,500 pounds for the last fiscal year, being an increased production of 9,557,993 pounds. Arizona ranks third in the production of copper, fifth in the production of gold, and seventh in the production of silver. From the present monthly output of gold it is fair to estimate that the gold product for the twelve months ending December 31, 1894, will go over the $4,000,000 mark, and if development and production continues to increase in the same ratio as during the last six months, it can safely be estimated that the output for 1895 will be $8,000,000 and over. The price of silver during the year has precluded the working of all but very high grade silver mines. Should the price advance to 90 cents or $1 per ounce there would follow a wonderful era of mining prosperity. The depreciation of silver has been followed by the rapid development of our gold resources, and the return of the silver mining industry will give two resources of wealth where we had but one. This will not only double the output of metal but double the mining population and create a demand for thousands seeking employment.

MINERAL RESOURCES.

On the subject of the mineral resources of the Territory the following is a contribution from Dr. Theo. B. Comstock, president of the University of Arizona and director of the School of Mines, and who is an accepted authority on the subject:

The remarkable depression in all branches of business during the past year has affected the development of Arizona's mineral resources very materially. As stated by me in your report of 1893, the silver industry has been practically abandoned for the time being, except in the cases of a few deposits of the richest ores and one or two notable instances of unusually economical management. There is no present outlook for this metal, although as remarked last year, "Arizona's mines in many localities, if understandingly worked, will be able to withstand vicissitudes which would ruin those less favorably situated." It may be safely claimed that, with all the obstacles, there are more possibilities of profit in the mining of silver in Arizona than in other parts of the United States.

GOLD.

Gold is probably the most widely diffused metal in Arizona. Owing to its intimate association with other products, in many instances it has hitherto been too much regarded as an accessory rather than as one of the staple ingredients of our mineral wealth. The decline in the price of silver below a practicable mining limit has forced attention to the auriferous deposits, resulting in numerous important discoveries of value. It is significant that none of these discoveries have been made outside of areas previously designated as gold belts by geologists. The writer mapped out the tracts in which gold might be reasonably sought as early as 1892, and more recently he has published the basis for his opinions in the Engineering and Mining Journal. The exact relations in positions and origin between these gold-bearing tracts and the system of fault fissures which marks the seat of the silver-lead-copper deposition have only now been freely understood. For an explanation, which may materially aid in the wise selection of properties by careful investment, reference must be made to the series of papers above mentioned. Briefly outlined, there are eight or nine gold bands extending across Arizona from east to west. These are not of uniform width, but vary from 10 to 40 miles, with intervening barren areas usually very much narrower. There are differences in the containing rock, but the relations to the granitic series, even if obscured, are more or less evident upon careful investigation.

The output of gold in the past year has very materially increased. Several large properties have been opened and mills erected which are producing regularly in

addition to the old properties, most of which have equaled or exceeded the output for 1893. In addition, a very large but indeterminate quantity of this metal has been marketed from placers and from small mines opened by prospectors. My own estimate of the product for 1894, from such information as I can gather, would be nearly double that of the preceding year. There is no reason why this amount should not be very largely exceeded annually for a long period to come if the known deposits be worked with vigor.

LEAD.

The amount of lead produced in Arizona in 1893 was about the same as in 1892, but since the beginning of 1894 there has been a marked falling off, owing to the decline in silver. Nearly all of the metal produced in this Territory is argentiferous, and while the base metal may materially assist in the working of silver ores which might otherwise be unprofitable, there is no inducement to work lead-bearing minerals in a period of stagnation in the silver industry. It is impossible to discuss lead independent of silver from an economic standpoint. The two metals are so closely linked in distribution in Arizona, and the metallurgy of both is so clearly affected by the local conditions, that neither industry can be successfully prosecuted by itself. We are remarkably well placed so far as the supply of ores for mixtures and the convenient situation of desirable fluxes are concerned, and whenever, from any cause, a revival shall occur, those who are unfamiliar with our resources have in store for them a genuine surprise. The deposits of galena and silver sulphides are enormous and permanent in character, and only need the stimulus of reasonable profits to bring about a metallurgic industry of gigantic proportions.

COPPER.

Arizona still holds her position as third among the States and Territories in copper production, and in 1893 reached its highest output—44,000,000 pounds of the metal. There has been some falling off in production in 1894, owing to the conditions of the market, but none of the prominent mines have been shut down completely, while important improvements have taken place at several of them, and one large new field is now being developed in the Santa Rita Mountains at Rosemont, 40 miles from Tucson.

The copper belts lie along both sides of great fault lines, extending across the Territory from northwest to southeast. The important centers of Jerome, Copper Basin, Globe, Rosemont, and Bisbee are disposed along the great main fault, running diagonally through the middle of the Territory, Clifton and Morenci being upon a parallel break, while the Ajo, Reward, and Silver Bell mines are nearly in line with another slip to the westward.

The remarkable history of copper production in Arizona has been due to the oxidized character of the ores at the surface and to the excellent management of the properties by their owners, which have enabled them to produce at low cost, notwithstanding the lack of transportation facilities and the distance from sources of fuel supply. The gradual change to the sulphide ores will somewhat affect the metallurgy of this metal, but the prominent mines are making preparations already before the problem has been met in practice, and with the rapidly increasing transportation facilities there can be but little doubt of the retention of the Territory at least in its present rank among producers.

Railroad building has been greater in Arizona during the past year than in any other part of the United States. Bisbee, Globe, and Jerome are about to acquire direct connection by rail with the main lines, and the construction of the Santa Fe extensions through Arizona will bring other districts into closer relations with the transportation routes.

I heartily concur, after most careful investigation, in the following statement, taken from the Mineral Industry, vol. 11, 1893, p. 236:

"Arizona increased her output through the steady growth of capacity, and from no forcing process. This Territory could indeed greatly increase production if the prudent management which controls most of the mines deemed it desirable to do so."

In certain quarters effort has been made to decry additional developments by giving currency to a rumor that the large producing mines control all the available copper deposits of the region. This is not true; as I have repeatedly stated in print, there are several districts as well situated for working, with as valuable deposits, as any now being mined. Some of these have been given a bad name by injudicious management, and others have not been brought to the attention of those who could make them profitable. Arizona suffers in common with other regions from the current belief among the inexperienced that metallurgic work requires only ordinary skill and no particular knowledge of ores and fluxes. Undoubtedly the manipula-

tions in the market are responsible for some of the difficulties which are unforeseen by those who engage in the business of production. But really valuable properties have been handicapped by attempts to work them by the "penny wise pound foolish" policy of employing inferior superintendence in place of thoroughly trained engineering talent.

ZINC.

In some mines in the southeastern portion of the Territory zinc blende occurs abundantly, and in some cases, owing to its mode of deposition, it can readily be separated by hand assorting from its associated minerals. This mineral is not as troublesome as in some other portions of the country, owing to its occurrence in the veins in streaks distinct from other minerals; it will, therefore, at some future time become readily available as the supply for an industry independent of the reduction of the accompanying metals. Little attention is now being given to it.

IRON.

Discoveries are constantly being made of new deposits of iron ores of different grades, and, as explorations continue, the extent of limestone and other appropriate material for fluxes is being greatly enlarged. There is no immediate prospect of the building up of an industry of this character, although there are certain uses to which some of the deposits of volcanic ash and similar material have been assorted by water action and possibly by thermal springs so as to form valuable accumulations of earths of different colors, which are in some cases adapted to use as pigments. There are many important deposits of this class and of limonites, hematites, and magnetites which can be utilized whenever the trade conditions become such as to make the iron-working industry a source of profit in this region.

MANGANESE.

Ores of this metal are abundant, and particularly so in regions where silver and gold ores have been formed largely by secondary action. Comparatively little work has been done upon them as yet, as there has been no special demand for such material in the Territory. Eventually it will become of much importance in the arts.

OTHER MINERALS.

Nickel and cobalt occur in notable quantities in many ores, particularly in the southeastern part of the Territory.

Asbestus in greater or less amounts has been reported from different localities, some of the best coming from the Grand Canyon of the Colorado. Mica is an ingredient of granite, occurring sometimes in very large flakes, but more often abundantly in crystals of sufficient size to be used for the ordinary purposes, not requiring definite sizes. Porcelain clays of different colors and qualities, brick clays, tile clays, and other similar material in great variety are especially abundant. Excellent material for the manufacture of hydraulic cements, natural and artificial, are lying untouched for lack of transportation facilities. Soapstone and allied material will soon be available by the construction of railroads, and a considerable variety of decomposition products similar to kaolin occur in accessible regions. Many of the last-named deposits have been collected for examination by the bureau of mines at the University of Arizona.

Graphite has been discovered in deposits more extensive than those reported last year, and some of the material is pure enough for use as a commercial product. In some cases it is difficult to draw the line between this and anthracite coal, from which it has been locally altered. Further investigation is needed to determine the extent and quality of the most prominent deposits. We have done some work upon this in the school of mines, but final reports are awaiting further development of the mines.

PRECIOUS STONES.

Turquois, which occurs in several localities, has not probably been mined to its fullest extent. Trinkets and articles of jewelry made from this material have been found among Indian relics, and it is fair to presume that better material than has commonly been mined may hereafter be discovered in some of the deposits.

Opals in some localities have been found in sufficient quantity to indicate the possibility of future discoveries of importance.

Agatized wood, the principal supply of which has come from Chalcedony Park, south of Holbrook, is already known as a characteristic Arizona product, which can.

however, be made to yield much greater revenue than has hitherto been obtained from it. Other deposits of possibly less extent are reported from different parts of the Territory. Some of these are liable to assume importance hereafter.

Garnets are a common ingredient of the metamorphic schists over wide areas.

Tourmaline is very abundant in quartz and feldspar in certain of the granite belts crossing the Territory from east to west, particularly in the district northwest of the South Catalina Mountains and at the summit of the Bradshaw Mountains in Yavapai County. Usually this mineral is very brittle and difficult to obtain in distinct crystals, but I have found some choice specimens of large size in the Bradshaw Mountains.

BUILDING MATERIAL.

Arizona is rich in stone suitable for architectural purposes, including limestones of Carboniferous age, which occur in all parts of the region; Cretaceous limestones mostly in the northeastern half of the Territory; red sandstones, perhaps of Triassic age, or possibly of the Permian, outcropping chiefly in the northeastern quarter of the Territory, and many varieties of trachyts and basalt, which are suitable for general or special purposes if properly selected.

Excellent material for the manufacture of lime abounds in all portions of the Territory. Marbles, blue, white, and variegated, are being quarried in many localities, particularly in the region east of Tucson, but they are by no means confined to this particular region. Some of this material is fully equal to the best in the market, and is being manufactured into commercial forms at Tucson and elsewhere.

Some of the porphyries and variegated limestones are especially suitable for decorative purposes.

Clays suitable for the manufacture of brick, fire clays, and similar deposits are very abundant.

ONYX AND ORNAMENTAL STONES.

The interesting deposit of onyx marble, as it is properly termed, at Big Bug, in Yavapai County, is but one of many of its kind which have recently been discovered in Arizona. An outcrop at Cave Rock near the line between Yavapai and Maricopa counties, several in the Santa Rita Mountains, south of east from Tucson, and others in the Chiricahua Mountains, in Cochise County, are striking examples. This material bids fair to become a very important item in our mineral output within a short time.

A most interesting deposit, or series of deposits, has recently been opened in Yavapai County, 40 miles east of Prescott, on Sycamore Creek. The rock is a drab dolomite, practically a lithographic stone, which is spangled, or decorated, in a remarkable manner with variously colored tracings bearing fanciful resemblances to natural or artificial objects, giving when polished a highly ornamental appearance, but different from that possessed by any material now in the market. This, it would seem, must have a high value as a decorative rock, both from its unique character and the beauty of its appearance.

LITHOGRAPHIC STONE.

Numerous samples of so-called lithographic stone have been received at the bureau of mines, very few of which have been found satisfactory upon careful testing. Those which have been most promising as regards texture have usually not had the requisite structure to enable blocks of the proper size to be prepared from them. Very recently I have examined large specimens, in considerable quantities, from Sycamore Creek, Yavapai County, near Squaw Peak, and have found them to be the nearest approach to the Solenhofen stone in structure, texture, and working qualities of any which has ever come to my notice, and I have had occasion to examine several hundred outcrops in different parts of the United States. I believe that we have at least secured a substitute in this country for the imported rock, which will meet all requirements.

FUEL SUPPLY.

There has been no lack of fuel for mining and living purposes heretofore, but as increased population will make heavier demands upon our resources, it is encouraging to note that the prospects for obtaining eventually a supply of coal in the Territory are reasonably good. The San Carlos field has not been developed on account of its position on an Indian reservation, and the lack of thorough investigation of the geology of the Territory makes it impossible to state exactly where the continuation of this field may be found. There have, however, been important discoveries within the past year in the Chiricahua Mountains and in the neighboring ranges of a superior quality of carbonaceous material, which, in some instances, has been altered nearly to graphite, but which still possesses much of the quality of anthra-

cite coal. Some of this has been successfully burned, and it is probable that further explorations will determine its continuance in positions where it can be worked to better advantage on account of its disconnection from the volcanic outbursts which have modified the deposits in question. This opinion is based partly upon discoveries which have been made in the Whetstone and Santa Rita mountains and elsewhere.

WATER SUPPLY.

The question of underground water supply is directly connected with the geologic structure of the region. Such work as we have been able to do heretofore has been accomplished without funds, and is, therefore, of a character much too incomplete for a detailed report; however, we have progressed in our geologic studies far enough to be able to assert with some confidence that in certain areas the chances for the obtaining of an adequate supply of artesian water are exceedingly good. It is probable that the conditions are such as to naturally divide the Territory into three or four distinct areas, bounded by lines running northwest by southeast across the Territory, one of them through the middle. It will require more detailed investigation to give these deductions a direct practical effect. There is not space here to give the facts, or the conclusions to be drawn from them, but I am pleased to state that our knowledge has increased during the past year to such an extent as to make it reasonably safe to predict the probable future application of artesian waters over a very considerable portion of the arid region in Arizona.

ARIZONA FOREST AND FOREST TREES.

So far as the forests of Arizona are concerned, the Territory may be divided into two widely differing regions, viz, the northern, or plateau region, and southern, or Sonorean region. The northern region, botanically, is very similar to the southern portions of Utah and Colorado. The Colorado plateau covers the major portion of the northern half of Arizona, and has an elevation of from 5,000 to 7,000 feet above sea level, while mountains arising from it reach an elevation nearly twice as great. It is on this plateau—more especially its mountains and a long strip of country where the plateau breaks down to the mesas further south—that our principal forests occur. Our timber area extends without interruption from some miles south of the San Francisco Mountains in a southeasterly direction to New Mexico. These forests are of yellow pine (*Pinus ponderosa*), and are the largest unbroken pine forests in the United States. North of these forests, but separated from them by a broad strip of plateau more or less thickly covered with a growth of oak, nut pine and juniper, are the Grand Canyon forests, which cover hundreds of square miles and as yet are unknown to the woodman's ax.

PINE.

Although the yellow pine is the most abundant and most widely distributed of the forest trees of Arizona, the lumber products of many other species are equally valuable, but on account of their limited areas, or inaccessibility, they have received but little recognition as yet. The slopes of many of our northern mountains are covered with fir, balsam, spruce, and aspen, while forests of cypress are not infrequent in the more southern ranges.

The pines and allied trees being in this latitude, trees of high altitudes are found in southern Arizona only at an elevation above 5,000 feet. At this altitude the forest trees are similar to those on the northern plateau.

EVERGREENS.

At lower elevations on our southern mountains, in the foothills, and along rivers and washes, are a great many species of evergreen and deciduous trees. The most important among them are the mesquite, several species of oak, ash, walnut, cottonwood, desert willow, ironwood, palo verde, acacias, willows, and many others.

THE MESQUITE.

The mesquite is by far the most important of the arid region trees, and has been considered by the most eminent authority on forests and forest trees in this country as the most valuable economic tree in America. It provides fuel over large areas when other trees are meager and scanty. The wood is hard, durable, and takes a high polish. It is valuable for fencing and other similar purposes. The ripened pods contain a high percentage of nourishment, and are of great value as food for stock. All its parts and products are of economic importance, and altogether it has a greater variety of uses than any other of the American trees.

NUMBER OF SPECIES.

Eighty species of forest trees are native to our Territory, a number excelled by but few States in the Union. Many of them are of large size; black oak 14 feet 9 inches in circumference in the Santa Rita Mountains; walnut 12 feet 8 inches in circumference in Galluro Mountains, while many of the pines of the north are 12 to 15 feet in circumference and of considerable height.

LUMBER INDUSTRY.

The lumber industry of Arizona is confined principally to the forest area between Flagstaff and Williams, along the line of the Atlantic and Pacific Railroad. Large mills are in operation at Flagstaff, Challender, and Williams. A few small mills are located in the southern ranges. Throughout the Territory during the past year something over 25,000,000 feet of yellow pine (*Pinus ponderosa*) has been manufactured into lumber. This lumber, the better grade of which is nearly as valuable as the white pine of the north, is marketed as far east as Albuquerque in New Mexico, south to Mexico, and west to California, where it competes with the forest products of the Pacific coast. Another railway communication will be opened between northern and southern Arizona, and our lumber will find a much more extended market. From the extent of our pine forests it is reasonable to expect that this industry will continue to increase from year to year. Laws have been enacted to aid in preserving our forests from wanton destruction by fire or other causes. A reasonable preservation of our forests is necessary for the future welfare of the Territory, as the population of considerable areas of Arizona will, in future years, depend almost entirely upon the lumber industry.

PUBLIC EDUCATION.

The liberal provision of our school law has laid the foundation for a thorough and progressive school system, and the high salaries paid our teachers has attracted experienced instructors from every part of the country. A roll call of the teachers at the last Territorial Teachers' Association meeting showed a representation from more than twenty States and Territories.

It has often been remarked, by visitors from abroad, that there is less of the dull routine, and more progressive work, in our schools than will be found in many of the schools of the old established States. This is probably due to the assimilation of the best methods of instruction used in the different States. Certain it is that the association of teachers from different sections of the country has a tendency to prevent stagnation in methods of instruction.

NEW SCHOOL BUILDINGS.

The patrons of the schools are generous in providing for their maintenance. During the last two years various districts of the Territory have expended over $100,000 in the erection of new schoolhouses. The greater part of this amount was spent in the small towns and country districts. The school houses are all substantial, are neat in appearance, and stand as creditable monuments to the people who have voluntarily taxed themselves to build them.

NEW SCHOOL BOOKS, ETC.

In July, 1893, the Territorial board of education, after consulting with a committee of teachers of the Territory, adopted a new list of text-books for the use of the schools. In addition, the board succeeded in making contracts with the publishing companies, under which the books are sold to the patrons of the schools at an average of 33 per cent less than they had formerly been paying.

TEACHERS' EXAMINATIONS.

The school law provides for uniform teachers' examinations on the first Monday and Tuesday in March, June, September, and December of each year. These examinations are prepared by the Territorial board of examiners, and are intended to fairly test the qualifications of applicants for teachers' certificates. Last year the standard for a second-grade certificate was raised from 65 to 80 per cent, and for a first grade from 80 to 85 per cent.

One gratifying feature of the examinations during the last year is the number of teachers heretofore holding second-grade certificates, who have successfully passed the test and secured first-grade certificates.

TEACHERS' INSTITUTES.

Annual county teachers' institutes are provided for by law, and in addition to these, a Territorial Teachers' Association has been organized which holds annual meetings.

PROGRESS DURING THE YEAR.

Prof. F. J. Netherton, Territorial superintendent of public instruction, submits the following figures showing the progress made in various departments of school work during the year:

County.	Number of teachers.		Number of school districts.		Number of boys enrolled.		Number of girls enrolled.		Total enrollment.	
	1893.	1894.	1893.	1894.	1893.	1894.	1893.	1894.	1893.	1894.
Apache	26	33	20	21	554	603	586	579	1,140	1,182
Cochise	30	25	22	18	558	543	487	420	1,075	963
Coconino	8	9	6	6	137	187	130	189	267	376
Gila	18	20	16	17	250	258	187	207	437	465
Graham	25	22	20	21	525	602	449	583	974	1,185
Maricopa	64	67	41	42	1,400	1,643	1,201	1,860	2,601	3,503
Mohave	12	12	12	12	90	88	93	106	183	194
Pinal	9	13	7	8	269	274	278	278	547	552
Pima	35	39	24	25	874	960	681	807	1,555	1,767
Yavapai	39	41	38	37	535	400	501	387	1,036	787
Yuma	9	7	8	6	111	170	71	108	182	278
Total	275	288	214	213	5,333	5,728	4,664	5,524	9,997	11,252

County.	Number of children of school age according to last census.		Average length of school term.		Average salary paid to teachers.	
	1893.	1894.	1893.	1894.	1893.	1894.
			Months.	*Months.*		
Apache	1,506	1,626	6	5 6/10	$73.25	$71.24
Cochise	1,310	1,312	6	6 7/10	77.00	80.08
Coconino	504	467	6	6 3/5	92.50	90.71
Gila	548	507	6 1/2	5	74.00	64.25
Graham	1,930	2,122	5 1/2	5 8/10	73.00	63.20
Maricopa	3,494	3,797	6 1/2	6 7/10	81.00	75.81
Mohave	244	277	8 1/2	6 1/2	75.80	73.00
Pinal	882	868	6 5/7	6 4/7	84.00	80.00
Pima	3,265	3,407	6 1/2	5 7/10	78.70	73.41
Yavapai	1,264	1,238	6 1/2	6	75.00	71.00
Yuma	516	581	.....	6 3/10	92.50	82.00
Total	15,463	16,202	6 1/2	6 1/8	79.77	74.06

County.	Total amount paid in salaries.		Total amount expended, all sources.		Valuation of school property.	
	1893.	1894.	1893.	1894.	1893.	1894.
Apache	$11,653.00	$12,185.50	$17,215.24	$14,950.61	$10,750.00	$11,682.00
Cochise	16,756.00	14,119.00	21,389.24	17,529.30	25,899.99	26,102.00
Coconino	4,733.00	5,551.47	7,325.34	7,168.02	.....	20,535.00
Gila	7,596.00	6,720.00	8,594.74	7,824.85	3,855.00	3,875.00
Graham	9,080.00	8,116.28	11,162.23	10,181.45	13,613.00	13,255.00
Maricopa	27,662.00	34,689.16	61,323.53	45,023.72	132,524.00	168,098.00
Mohave	7,295.00	5,899.52	8,536.34	7,614.33	5,170.00	5,175.00
Pinal	7,782.00	7,403.75	10,132.41	9,171.61	19,276.50	20,290.50
Pima	21,434.50	20,374.75	26,738.61	25,300.45	75,251.00	75,848.82
Yavapai	23,265.41	19,382.55	29,059.91	24,855.98	43,080.00	49,495.00
Yuma	3,354.75	4,104.50	4,332.30	6,419.70	10,750.00	11,000.00
Total	140,716.66	138,546.48	205,810.89	176,040.02	329,419.49	405,446.32

You will observe by these figures that the enrollment in the schools this year exceeded last year's enrollment by 1,255; also, that 18 additional teachers were employed.

SCHOOL POPULATION.

The increase in school population is only 739, thus showing that 516 children attended school during the last year that did not attend during 1893.

The average salary paid to teachers is $74.06 per month, which is $5.71 less than was paid in 1893.

The total amount expended for maintaining the schools during the last year aggregates $176,040.02, or $29,970.87 less than was expended in 1893. This, however, has been due to a more economical administration of the schools and has not lessened their efficiency.

This year the valuation of school property reaches the magnificent sum of $405,446.32, an increase over last year of $76,026.83.

BONDED INDEBTEDNESS OF SCHOOL DISTRICTS.

The following is a statement of the school district bonded indebtedness of the Territory by counties:

Yavapai County.—Amount, $17,000; denomination, $1,000; time—$2,000, five years; $5,000, ten years; $5,000, fifteen years, and $5,000, twenty years; interest, 6 per cent per annum, payable annually.

Maricopa County.—Amount, $65,000; denomination, $13,500, $500 each, and balance in denominations of $1,000 each; $8,000, ten years; balance, twenty years; interest on $30,000 at 6 per cent per annum, balance at 7 per cent, payable annually.

Coconino County.—Amount, $6,000; time, five years; interest, 7 per cent, payable annually.

Bonds as follows have been voted, but as yet have not been sold: Pima County, at Nogales, $10,000; Coconino County, at Winslow, $7,500, and at Casa Grande, $3,000.

SECTARIAN SCHOOLS.

There are a number of parochial schools and academies under the auspices of the Catholic Church and other religious bodies, the total number of pupils of which will reach 750. The cost of maintaining the same is estimated at $7,500 annually.

REFORM SCHOOL.

The last legislature provided for a Territorial reform school. This institution has been located at Flagstaff, the county seat of Coconino. One hundred and thirty acres have been donated to the school; a building is in course of construction, the cost of which is authorized not to exceed $20,000. The location is most desirable on account of the climate, hygienic, social, moral, and religious conditions, and is equal to, if not better, than any other location in the Territory.

The school will be ready for occupation on or before January next.

NORMAL SCHOOL.

The normal school, located at Tempe, Maricopa County, is in a flourishing condition. Each year shows a satisfactory increase in the enrollment of students. There were 80 in attendance last year, the largest enrollment since the school was founded.

In 1893 the legislature levied a tax upon the property of the Territory to create a building fund for the erection of a new normal school building. Plans and specifications for this building have been accepted and the work commenced. It is to be a three-story fireproof structure, the first story to be built of brownstone and the second and third stories of pressed brick. The estimated cost of the building is $46,500.

UNIVERSITY OF ARIZONA.

The University of Arizona, established at Tucson in 1885, was formally opened for instruction in October, 1891, since which date it has been in active operation. The first class will be graduated in 1895 from courses of study which are equivalent to those offered by the best Eastern institutions. The growth of the university and its present position of influence and wide usefulness are sources of genuine satisfaction to our citizens. Some important changes have occurred within the last few months which will enable all branches of the institution to make more rapid progress.

MAINTENANCE AND RESOURCES.

The Territory has expended liberal sums in providing necessary buildings and in their maintenance; the salaries of the professors and apparatus in the several departments being largely procured through the general appropriations from Congress under the Morrill and Hatch acts. The land grant devoted for endowment purposes is not available under the Territorial form of government, but the land itself has been located mainly in the best timber belt in Arizona.

The university is organized with departments fully equipped for purposes of education and investigation; besides the work of instruction, most of the faculty engage in practical researches in their own lines as members of the bureau of mines or of the agricultural experiment station.

A beginning has also been made in the Territorial Museum, established recently by the legislature. Already much has been done in the study of the mineral and agricultural resources of the Territory and toward their economic development by these divisions.

BUREAU OF MINES.

In the bureau of mines very complete testing works have been established, in which ores of all kinds are treated by the different processes upon a working scale; numerous minor tests, mineral determinations, assays, and analyses have been made of smaller lots in the metallurgic laboratory.

EXPERIMENT STATIONS.

The agricultural experiment station, more liberally endowed, has become a department of marked value to the Territory, now that its work is wholly restricted to the investigation of questions of public importance. Bulletins are issued at frequent intervals, giving results of experiments carried on in different sections of the Territory. The scope of the work is extensive, and the results to accrue are inestimable in their beneficial effects upon the wide range of industries adapted to this region.

UNIVERSITY FACULTY.

The faculty is composed of men of reputation and experience, and the facilities for instruction have been pronounced by the highest authorities equal to the best. In the school of mines and the department of agriculture, particularly suited to the arid region, the courses established have served as models for other colleges, and students from other States have sought instruction at this university because of its thorough work and the reputation of its professors.

INDIANS.

The condition of the Indians of the various reservations (with the single exception of the Navajoes) during the last year has been more satisfactory and in every way more encouraging than ever before in the history of the Territory.

There are in round numbers 35,000 Indians under the jurisdiction of agencies located in the Territory. With the single exception mentioned, there has not been the slightest complaint made by our citizens. The Indians appear absolutely content, and are making most encouraging progress on the lines of industrial training, the acquisition of property, establishing homes, and adopting methods of civilization, which inspires great hope for their future.

These gratifying and hopeful conditions can be and are justly accredited to the efficient and honest administration of the respective agents, in the selection of which the appointing power is entitled to congratulations.

THE KID.

This roving Apache outlaw is still at large, notwithstanding there is a reward of $5,000 offered by the Territory for his arrest and conviction. No well-authenticated cases of depredations or murders have been established against "The Kid" during the past year, although several have been attributed to him. His presence has been several times reported on the White Mountain Indian Reservation, but his familiar hiding place is believed to be in the Sierra Madre Mountains of Mexico.

THE CHIRICAHUA INDIANS.

The solution of the Apache Indian problem in Arizona was reached in the removal of Geronimo and his band of Chiricahua Apaches to the Atlantic coast seven years ago. Comparative peace has prevailed among the other Apache tribes ever since. Recently there has been much interest manifested by the citizens of the Territory with reference to the removal of these Indians to Fort Sill, Ind. T., and report has gained credence, which is causing much public concern, that it is the ultimate purpose of the Government to return them to the White Mountain Indian Reservation.

No greater or more fatal mistake could be made by the Government than to return these Indians to Arizona. While there is little or no danger to be apprehended from them while located in the Indian Territory, their return to Arizona would be fraught with great danger. The traditions, history, experience, fancied or real injuries suffered by them and their ancestors, will appear before them in every mountain canyon, valley, and stream. The story printed thereon will be so many

pages of history which they will relate to the young warriors, and thus inflame the spirit of revenge.

There is no power which can restrain the fierce spirit thus rekindled in the presence of the homes and graves of their fathers. As long as they are not permitted to behold the land of their birth and its historic scenes, the traditions of their ancestors, their bloody deeds, their victories and defeats can not be told with effect to the youth who has grown to manhood in other climes.

In the interest of all concerned, I must respectfully appeal to you not to permit the return of these Indians to their native haunts of this Territory. While our people harbor no spirit of hate or revenge against them on account of their wanton murder of hundreds of settlers and the destruction of property, yet, if they are brought within the jurisdiction of our courts, in the interest of justice, peace, and safety, the guilty may be required to answer for the murders they have committed.

THE NAVAJOES AND THE MOQUIS.

There are about 20,000 Navajo and 2,099 Moqui Indians. They are located in the vicinity of and on their reservations in the northeastern portion of the Territory. The Moquis are at peace with all mankind, but the Navajoes have for years been creating much friction with the stockmen of Apache County, and some of the farmers of Coconino County in the vicinity of Tuba City. It is estimated that there are from 5,000 to 7,000 Navajoes off the reservation, also much of their stock, which interferes with the rights of Arizona stockmen and farmers. More than once recently serious results were feared.

THE CAUSE.

It appears that in the vicinity of Tuba City very unsatisfactory conditions exist. The farmers have reclaimed lands to agriculture, some of which is claimed by the Indians, who frequently destroy irrigating canals and drive their stock into the fields of the ranchers.

Some months ago the district court of Coconino County issued an injunction restraining these Indians from interfering with or molesting these ranches, but the attempt to enforce the order has been met by armed resistance from the Indians, and to avert bloodshed and most probably a bloody war the officers of the law desisted from enforcing the mandates of the court.

INDIAN LAND TITLES.

In this connection I would call your attention to the fact that some months ago an allotting agent appeared upon the ground and made or pretended to make allotments of land to these Indians, and they were informed that their rights were secure and to insist on holding the lands allotted to them.

These Indians now stand in contempt of the court for disobeying its restraining orders. The allotments made by the aforesaid agent have not, as I am informed, been acted upon by the Interior Department. In the interest of peace and to avoid further friction I would most respectfully urge that the rights of the citizens near Tuba City be determined as early as practicable, as they have lost much by the destruction of crops and interference with their water rights from these Indians.

THE WATER SUPPLY.

The primary cause of the trouble is the lack of water on the Navajo Reservation. This deficiency, however, will soon be remedied, as the liberal appropriation made by the Government for the development and storage of water on the reservation will, it is confidently believed, supply more than enough for all the Indians and their stock.

As soon as this is done every Navajo should be compelled to go on the reservation and remain there.

To this end I would recommend that the south and west boundary line of the reservation be surveyed and distinct permanent monuments established, that there may be no misunderstanding as to the rights of the Indians and the stockmen.

As a means of precaution I would also recommend that a company of U. S. cavalry be stationed in the neighborhood of Keams Canyon, as the Navajoes have a decent respect for the U. S. Army, and the presence of troops would allay all friction and check the present aggressions of the Indians.

I submit herewith a report, furnished at my request by Lieut. E. H. Plummer, acting agent of these Indians:

THE MOQUIS.

The Moquis number 2,029; 1,075 males and 954 females. They live in villages, situated on three high mesas, cultivating farms and orchards in the valleys. They are very provident, and keep a year's supply of grain stored in their cellars.

The Department is endeavoring to induce them to abandon their overcrowded mesa houses and build in the valleys. If they will erect the walls of a house of stone or adobe the Department will have the building roofed and finished. Fifteen such houses were built during the past year.

There is a school for Indian children at Keams Canyon, about 12 miles east of the most easterly of the Moqui villages. The attendance at this school during the past year was about 90; 16 being Navajoes, the remainder Moquis. There are day schools at two of the mesas, with an attendance of about 30 each.

At the industrial or boarding school at Keams Canyon there is a superintendent, three teachers, a matron, doctor, seamstress, cook, laundress, and industrial teacher. At the day school at Oreiba village there is a teacher and an assistant. The day school at the other mesa is in charge of a field matron.

CONDITION OF THE NAVAJOES.

The Navajoes number about 20,000. They are scattered over New Mexico and Arizona for 100 miles or more in every direction from their reservation. They have been allowed to remain off their reservation on account of the lack in the natural condition of the reservation of sufficient farming lands and grazing grounds for their herds. Appropriation has been made for the development of the water on the reservation, with the ultimate view of returning all of the tribe to the reservation. The work is now in progress, and when completed there will be sufficient land under ditch to support five times more than the present number of the tribe. The work is progressing very slowly, however, and steps should be taken to urge its rapid completion, that the citizens of Arizona and New Mexico may be relieved of the burden imposed upon them by being compelled to assist in supporting, to the great detriment of their interests as well as to their pockets, a large number of Navajoes who live chiefly off of the cattle of the settlers.

FARMING.

Owing to the low price of wool, their main dependence, the Navajoes are turning their attention to farming. If properly assisted to get their land in condition and shown how to plant and reap crops they would rapidly develop into farmers. To this end there should be from eight to ten farmers on this reservation, each equipped with wagons, teams, plows, and harrows—these men to be selected from residents of the adjoining States and Territories, reliable and practical men, who have the best interests of their States or Territories at heart, and who are familiar with the conditions of farming in this climate by irrigation.

THE SCHOOL.

There is a boarding school at this agency for Indian children. The attendance last year reached 206. This is an increase of more than 100 per cent over any prior years. It is estimated that there must be about 4,000 children of school age in the tribe. If the school here were suitably equipped and the means for maintaining such a school provided, making it as attractive as nonreservation schools are made, there is little doubt that there could be an enrollment of from 500 to 1,000 pupils in a very short time.

NOT SELF-SUPPORTING.

The theory that the Navajoes are self-supporting may have been approximately correct years ago, but to anyone familiar with their present condition and their large dependence for support on the cattle of the white settlers adjoining the reservation it would never occur to consider them self-supporting. This theory has undoubtedly prevented them from receiving in time the assistance they need so much. If properly and judiciously assisted, there is no doubt that they would soon become self-supporting and relieve the citizens of the adjoining States, especially of Arizona and New Mexico, of a most unjust taxation.

The employé force of the agency boarding school consists of 1 superintendent, 4 teachers, 3 matrons, a seamstress, disciplinarian, tailor, industrial teacher, cook, shoemaker, carpenter, and laundress.

THE APACHES.

These Indians are located on the White Mountain Indian Reservation, and are made up of several tribes. They number 4,559. The Apaches are steadily improving and seem well satisfied at present. No complaint during the year has been made by citizens against them, and they seem to be under good control.

Education is most encouraging. There are 2 boarding schools, 4 teachers, 125 pupils in attendance last year, while 250 pupils are away at school.

Good progress has been made in farming; water is well handled despite the scarcity, and the farms look well. Thirty-nine hundred acres are cultivated, with 18 ditches. There were produced 9,970 bushels of wheat, 12,080 bushels of barley, and corn estimated at 12,000 bushels. The tribe has 4,600 horses and ponies, 490 mules and burros, 3,000 head of cattle, and 80 head of sheep.

THE MOHAVE INDIANS.

The Mohave Indians are located in the Colorado River Valley on the western border of Arizona. This tribe has made good progress during the year.

Water for irrigation purposes is furnished by pumping the same out of the Colorado River with steam irrigating pumps. There is always an abundance of water for irrigating purposes, but on account of the present irrigating facilities being inadequate to furnish the supply of water necessary, there is not much benefit derived from irrigation on this reservation.

The following statistical information concerning this tribe may be accepted as officially correct:

Number of Indians on reservation	685
Number of schools	1
Number of teachers and other employés	11
Number of Indian pupils	68
Number of acres of land under cultivation	136
Number of irrigating ditches (with laterals)	1

Amount of grain and other products of the soil during the year is as follows:

Wheat	bushels	325
Corn	do	600
Potatoes	do	50
Onions	do	25
Beans	do	75
Tons of hay		17½
Number of melons		20,000
Number of pumpkins		6,000

Quantity of stock owned by the Indians is as follows:

Number of horses	150
Number of mules	2
Number of burros	30
Number of cattle	25
Number of domestic fowls	2,000

PIMAS, PAPAGOES, AND MARICOPAS.

These three tribes, numbering in all about 7,500 persons, are under the supervision of the Sacaton Agency, which is located in Pinal County, about 40 miles southeast of Phœnix. This agency has jurisdiction over four reservations inhabited by the above-named tribes. The San Xavier Reservation is located in Pima County, nine miles south of Tucson, and is inhabited by the Papagoes. The Sacaton Agency in Pinal County and the Gila and Salt River reservations in Maricopa County (the last two being very sparsely populated) are inhabited by the Pimas and Maricopas.

HABITS AND CUSTOMS.

The habits and customs of these tribes are very similar; in fact they have lived together and intermarried until many of them can not boast of belonging to either tribe. They have ever been friendly to the whites, are good-natured, and are disposed to adopt the customs of the whites and accept the teachings of civilization.

SCARCITY OF WATER.

During the last year, since the settlement of the lands on the Gila above the reservation and the diversion of the water on new lands, the Sacaton Indians have been much troubled on account of a scarcity of water. The result was light crops. In fact the failure was so serious as to necessitate Government aid to prevent starvation among them.

On the other reservations water was more plentiful and good crops generally prevailed.

FARMING.

Their farm products consist of wheat, barley, beans, pumpkins, corn, etc. A sufficient quantity of these for the winter's food are stored in the fall, and any surplus is traded to the whites for fresh fruits, implements, and articles of wearing apparel. Last year the products of these Indian farms were, in round numbers, as follows:

Wheat	bushels	50,000
Barley	do	20,000

And many thousand melons and large quantities of vegetables of all kinds. They also possess about 2,500 head of cattle, 1,500 head of ponies, and a large number of sheep and hogs.

Each year witnesses a marked improvement in the methods of tilling the soil, as well as in their manner of living and style of dress. Many have adorned their farms with fairly comfortable adobe and lumber houses and furnished them with modern articles of furniture.

RELIGION.

The Presbyterian Board of Home Missions has carried on a systematic missionary campaign among these tribes for the last twenty-four years, and several churches have been erected through their efforts.

LAW AND ORDER.

A due respect for law and order prevails on all these reservations. The results of the Government's efforts to educate and civilize these tribes are becoming more and more apparent, and the Indians themselves are showing appreciation of the interest taken in their welfare.

INDIAN EDUCATION IN THE TERRITORY.

Very favorable results have been obtained in the work of education. About 1,600 pupils have been enrolled as against 1,100 last year. In point of numbers the four leading schools of the Territory are:

Sacaton (Pima Agency), enrollment 163, average attendance not given; Phœnix, enrollment 170, average attendance 132; Fort Defiance (Navajo Agency), enrollment 206, average attendance not given; Tucson enrollment 210, average attendance 185.

Each of these schools had an increase over the previous year. In the three schools of Sacaton, Phœnix, and Tucson this gain amounted to 25 per cent, while at Fort Defiance it was 100 per cent. Three also, Tucson, Fort Defiance, and Sacaton, were very much overcrowded, and all turned away many pupils desiring to enter.

A complete and rapid revolution has been effected among the Navajoes. Very recently it was with the utmost difficulty that pupils were secured for school; now the reservation boarding school does not provide accommodations for one-third of the pupils who might be obtained.

It is to be noticed that the increase in attendance has been chiefly in the schools within the bounds of the Territory. Though every possible effort has been put forth to secure pupils, it is doubtful whether there are as many children enrolled outside the Territory as at this time last year.

The scramble for scholars for distant schools is leading to abuses that may well engage the attention of the educational department of the Office of Indian Affairs. The methods resorted to in securing pupils are by no means edifying, and the result is still less gratifying. Take a specimen case: J. O. was entered at Albuquerque some twelve or thirteen years since. There he spent three or four years and was returned to the reservation. He has since been in attendance at Sacaton and at Phœnix, and has sought repeatedly for admission at Tucson. The last move was to enter him in the normal department of the school at Santa Fe. Anything spent on him beyond four or five years is a waste of time and money.

The great majority of well-behaved, promising Indian pupils, after five or six years in school, prefer to marry and settle down on the reservation to work out whatever salvation there may be for them. These loafers and hangers-on are ready for anything that promises them

maintenance without toil, and it is from this class that the remote schools are more and more receiving their supply of pupils.

Our Arizona Indians must be educated for the simplest kind of agricultural life. The ever-present problem is for daily food. This they will get in cultivating the soil, raising fruit, and caring for flocks and herds. Of all the Pima and Papago Indians who have learned trades in schools, not one who has returned to the reservation has done anything at one of these trades except that of carpentering. How long do we propose to ignore this fact? The harness-maker, shoemaker, and tailor goes right to his little field or gets into the saddle and is out on the range. He must have bread, and in this way alone he can get it. The absurd spectacle is witnessed at Albuquerque, N. Mex., in which school a large number of Indians have been and are being trained, of a school with nearly 300 children and not a pretense at agriculture.

The hope of the Indian work is not the number of school teachers, or physicians, and so on, who can be raised up, but the number of boys and girls who can be given a simple training extending over a period of half a dozen years, and then married and put to work building up a little home by farming, fruit-raising, and the care of cattle and sheep.

Many of the boys and girls have accepted work on farms, when it could be obtained, the former as laborers and the latter as domestics, and have given general satisfaction. The pupils of the Phœnix school alone have already earned nearly $3,000 in this way. They are careful with the money thus earned, and take pride in exhibiting their bank-books after having deposited the money in bank. The boys readily adapt themselves to the work of the farm, and the girls are apt scholars in all classes of work necessary to make them neat and efficient housekeepers.

Says Rev. Howard Billman, superintendent of the Indian Industrial Mission School at Tucson:

> In Arizona we can all give a good account of our school work. The schools are crowded and the results are most gratifying. What we need here is not finer schools nor a greater variety of industries in connection with those we already have, but either larger schools or more of them—schools with big farms and good strong ranch teams. Let us have alfalfa and barley fields, orchards and vineyards, where practicable, cultivated on as wide a scale as possible.
>
> But it is not in connection with school work at all that the "shoe pinches." The "rub" comes after the children get out of school. The pupils in attendance at the Tucson school have been clamoring, for years, for some land that can be cultivated. Last June some 20 or 25 strong fellows and willing to work came to me as we were closing for the summer with a request to obtain work for them. There was nothing for them in the Papago country.
>
> Why is it that year after year these boys are kept in enforced idleness while the two reservations, the one on Salt River and the other at Gila Bend, are withheld from them? Educated or uneducated, a man must have bread. In my judgment there is no other matter of such vital importance at the present time in connection with the matter of education as that of securing a place where these returning pupils may obtain their bread by honest toil. It is idle to talk about their finding employment with others. There are hundreds of thousands of American workmen clamoring for every available place. Give them a piece of land where they can get water and they will take care of themselves. Otherwise we are training up a generation of prostitutes, rouges, and cattle thieves.

ALLOTMENT OF LANDS IN SEVERALTY.

It is apparent that the progress of the Indian from his present condition must be largely achieved through industrial training, and this must be on the natural line of development. First, pastoral or stock-raising, and then agriculture.

It is a noticeable fact that as soon as an Indian becomes possessed of stock or land he shows an increased respect for law, more especially when he learns that the law protects him in his rights.

The policy of furnishing Indians with stock and allotting to them lands in severalty upon which they can establish homes and become individually interested in the cultivation and improvement of the same, is the most practical suggested.

I desire to call particular attention to the importance of encouraging the breaking up of tribal relations by aiding the younger Indians to take up lands in severalty under the allotment policy.

There are now more than 1,500 Arizona Indian boys and girls in schools under industrial training, many of whom have already a practical knowledge of modern farming. To allow them to return to the reservation after graduating in these schools, to fall into the lazy, worthless habits of the old Indians is all wrong, for they soon lapse into the prevailing habits of their former associates, and the work of the school is lost.

These young Indians should not be returned to the reservation, but should be set up in business for themselves so as to become self-supporting, industrial, and tax-paying factors of the Territory.

HOW THIS CAN BE ACCOMPLISHED.

To carry out this suggestion I would call attention to the fact that the Salt River Indian Reservation, which contains an area of 41,000 acres, is located about 25 miles from the Gila Reservation. Abundance of water can be had for irrigating practically all of the lands. The Gila Bend Reservation, located about 60 miles west of the Gila River Reservation, contains 23,000 acres. There can also be had abundance of water for these lands, of which there is not 20 acres under cultivation.

I would recommend that the lands of these two reservations be set apart for allotment to the young Indians who have been instructed in farming in our Indian industrial schools who, instead of being returned from school to their old reservations, be given 10 or 20 acres of land thus allotted to them, which would at once put it in their power to become self-sustaining.

The lands of the Gila Bend Reservation are to-day practically valueless, and all save a few acres of the Salt River Reservation is idle. Many of the Indian boys want land to engage in farming for themselves.

This plan is plain, practicable, and easy to accomplish.

U. S. TROOPS AND MILITARY POSTS.

There are six military posts in the Territory: Fort Huachua, Fort Bowie, Fort Grant, in southern Arizona; San Carlos and Fort Apache, on the White Mountain Indian Reservation, and Fort Whipple, in the northwestern section of the Territory.

Notwithstanding the disposition to withdraw the troops from Arizona, I believe the policy to be unwise as long as there are more than 35,000 semicivilized Indians in the Territory as wards of the Government. The presence of a strong military force is necessary to insure discipline among many of these Indians, as well as to secure the safety of the people and prevent encroachments of both Indians and whites upon the rights of each other.

SAN CARLOS.

The repeated efforts made to draw the troops from San Carlos should not be tolerated by the Government, as the presence of a strong force at that agency is absolutely necessary, if for no other reason than to prevent the sale of intoxicating drinks to Indians, and to prevent these Indians from making tiswin (Indian whisky). Intoxicating drinks have been the cause of every Indian outbreak which has occurred on the White Mountain Indian Reservation since its establishment. The perfect discipline maintained by the U. S. Army since stationed at San Carlos has prevented the presence of whisky and other strong drink on the reservation. The withdrawal of the troops, I am convinced, will be followed by most serious consequences.

ANOTHER DANGER.

But this is not the only source of danger. The Silver Belt, published at Globe City, on the border of the reservation, voices an opinion which ought to be treated with consideration, as it gives cogent reasons for its prediction. It says:

The effect upon the agency Indians of the abandonment of San Carlos as a military post and the discharge of Indian scouts is not realized by citizens generally, having no knowledge of the business of the post. Heretofore the Indians have furnished nearly all the fuel wood, hay, and barley consumed by the military, besides finding a market for the various other products of their farms and articles of Indian manufacture. To particularize, the Indians have supplied the post yearly with about:

1,300 cords of wood, at $6	$7,800
400 tons of hay, at $15	6,000
400,000 pounds of barley, at $1.25	5,000
In addition, 30 scouts have drawn $25 each per month	9,000
Total revenue from supplies furnished and pay of scouts	27,800

The scouts have also drawn regular soldiers' rations. The Indians have sold to the officers and soldiers their fabrications, such as hair chains, bridles, quirts, buckskin articles, moccasins, tobacco pouches, and beaded work; also Indian baskets in large quantities, and corn, melons, and peaches. A considerable revenue was derived from the sale of these articles, and the money expended for the staple articles of food and clothing. Nevertheless, we are told that the Indians have suffered for the necessaries of life and the majority have had to go hungry several days of each week. What will they do when this traffic is suspended and the rations doled out to them sufficient only for two or three days out of seven?

These are the plain, unvarnished facts, and form a real basis for the apprehension felt by citizens in regard to the declared policy of the War Department. The winter is approaching, and the Indians will be without adequate food and clothing for their bodily sustenance and comfort, and, as self-preservation is the first law of nature, rather than starve they will steal. The slaughter of citizens' cattle running on and near the reservation will partially supply their wants, and the removal of the restraint and fear of detection occasioned by the presence of troops and employment of scouts will encourage them to the commission of further crimes. We have repeatedly alluded to the additional danger to the lives and property of citizens through the expected return of the Chiricahua Indians from Alabama, and who have already reached the Indian Territory on their way hither. The situation is grave and demands prompt and vigorous action by the people of Arizona and the Territorial administration to endeavor to dissuade the Federal authorities from carrying out a policy fraught with so much danger to the peace of Arizona.

SAN CARLOS COAL FIELDS.

One of the most important and far-reaching needs of southern Arizona is that of fuel. This region is sparsely timbered, and the only coal thus far discovered is located on the White Mountain Indian Reservation, known as the Deer Creek or San Carlos coal fields. Since

the discovery of these coal fields there have been repeated efforts made to have the same segregated and thrown open to development and use, but without avail.

June 20, I addressed the following communication to your Department on this subject:

PHŒNIX, ARIZ., *June 20, 1894.*

HON. HOKE SMITH,
Secretary of the Interior, Washington, D. C.:

SIR: I deem it my duty to call your attention to the subject of the "San Carlos coal fields" located in the southwestern corner of the White Mountain Indian Reservation, of this Territory.

These coal fields were discovered, and considerable development made about ten years ago; shortly thereafter it was ascertained that the coal deposits were within the boundary lines of the White Mountain Indian Reservation, and as a result all miners and claimants were excluded therefrom and development ceased.

For several years efforts have been made to have these coal lands segregated and opened to the public for occupancy and development.

During the last ten years the respective chief executives of Arizona in their annual reports to the Secretary of the Interior, have made recommendations touching this subject. Several of the legislative assemblies of Arizona, during the same period, have memorialized Congress and the Secretary of the Interior on the importance of the same.

I transmit herewith copies of the memorials of the thirteenth, sixteenth, and seventeenth legislative assemblies for your information.

I call your attention to the fact that this is the only coal deposit in southern Arizona within a radius of nearly 300 miles south, east, and west.

It should also be noted that the coal is of no present benefit to the Indians, and if opened to the public would be the means of creating and fostering important industrial interests.

On behalf of the Indians interested, the people of southern Arizona, and the general welfare I ask an early consideration of this matter.

Thus far I have not been informed that final action has been taken by the Department. I therefore take this means of again urging early and favorable action touching the same.

CLIMATE—ITS HEALTH-RESTORATIVE CONDITIONS, ETC.

The climatic resources of Arizona are among its highest claims, especially to those seeking restoration or preservation of health. Persons threatened with or suffering from throat, lung, or other respiratory afflictions find here great relief, and often permanent recovery. Hence, Arizona has of late become the paradise of the "health prospector."

Herewith I present the views of Dr. Scott Helm, surgeon-general of Arizona, on the subject:

The climatic conditions existing in Arizona are of so varied and peculiar a character that there is probably no geographical division of the United States better circumstanced, especially with reference to its influence on rheumatic and malarial conditions, abnormal state of the nervous organization, and diseases of the respiratory organs. The meteorological requirements to best meet these disorders are a dry atmosphere, equable temperature, and sunshiny days, freedom from fogs and sudden changes in the thermometer and barometric pressure. This, accompanied by an opportunity to obtain almost any elevation which the diseased conditions may indicate, are to be obtained in this Territory.

In this connection, the meteorological summary for the twelve months ending with June 30, 1894, compiled from the records of an average of forty stations of observation situated in different parts of the Territory, furnishes some interesting figures. The highest mean temperature for the year was July, at 82.3°, the lowest being in January, at 47.2°, the mean temperature for the year being 61°. The mean maximum temperature was 79.90°; the mean minimum, 47°. The average precipitation at these stations per month was 0.99 inch.

Over 60 per cent of the days were absolutely clear. In other words, there were two hundred and twenty-nine cloudless days, eighty-four partly cloudy days, sixty-six cloudy days, and thirty-eight days when in some portion of the Territory there was a precipitation of 0.01 inch or more.

The altitudes of various cities of importance are as follow:

Phœnix, 1,100 feet; Tucson, 2,500 feet; Prescott, 4,500 feet; Flagstaff, 8,000, and Yuma, 54 feet. It may be seen, therefore, that almost any elevation may be obtained that may be desired to meet the conditions existing. It is a well-established fact among physicians and climatologists that many of these cases demand very varied surroundings.

The one thing probably greater than any other for which this climate is becoming noted, is its curative influence on broncho-pulmonary diseases. Affections of the respiratory organs, particularly of the throat and lungs, are most frequently benefited by residence in this climate. The consumptive finds here real relief from the rigors of a northern winter with its accompanying changes, dampness and snow. The system of him already impoverished with this disease is here no longer called upon to expend its reserve powers to withstand these forces of nature. As has already been shown there are few days when he can not enjoy the warmth and sunshine out of doors, and he soon finds that improvement marked by diminished cough, lowered temperature, decreased expectoration, and a general increase in body weight which lends courage to his previously faltering step.

Now, taken in the aggregate, these surrounding influences provide a climate, and especially a winter climate, particularly beneficial to the sufferer from consumption, malarial disorders, rheumatism, or diseases of the nervous organization. Again, in diseases peculiar to children this climate seems to be particularly benign, especially during the summer months. It is a well-established fact that the summer digestive disturbances of an acute character which are so common and so fatal to the children in the Eastern cities during the summer months hardly exist here, and then of a very modified type. In spite of the heat of the sun, even among men working all day in the fields exposed to its direct rays, sunstroke or insolation is unknown. It is generally considered that this immunity is due to the perfectly dry atmosphere and high barometer, providing for rapid evaporation, although the temperature is so high.

METEOROLOGICAL.

In connection with the foregoing, and as illustrative of the same, the following official meteorological summary for the twelve months ending June 30, 1894, was compiled from the records of an average of 40 stations situated in different parts of the Territory by William Burrows, observer of the Weather Bureau, at my request:

Month.	Temperature.								Number of days.			
	Mean.	Maximum.	Date.	Minimum.	Date.	Mean maximum.	Mean minimum.	Average rainfall.	Clear.	Fair.	Cloudy.	With rain.
1893.												
July	82.3	118	30	51	25	95.2	69.3	2.74	9	11	11	8
August	79.2	116	2	40	31	90.5	67.4	3.41	9	11	11	10
September	73.3	109	1	33	10	85.5	59	1.49	18	5	7	4
October	62.8	101	14	23	2	77.7	47.3	.07	23	2	5	1
November	53.8	89	1	11	20	66.2	41.4	.63	21	4	5	2
December	47.3	85	17	3	31	62.5	33.4	.51	19	5	7	2
1894												
January	41.2	83	15, 29	19	7	57.3	28.4	.43	21	6	4	3
February	41.9	89	28	9	14	57.7	28.9	1.11	16	7	5	3
March	51.4	96	28	6	5	67.7	37.5	1.27	15	8	8	4
April	62.9	99	8, 25	15	18	80.5	44.9	.08	20	7	3	0
May	70.4	105	7	25	15	88.4	52.2	.17	22	7	2	1
June	73.9	112	30	31	7	92.1	55	.01	26	3	1	0
Mean for year	61.7	------	------	------	------	76.9	47	.99	19	7	5	3

The accompanying table shows the average weather conditions that prevailed during the year ending June 30, 1894.

The mean and extreme temperatures are deduced from the records of about forty stations situated as follows: 4 in Maricopa County, 4 in Apache, 10 in Cochise, 2 in Coconino, 3 in Graham, 1 in Mohave, 4 in Pima, 3 in Pinal, 4 in Yavapai, and 3 in Yuma County. It will thus be seen that the Geographic distribution of stations is such as to include, approximately, all sections of the Territory.

The highest temperature recorded during the year was 118° at Buckeye, Maricopa County, on July 30; the lowest was 19° below zero at Flagstaff, Coconino County, January 7; the highest average temperature for the whole Territory was 82.3° for July, the lowest average was 41.2° for January.

The greatest average rainfall occurred in August, being 3.41 inches for each station. The average precipitation of all stations is 0.99 of an inch for each month, which is about 0.02 of an inch below the normal of other years.

The average character of the weather throughout the Territory for the separate months is shown in the table under the heading "Number of days." Two hundred and twenty-eight days, over 60 per cent of the year, were clear; about 10 per cent of the days had appreciable precipitation.

The prevailing winds were from the southwest throughout the year, the force generally being from light to brisk.

A peculiar feature of the winds of this region is that an absolutely calm state of the atmosphere occurs but rarely, while winds of sufficient violence to prove destructive or dangerous are practically unknown. Neither record nor tradition, so far as the writer is aware, mentions the occurrence within the limits of the Territory of an atmospheric disturbance of sufficient energy to be called a cyclone or tornado.

TEMPERATURE.

With reference to temperature: There is no doubt that some of the high readings shown in the record will seem alarming to those unacquainted with the modifying conditions by which they were accompanied, and for this reason it is deemed requisite that there should be offered in this connection some explanation, based on observation and experience. These high temperatures are invariably accompanied by a low percentage of relative humidity, and the absorption of heat due to constant and rapid evaporation is such as to mitigate, to a great extent, the effects that would be inevitable without this extreme dryness of the air. This principle is demonstrated and emphasized by the absolute immunity of the inhabitants of this region from serious effects due to exposure to the sun. Almost everything startling, sensational, and absurd has been alleged of the climate of Arizona, yet it is not known that anyone has ever charged sunstroke or prostration from heat among the effects of its meteorological terrors, and there is no authentic record that a case of genuine sunstroke ever occurred in the Territory. Out-of-door occupations are carried on without the slightest interruption from the heat throughout the summer. Athletic sports necessitating violent physical exertion form a feature of all Fourth of July and other holiday programmes. Baseball, football, horse and bicycle racing are common summer recreations; and the days for events of this character are always fixed without apprehension of interference from heat.

AN ILLUSTRATION.

An instance offering a practical illustration of the preceding statement is that of a bicycle race which took place on the 29th of June, 1894, on the road between Nogales and Tucson. The distance is 75 miles, and it was covered by two of the riders in a little over four hours and a half. The day was one of the hottest of the summer, the maximum temperature at the weather bureau office in Tucson being 104° in the shade, and as a matter of course the direct solar heat was much greater, yet those who participated in this race were seen walking about on the street a few hours after it was finished showing no signs of fatigue or injurious consequences after this extraordinary performance, accomplished under an intensely hot sun, which in an ordinary climate would have precluded the least exposure to it.

In conclusion it may be stated as a demonstrable fact that the generally accepted reputation of the Territory with respect to temperatures is not justified by recorded data. Moreover, it is an error to assume that all the hottest places in the United States are inclosed within the geographic limits of Arizona. At Salton, Mammoth Tank, and in the whole Death Valley region, temperatures are habitually experienced that are rarely or never encountered in this Territory, but it would be manifestly unfair to attribute to a whole State a condition of heat shown at a few stations representing a small fraction of its area. To be sure, high temperatures do occur at some stations in this Territory, but these stations are not all of Arizona any more than those last named are all of California, and it is obviously erroneous to ascribe to all of Arizona a rate of torridity either entirely unknown or by no means prevalent within it limits.

SOCIAL CONDITIONS.

No previous year has shown such gratifying progress in the social, moral, and religious conditions of the people. This is especially noticeable in the agricultural district of the Territory, where churches and other kindred organizations, reform and fraternal societies, have all taken a strong hold on the people and exercise greater influence in the communities in which they are located.

THE CHURCH.

The strength of the various religious organizations is as follows:

Methodist Episcopal Church: Fifteen preachers, 710 members, 1,540 Sunday school children (increase of 146 for year); 13 churches, value of churches, $55,000; 8 parsonages, valued at $16,100; value of school property, $20,000; total value of property, $91,100.

Episcopal Church: Four ministers, 635 adherents, 275 communicants (increase of 10 per cent during the year), 266 Sunday school children; 5 church buildings; value of church property, $27,875.

Methodist Church South: Six preachers, 405 members, 415 Sunday-school children (increase of 60 for year); 6 churches; value of church property, $20,500; 5 parsonages, valued at $7,000; 2 Mexican missions, members, 85; value of church property, $3,200.

Presbyterian Church: Ten ministers, 472 communal members (an increase of 97 for year), Sunday school membership, 753 (increase of 97 for year); value of church property, including Indian mission school (church building), $42,000.

Baptist Church: Four ministers, 635 adherents, communal membership, 275; Sunday school children, 266; 5 churches; value of church property, $27,875.

Christian Church: Three ministers, 160 members, 2 churches; value of church property, $4,500.

Catholic Church: A presiding bishop, 17 resident priests, 9 churches, 16 chapels. The membership of this church and value of its property is greater than all the other churches combined. This includes 3 hospitals, 2 orphanages, and other charitable institutions under the control of the church.

Mormon Church: Forty-nine ministers; membership, 6,631 (increase of 480 for year); 2,601 Sunday school pupils, 32 churches; value of church property, $27,000.

THE PRESS.

Arizona justly claims a strong and liberal press. Its journalistic management is strongly individualized and pronounced on all questions of public interest. There are 9 dailies and 30 weeklies, of which 9 are weekly editions of the dailies. Politically 5 of the dailies are Democratic and 4 Republican. Of the weeklies 13 are Democratic, 10 are Republican, and 7 are independent with Populist proclivities. Nearly all of these journals are represented in the Arizona Press Association.

The people are justly proud of the Territorial press, as is indicated by the liberal patronage extended to the same, for while they are earnest in advocating the political principles of their respective parties, every material and social interest of the people finds in it a strong advocate.

THE LIQUOR TRAFFIC.

There are 672 saloons and 10 wholesale liquor houses in Arizona. The average number of inmates of the Territorial Insane Asylum during the year was 97. The average number of inmates of the Territorial penitentiary was 155.

It has been estimated by competent authority that Arizona's drink bill for the year was $3,056,000, and this does not include the cost of the punishment of crime resulting directly from the drink evil nor the cost of maintaining these same victims in the jails and penitentiary, nor the victims of drink in our insane asylum and the county hospitals. It is estimated that not less than 50 per cent of the cost of maintaining the county and Territorial governments comes from intemperance.

WHAT IT COSTS.

The magnitude of this traffic can be faintly realized when it is illustrated by the fact that the people of the Territory in nine years pay for drink the assessed value of all real and personal property, the annual drink bill of the Territory being $50,000 more than its entire debt, including the debts of the counties and municipalities. And this is not all, for the cost of maintaining the municipal, county, and Territorial governments would be so reduced as a result of the decrease of crime from the drink evil that the tax burdens of our people would be lessened one-half.

LIMITATION OF INDEBTEDNESS.

Here arises an important consideration which demands attention. The Federal law, known as the "Harrison act of 1889," limits the indebtedness of all Territories to 1 per cent upon the assessed value of the taxable property in such Territory, and to 4 per cent on the valuation of all taxable property in all political or municipal corporations, counties, and subdivisions, said valuation to be ascertained by the last assessment for Territorial and county taxes previous to the incurring of such indebtedness.

In 1890 the Territory had far exceeded the limit fixed by the Harrison act, and to remedy this Federal legislation was invoked, resulting in the enactment of the Arizona funding bill, which legalized all indebtedness incurred, "together with such evidence of indebtedness which might be issued for the necessary and current expenses of carrying on Territorial, county, municipal, and school government for the year ending December 31, 1890;" and this law specially declares "and thereafter (December 31, 1890) no warrants, certificates, or other evidences of indebtedness shall be allowed to issue or be legal when the same is in excess of the limit prescribed by the Harrison act."

FORCED VIOLATION OF LAW.

Notwithstanding the above prohibition, several counties have exceeded the limit, and the Territory on the 1st of June last had a floating indebtedness of $170,523.60, issued in direct violation of the law. This deficit, however, was legalized by Congress last August by passing an amendment to the funding act, extending its provisions to January 1, 1896.

THE CAUSE.

When we inquire into the sources of expense of administering the government, both county and Territorial, we find that the greater portion comes from our criminal courts, jails, penitentiary, and insane asylum, most of the inmates of which are the victims of strong drink.

A DILEMMA.

Here we are brought face to face with the fact that the Federal law places a limit on the indebtedness which can be legally incurred by the Territories, and then legalizes a traffic that gives as its legitimate fruits crime, pauperism, and insanity, thus entailing an expense greater than can be legally incurred.

As a result the Territory finds itself in this dilemma. Crime must be punished, and the insane cared for at the expense of violating the law which limits the indebtedness of the Territory, or the courts must close, the jails, penitentiary, and insane asylum must be thrown open and their inmates set at large, or the cause of this extraordinary expense must be removed.

A NATIONAL QUESTION.

This subject appeals more emphatically to the Federal Government for a solution than did the vexed question of polygamy in the Territory of Utah, because the traffic gives forth tenfold more evil and more lasting results. It is a greater evil, entails a hundredfold more hardships on its victims and wrongs on the people than did the bondage of the black man in the South, yet the extension of slavery into the Territories was made a national issue, and its final abolition accomplished only at the expense of the best blood of the land.

INDIANS AND WHISKY.

I would also call attention to the policy which is being pursued of withdrawing the Federal troops from Arizona and leaving with us more than 35,000 Indians and a legalized liquor traffic. This becomes most significant when it is known that during the last thirty years there has not been a single Apache Indian outbreak in Arizona which was not the direct result of intoxicating drink, and if the troops are removed there will be nothing to prevent traffic in whisky on this reservation while it is legalized in the Territory. If the Government withdraws the troops it should also protect these Indians from strong drink, thus insuring the people immunity from Indian outbreaks, consequent massacres, and wanton destruction of property.

While it is not in the power of the Federal Government to legislate against the traffic in the States, in the Territories it has the power to say, "Thus far thou shalt come and no farther."

FRATERNAL SOCIETIES.

A large number of fraternal societies are represented in the Territory.

Masonic Grand Lodge, 11 subordinate lodges, with a total membership of 528.

Grand Chapter R. A. M., 4 subordinate chapters, total membership of 190.

Grand Commandery K. T., 3 subordinate commanderies, total membership of 100.

A. A. S. R., Santa Rita Lodge of Perfection, No. 1, with a membership of 35.

K. of P. Grand Lodge, 12 subordinate lodges, membership of 555.

I. O. O. F. Grand Lodge, 11 subordinate lodges, total membership of 668.

A. O. U. W. Grand Lodge, 12 subordinate lodges, total membership of 718.

G. A. R., 10 posts, total membership of 332.

I. O. G. T. Grand Lodge, 16 subordinate lodges, total membership of 689.

RAILWAY EMPLOYÉS' SOCIETIES.

B. of S. E., total membership, estimated, 200; B. of S. F., total membership, estimated, 200; Order of Railway Conductors, 95; Brotherhood of Railway Trainmen, 225; Order Railway Mechanics, 80.

The W. C. T. U. is organized in all of the principal settlements.

RETRENCHMENT IN THE PUBLIC SERVICE.

Every effort has been made to reduce the tax burdens of the people by adhering to strict economy in every branch of the public service. Notwithstanding the many obstacles encountered, the following comparative figures for the four years just past will show the results:

For the year ending December 31, 1890, the total expenses of the Territorial government reached $239,221.61, leaving a deficit of $42,924.16. The year ending December 31, 1891, found the total expense to be $279,995.92. (From this amount, however, $15,848.22 should be deducted for legislative expenses and special appropriations, in order to make a fair comparative showing with the previous and following years.) This year left the Territory with a deficit of $51,355.79. December 31, 1892, showed the year's expense bill to be $249,937.33, and the deficit amounted to $34,282.02. Last year, 1893, the total expense reached $269,388.38. (From this amount, however, there should be deducted $15,807.90 for legislative expenses and special appropriations, and $33,848.10 received from the various counties by the Territorial treasurer and paid out for them on account of interest on the counties' indebtedness assumed by the Territory.)

The end of the year 1893 found a surplus of $5,832.38 in the treasury.

From the above figures it will appear that during the last year the cost of the government was $19,489.51 less than in 1890, $44,379.60 less than in 1891, and $30,206.25 less than in 1892.

There have also been retrenchments during the last year to the amount of $29,970.87 in the maintenance of the public schools of the Territory, and $7,600 in the annual expenses of the university.

While these reductions were being made the efficiency of the service in all of the institutions affected was increased, notably that of the Territorial prison, insane asylum, and university. At the two first-named institutions expensive improvements have been made with the labor of the inmates without cost to the Territory.

This economy has shown itself in other branches of the public service, including the courts, which have been highly satisfactory to the people. It is safe to say that the total savings to the Territory, including the Territorial, county, and district retrenchments, during the past year, will amount to $100,000.

COLORADO RIVER.

I desire to again call your attention to the Colorado River, which subject was referred to at length in my last report, and am pleased to state that Congress at the last session directed the Secretary of War to cause a preliminary examination to be made of the river above Yuma to the highest point of navigation.

The result of this examination is of great importance, as I am reliably informed that the Mexican Government will make a survey at extreme low water (which will be in December) of that part of the river within its border, with a view to immediate improvement. It is believed that that government will build works at Port Isabel and lay moorings. This done, coal could be delivered at Yuma at $6 per ton as against $14, and lumber in cargo lots from Puget Sound ports for $10 per thousand as against $25 and $30, the present cost.

It is important that the Government complete its work of improvement begun in 1884 between The Needles and El Dorado Canyon. For every dollar expended there is permanent improvement, and reduces the cost of mining in that vicinity.

The river below Yuma is mostly in Mexico, but as navigation is free it will prove a great highway of commerce to the United States if we come to import large quantities of coal, coke, lumber, and export ores, cattle, and grain. With the present river conditions, transport steamers carry from tide water to Yuma 700 tons in three and a half days.

The following from Capt. J. A. Mellon, who has seen 30 years' service on the river, may prove instructive:

The Colorado has been navigated continuously since 1852 by steamers, those now in use being 150 feet keel by 30 feet beam and measure 240 tons, drawing 20 inches without load, and will carry 10 tons for every inch you sink them; we also tow a barge which will carry 150 tons on 2 feet of water. The old steamers formerly used were only 90 feet long by 24 feet beam. The river is navigable for 465 miles from its mouth at all seasons, or, in other words, to Fort Mohave. During the summer we can go 140 miles farther to Rioville, where the Virgin empties into the Colorado, making 605 miles of waterway.

During the winter or low-water season, the last 140 miles is impassable on account of bowlders in the channel and cobble-stone bars, which with a little Government aid could be removed and the river made navigable at all seasons for over 600 miles from its mouth. This would open a way for the farmers of the Virgin and Muddy valleys to market their crops; the salt deposits on the Virgin could be worked; and the sulphur and gypsum of the Black Canyon would be made valuable. There is now imported into the port of San Francisco each year from Japan from 18,000 to 20,000 tons of sulphur.

The portion of the Colorado River of which I speak runs through one of the richest gold and silver mining regions of the West, and in 1884–'85, when the U. S. Government started to improve the river between Fort Mohave and El Dorado Canyon, there were many mining enterprises set on foot, and much capital invested, with the expectation that the work begun would be prosecuted to a finish, but, on the exhausting of the $25,000 appropriation all work ceased. The parties investing on the supposition that by the improvement of the river they were to obtain cheaper transportation are still waiting to reap the reward of their pluck. There have recently been discovered some rich gold properties 3 miles south of El Dorado Canyon, and and a like distance from the river.

Having associated with the U. S. engineers for a period of two years, while they were at work on the river, and knowing in consequence their disposition, I am quite sure that they will not recommend any work being done on this river, as the surroundings are too lonesome for them, but should an appropriation be made for this purpose they would expend it judiciously.

LEGISLATION.

The Territorial legislature holds its sessions biennially, hence there has been no session during the year.

There has been some important Federal legislation in the interest of Arizona by the present Congress, to wit:

An act ceding to the Territory a tract of over 2,000 acres of land adjoining the Territorial prison, for the purpose of a prison farm; an amendment to the Arizona funding act, extending its provisions from 1890 to 1896, legalizing the Territorial floating indebtedness; a provision enabling the United States Attorney-General to adjust and pay for the maintenance of Indian prisoners in the Territorial prison; a resolution for the purpose of aiding in the settlement of the claims of certain counties for the cost of the trial of Indians in the Territorial courts, and a provision for the examination of the Colorado River, with a view to its survey and improvement to the highest point of possible navigation.

THE MILITIA.

The aggregate strength of the National Guard of Arizona at the end of the fiscal year 1893 was 410. Another company has been organized with 50 members and 3 commissioned officers, making a total of 463. The possible strength allowed under Territorial law is 893. The adjutant-general of the Territory recommends that the infantry regiment now composed of 10 companies be increased to 12 companies, and that 6 companies of cavalry and 2 light batteries of artillery be added to the militia as soon as possible. This would give the Territory a National Guard of about 1,800, representing the three branches of the service.

The reasons for suggesting the above measures are based on the following: There are several tribes of semi-civilized Indians within our Territory; the southern border of Arizona rests on a foreign country; the National Government is gradually withdrawing its regular troops from our midst; we are on the verge of statehood, and by having the three branches of military service represented we will have an educated military body from which to draw our officers, who will be competent, in a great measure, to organize and properly discipline the future National Guard under statehood. This force would be of service to garrison the forts of the Territory, taking the place of the Federal Army during their absence when called into active service out of the Territory, which came very near being necessary during the late labor strikes.

In order to complete and equip the present military force it is absolutely necessary that our apportionment of the appropriation made by the National Government be increased. In 1893 our apportionment was $4,000; this year it is but $2,000, and the guard is more than 50 stronger than in 1893.

I would earnestly recommend an increased appropriation on behalf of this service.

UNDEVELOPED RESOURCES.

Arizona has countless stores of undeveloped resources in the precious metals, copper, lead, and iron; sulphur and salt, onyx, marble, and lithographic stone, all of good quality; large areas of unreclaimed land which will yield all products of the semitropic and temperate zone when brought under the vitalizing influence of water. The canaigre or tannin root, to which reference was made at length in my previous report, promises important commercial consideration in the near future. All we need is capital to take hold of our boundless undeveloped wealth resources, and an era of prosperity will follow.

PUBLIC BUILDINGS.

The Territory has no public building erected by the Federal Government. It would prove an economical investment to erect at least one building for the accommodation of the public service, as the Government disburses annually for rentals in Arizona a sum not less than $15,000.

TERRITORIAL BUILDINGS.

These are the penitentiary, insane asylum, normal school, and Territorial university. The two former have been much improved during the year, the efficiency of the administration of all these institutions has been raised to a much higher standard than heretofore, and at a much reduced cost. During the last session, Congress appropriated the tract of land of 2,000 acres asked for in my former report for the benefit of the penitentiary, and the same will be utilized as a prison farm with a view to making the inmates wholly or in part self-sustaining.

YUMA LEVEE.

The appropriation of $10,000 made by the last Congress for the construction of a levee north of Yuma, to give protection against floods of the Gila River, has been expended with good judgment, the result being the completion of the work in a most satisfactory manner.

LABOR.

The condition of labor in the Territory is about the average. There are few labor organizations and little discontent manifested. It is a matter of congratulation that, while Arizona has over 1,200 miles of operated railroads, including two transcontinental lines crossing the Territory, that little or no trouble was experienced during the railroad strikes of last July and August. Only 9 arrests were made in the Territory, and 7 of the offenders were tried and convicted. The peaceful and law-abiding disposition of the people of Arizona could not find a more pronounced illustration than in their attitude during the late labor trouble, which rendered it unnecessary for the President to include Arizona in his proclamation touching the same.

STATEHOOD.

The question of the admission of Arizona to statehood is paramount to all other issues with our people.

Our claims and reasons for demanding this inalienable right, set forth in my last report, need not be repeated here.

Now that the bill for the admission of Arizona has passed the House of Representatives and is on the Senate Calendar, having been favorably reported by the Committee on Territories, the people are inspired with the hope that the day of our emancipation from Territorial bondage is near at hand.

AN ENABLING ACT.

There is a diversity of opinion among many sober-thinking citizens as to the merits of the constitution framed by the Territorial constitutional convention three years ago, and although ratified by more than two-thirds of the votes cast, a number of objections have been raised

to this instrument, the merits of which I do not believe are generally entertained by a majority of the people.

However, if the date of admission to statehood should not be retarded thereby, I confidently believe that a large majority of the people would prefer admission under an enabling act which would direct the framing of another constitution for submission, with a full knowledge that it was to be the constitution of the State.

Notwithstanding the fact that the convention which framed the instrument in question was composed generally of representative citizens of high character and pronounced ability, it is extremely doubtful if they themselves, much less the great mass of citizens, seriously contemplated that the constitution framed would be accepted by Congress as the organic law of the State when submitted. This may account for the lack of interest manifested in the election held to ratify the constitution, which should have called out every American citizen worthy of the name had they believed it was to be the chart of their State government. Out of 11,641 votes cast at the previous general election but 7,722 were polled, of which 5,440 voted to ratify, and 2,282 voted against ratification.

These considerations suggest the wisdom of requiring the Territory to be admitted to Statehood according to the long established usage, by and through an enabling act, which would be notice to all citizens of their duty to frame and adopt a constitution republican in form.

Delegates would be nominated and elected to the constitutional convention with full knowledge of the grave responsibility reposed in them, and the constitution framed by the authority of Congress, when submitted for ratification, would call out the largest vote ever polled in the Territory.

In this connection I would suggest that an ample appropriation be made by Congress to defray the expenses of carrying out the provisions of the enabling act.

Referring to the exceptions taken to the constitution as adopted, it is claimed that certain provisions are vague and indefinite, and subject to conflicting constructions, and that others are objectionable for the following reasons:

First, section 3, of Article VI, page 17, allows unlimited taxation for State revenues, in that the exceptions include everything.

Second, Article VII, page 19, sections 1 and 3, authorizes an increase of indebtedness above the present amount of 1 per cent in State and 4 per cent in counties, notwithstanding the Territory and the counties therein are now in debt in excess of the wise limit prescribed by Congress.

Third, Article IX, section 5, page 31, rewards trespassers on school lands for violations of law.

In view of the foregoing and in the interest of the future State and the gravity of the interests involved, I would recommend that Arizona's admission to Statehood be in line with usual precedents, to the end that every citizen now in Arizona may have a voice in the framing and ratifying of the constitution of the State government they so much desire to enjoy.

Respectfully,

L. C. HUGHES,
Governor of Arizona.

Hon. HOKE SMITH,
Secretary of the Interior.

SUMMARY OF RECOMMENDATIONS.

1. That Arizona be admitted to Statehood under an enabling act.
2. Amendment of the Carey arid land bill, that its provisions may be made available to Territories.
3. That the Salt River and Gila Bend Indian reservations be set apart for allotment at once to Indian graduates of industrial schools.
4. Settlement of title to lands in vicinity of Tuba City be made in interest of peace between settlers and Navajo Indians.
5. That south and west boundary line of Navajo Reservation be surveyed and Indians kept on reservation.
6. Body of U. S. troops be located at Keams Canyon.
7. Jurisdiction of trial of Indians be transferred from Territorial to U. S. courts.
8. San Carlos coal fields be segregated and thrown open to settlement.
9. Appropriation for Territorial militia be increased, with a view to strengthening same on account of withdrawal of U. S. troops.
10. Appeals taken to Supreme Court from Court of Private Land Claims be brought to speedy trial. This in the interest of settlement of these lands.
11. Appropriation for public building.
12. Improvement of Colorado River.
13. Measures to restrict liquor traffic in Territory.

APPENDIX.

OFFICERS OF THE TERRITORY AND RESPECTIVE COUNTIES.

Representative in Congress, Marcus A. Smith, Tombstone.

Executive department.—Governor, Louis C. Hughes, Tucson; private secretary to the governor, John T. Hughes, Tucson; secretary of Arizona, Charles M. Bruce, Phœnix; assistant secretary of Arizona, F. B. Devereux, Phœnix; treasurer of Arizona, P. J. Cole, Phœnix; deputy treasurer of Arizona, D. A, Abrams, Phœnix; auditor of Arizona, C. P. Leitch, Phœnix; attorney-general, Francis J. Heney, Tucson; deputy attorney-general, Rochester Ford, Tucson; superintendent of public instruction, F. J. Netherton, Mesa City; adjutant-general, Edward Schwartz, Phœnix.

JUDICIAL DEPARTMENT.

Supreme court.—Chief justice, A. C. Baker, Phœnix; associate justices, T. D. Bethune, Tucson; Owen T. Rouse, Florence; John J. Hawkins, Prescott; clerk, J. L. B. Alexander, Phœnix.

District court, First judicial district.—Judge, J. D. Bethune, Tucson; clerks, A. J. Halbert, Tucson; A. C. Baggs, Tombstone; commissioners, T. D. Satterwhite, Tucson; E. J. Sykes, Nogales; James Duncan, Tombstone; J. W. Wright, Bisbee.

District court, Second judicial district.—Judge, Owen T. Rouse, Florence; clerks, Thomas F. Weedin, Florence; Alonzo Bailey, Globe; B. B. Adams, Solomonsville; commissioners, O. N. Cresswell, Globe; Thomas F. Weedin, Florence; Geo. H. Hyatt, Solomonsville.

District court Third judicial district.—Judge, A. C. Baker, Phœnix; clerks, J. W. Walker, Phœnix; Charles H. Williams, Yuma; commissioners, J. W. Crenshaw, Phœnix; John R. Marable, Yuma.

District court, Fourth judicial district.—Judge, John J. Hawkins; clerks, Andrew J. Herndon, Prescott; L. O. Cowan, Kingman; Oscar Gibson, Flagstaff; Alfred Ruiz, St. Johns; commissioners, H. T. Andrews, Prescott; E. J. Babbitt, Flagstaff; William G. Blakeley, Kingman; F. J. Waltron, Holbrook.

U. S. district attorney, E. E. Ellenwood, Tucson.

U. S. marshal's office, district of Arizona.—U. S. marshal, W. K. Meade, Tucson; deputy U. S. marshals, S. A. Bartleson, Florence; W. R. Campbell, Winslow; Alexander Ezekiels, Tucson; J. R. Lowry, Prescott; Frank Morrell, Williams; J. K. Murphy, Phœnix; George A. Olney, Solomonsville; John W. Slankard, Phœnix; Charles Smith, Bisbee; R. M. Templeton, Yuma; J. H. Thompson, Globe; Scott White, Tombstone.

U. S. surveyor-general's office, district of Arizona.—U. S. surveyor-general, Levi H. Manning, Tucson; chief clerk, George J. Roskruge, Tucson; mineral clerks, Esteban Ochoa, William H. Brown, Tucson.

U. S. land office, Tucson.—Register, Eugene J. Trippel, Yuma; receiver, Edward R. Monk, Willcox; clerk, Lucy G. Freis.

U. S. land office, Prescott.—Register, H. D. Ross, Flagstaff; receiver, Jacob Marks, Prescott.

U. S. INTERNAL REVENUE, DISTRICT OF NEW MEXICO, INCLUDING ARIZONA.

Collector, C. M. Shannon, Santa Fe, N. Mex.; chief clerk, Florence A. Hughes, Santa Fe, N. Mex.; deputy first division, Charles L. Betterton, Santa Fe, N. Mex.; deputy second division, William Burns, Albuquerque, N. Mex.; deputy third division, Benjamin M. Crawford, Tucson, Ariz.; U. S. gaugers, Robert Harvey, Santa Fe, N. Mex., and William T. McCreight, Albuquerque, N. Mex.

U. S. CUSTOMS SERVICE, DISTRICT OF ARIZONA.

Collector of customs, Sam F. Webb, Nogales; deputy collector of customs, Edwin Mayes, Nogales; clerks in collector's office, H. M. Wood, F. J. Duffy, Nogales; U. S. assayer, F. J. Heyne, jr., Nogales; inspectors of customs, R. H. Reynolds, R. Hannah, Nogales; mounted inspectors of customs, George W. Webb, H. W. Brady, and William Dunbar, Nogales; deputy collector of customs, C. B. Kelton, Lochiel; mounted inspector of customs, J. M. Miller, Lochiel; deputy collector of customs, S. M. Aguirre, Buenos Ayres; mounted inspectors of customs, J. F. Kellner, William Lyall, Buenos Ayres; deputy collector of customs, Frank Hare, Tombstone; mounted inspectors of customs, Sam King, F. P. Robson, Sam W. Finley, Tombstone; deputy collector of customs, M. J. Nugent, Yuma.

U. S. INDIAN AGENTS.

Pima Agency, J. Roe Young, agent, Sacaton, Ariz.; Colorado River Agency, Charles E. Davis, agent, Parker, Ariz.; Navajo Agency, Lieut. E. H. Plummer, acting agent, Fort Defiance, Ariz.; San Carlos Agency, Capt. Albert L. Myer, acting agent, San Carlos, Ariz.

NATIONAL GUARD OF ARIZONA

Staff of the governor and commander-in-chief: Adjutant-general, ex-officio quartermaster and chief of ordnance, Col. Ed. Schwartz, Phœnix; surgeon-general, Col. Scott Helm, Phœnix; judge-advocate-general, Col. Joseph Campbell, Phœnix; aid-de-camp, Lieut. Col. Art McDonald, St. Johns; aid-de-camp, Lieut. Col. Luis Leese, Tucson; aid-de-camp, Lieut. Col. T. E. Dalton, Phœnix; inspector of small-arms practice, Maj. H. F. Robinson, Phœnix; Capt. John T. Hughes, special aid-de-camp, Tucson: chaplain, Capt. Winfield Scott, Phœnix.

FIRST REGIMENT, HEADQUARTERS TUCSON.

Colonel, John H. Martin, Tucson; Lieutenant-colonel, A. J. Doran, Florence; commanding Second Battalion, Maj. R. Allyn Lewis, Phœnix; commanding Third Battalion, Maj. John A. Black, Tucson; adjutant, First Lieut. B. W. Tichenor, Tucson; quartermaster, First Lieut. George W. Cheyney, Tombstone; commissary, First Lieut. J. H. Carpenter, Yuma; surgeon, Maj. George E. Goodfellow, Tucson; assistant surgeons, Capt. D. J. Brannen, Flagstaff, and First Lieut. Charles H. Jones, Tempe.

Company A, Globe, Capt. E. H. Cook.
Company B, Phœnix, Capt. J. J. Wickham.
Company C, Tempe, Capt. W. E. Mullin.
Company D, Tucson, Capt. R. W. Gray.
Company E, Florence, Capt. Hinson Thomas.
Company F, Tucson, Capt. J. M. Trayer.
Company H, Yuma, Capt. F. S. Ingalls.
Company I, Flagstaff, Capt. Hocjderffer.
Company K, St. Johns, Capt. Sidney M. Craig.

Board of loan commissioners.—Louis C. Hughes, Tucson; Charles M. Bruce, Phœnix; C. P. Leitch, Phœnix.

Board of equalization.—C. P. Leitch, third judicial district; Morris Goldwater, fourth judicial district; H. C. Boone, second judicial district; T. D. Satterwhite, first judicial district.

Directors of the insane asylum.—D. B. Richmond, Phœnix; W. L. George, Phœnix; D. A. Spragg, Mesa City; I. B. Hamblin, resident physician and superintendent, Phœnix; Mrs. L. L. Hamblin, matron, Phœnix; Eugene Hackett, secretary and treasurer, Phœnix.

Honorary board of directors.—L. C. Hughes, Charles M. Bruce, A. C. Baker, O. L. Mahoney, Phœnix; F. J. Netherton, Mesa City.

Live stock sanitary commission.—Colin Cameron, chairman of board, Pima County; Charles Pugh, secretary of board, Cochise County; J. G. Campbell, Coconino County; Henry Smith, Apache County; M. E. Hurley, Maricopa County; J. C. Norton, veterinary surgeon and ex-officio secretary, Phœnix.

Board of education of the normal school.—J. H. Wilson, Curt W. Miller, Daniel Kloss, and P. J. Cole, F. J. Netherton, ex officio.

Prison commissioners.—S. C. Bagg, Cochise County; J. T. Lesueur, Apache County; A. G. Williams, Pinal County; Thomas Gates, superintendent of prison; warden, F. M. Shaw; HarryMcKean, secretary of prison; P. G. Cotter, physician of prison, Yuma, Arizona.

Regents of the university.—Rochester Ford, chancellor, Tucson; S. M. Franklin, M. P. Freeman, H. B. Tenny, regents, Tucson; Charles M. Bruce, ex-officio, Phœnix; F. J. Netherton, ex-officio, Mesa; Theodore B. Comstock, LL. D., president, Tucson.

Railroad commissioners.—George N. Gage, Tempe; Reese M. Ling, Prescott; Leonidas Holladay, Tucson; A. H. Emanuel, Tombstone.

Fish and game commissioner.—Edward Schwartz, Phœnix.

Inspector of sheep.—Harry Fulton, Flagstaff; Pedro Montano, St. Johns.

Trustees of reform school for juvenile offenders.—George Babbitt, Flagstaff; Anson H. Smith, Kingman; John Vories, Flagstaff.

Board of registration in dentistry.—A. A. Doherty, Nogales; Joseph Hardy, E. C. Hyde, J. H. Jessop, Phœnix; F. A. Odermatt, Tucson.

Quarantine and health officer.—Dr. George E. Goodfellow, Tucson.

There are 11 counties in Arizona, of which the following are the county officers:

Apache County.—F. T. La Prade, chairman board of supervisors, Winslow; William Morgan, board of supervisors, Show Low; L. Ortega, board of supervisors, Concho; Charles Jarvis, clerk of board, St. Johns; Art McDonald, probate judge and superintendent of schools, St. Johns; T. L. Bunch, district attorney, St. Johns; F. W. Nelson, recorder, St. Johns; W. R. Campbell, sheriff and assessor, St. Johns; W. H. Gibbons, treasurer and tax collector, St. Johns; J. E. Porter, surveyor, Show Low.

Cochise County.—W. K. Perkins, chairman board of supervisors, Tombstone; E. A. Nichols, C. S. Clark, board of supervisors, Tombstone; Nat. Hawke, clerk of board, Tombstone; Scott White, sheriff, Tombstone; M. D. Scribner, treasurer and tax collector, Tombstone; A. Wentworth, recorder, Tombstone; Wm. C. Staehle, district attorney, Tombstone; W. D. Monmonier, probate judge and school superintendent, Tombstone; H. G. Howe, surveyor, Tombstone; J. J. Patton, assessor, Tombstone.

Coconino County.—A. A. Duton, chairman board of supervisors, Flagstaff; T. F. McMillan, F. L. Rogers, board of supervisors, Flagstaff; C. A. Bush, clerk of board, Williams; J. J. Donahue, sheriff, Flagstaff; A. T. Cornish, treasurer, Flagstaff; E. J. Babbitt, probate judge, Flagstaff; C. A. Bush, recorder, Flagstaff; H. Z. Zuck, district attorney, Flagstaff; Oscar Gibson, clerk of district court, Flagstaff.

Gila County.—Edward H. Cook, chairman board of supervisors, Globe; O. C. Tebbs, Charles E. Taylor, board of supervisors, Globe; George M. Allison, probate judge and school superintendent, Globe; Peter T. Robertson, district attorney, Globe; J. H. Thompson, sheriff and assessor, Globe; J. W. Boardman, treasurer and tax collector, Globe; Charles T. Martin, recorder and clerk of supervisors, Globe; Alonzo Bailey, clerk of district court, Globe; Alexander G. Pendleton, surveyor, Globe.

Graham County.—A. H. Bennett, chairman board of supervisors, Safford; G. W. Wells, board of supervisors, Clifton; H. G. Boyle, board of supervisors, Pima; H. J. Dowdle, clerk of the board, Solomonsville; Luther Green, deputy clerk of the board, Solomonsville; George A. Olney, sheriff, Solomonsville; Ben W. Olney, deputy sheriff, Solomonsville; Wiley E. Jones, district attorney, Solomonsville; P. C. Merrill, treasurer, Solomonsville; Frank Dysart, deputy treasurer, Solomonsville; H. J. Dowdle, recorder, Solomonsville; Luther Green, deputy recorder, Solomonsville; B. B. Adams, clerk of the district court, Solomonsville; W. W. Dameron, probate judge and school superintendent, Solomonsville; B. B. Adams, assistant superintendent public instruction, Solomonsville; George H. Hyatt, court commissioner, Solomonsville.

Maricopa County.—J. T. Priest, chairman board of supervisors, Mesa; E. B. Kirkland, W. N. Standage, board of supervisors, Phœnix; Frank J. Peck, clerk of the board, Phœnix; J. K. Murphy, sheriff, Phœnix; R. L. Rosson, treasurer and ex-officio tax collector, Phœnix; Neri Osborn, recorder, Phœnix; M. H. Williams, district attorney, Phœnix; J. E. Walker, clerk district court, Phœnix; J. L. B. Alexander, clerk supreme court, Phœnix; T. C. Jordan, probate judge and school superintendent, Phœnix.

Mohave County.—Sam. Crozin, chairman board of supervisors, Hackberry; William Grant, board of supervisors, Hackberry; W. H. Taggart, board of supervisors, Kingman; L. C. Cowan, clerk of the board, James Rosborough, sheriff, Kingman; John K. MacKenzie, treasurer, Kingman; Jonathan Logan, probate judge, Kingman; J. W. Morgan, county recorder, Kingman; L. O. Cowan, clerk of the district court, Kingman.

Pima County.—G. A. Avery, board of supervisors, Nogales; M. G. Samaniego, James Finley, board of supervisors, Tucson; Fred. G. Hughes, clerk of the board, Tucson; John S. Wood, probate judge, Tucson; Frank H. Hereford, district attorney, Tucson; Joseph B. Scott, sheriff, Tucson; William F. Overton, treasurer, Tucson; Charles A. Shibell, recorder, Tucson; Henry Levin, assessor, Tucson; Daniel Drummond, surveyor, Tucson.

Pinal County.—E. O. Stratton, chairman board of supervisors; Charles F. Bennett, D. C. Stevens, board of supervisors; Jose M. Ochoa, clerk of the board, Florence; John Miller, probate judge, Florence; H. V. Jackson, district attorney, Florence; Thomas F. Weedin, clerk district court, Florence; L. K. Drais, sheriff, Florence; Charles F. Palmer, treasurer, Florence; Jose M. Ochoa, recorder, Florence; A. T. Colton, county surveyor, Florence.

Yavapai County.—W. A. Rowe, chairman board of supervisors, Prescott; J. W. Smith, Thomas Roach, board of supervisors, Prescott; C. H. Akers, clerk of the board, Prescott; Alex. O. Brodie, recorder, Prescott; F. A. Tritle, jr., deputy recorder, Prescott; J. F. Wilson, probate judge, Prescott; J. R. Lowry, sheriff, Prescott; H. H. Carter, deputy sheriff, Prescott; A. G. Oliver, treasurer, Prescott; Robert E. Morrison, clerk of the court, Prescott; William Wilkerson, deputy clerk of the court, Prescott.

Yuma County.—J. Gandolfo, chairman board of supervisors; R. M. Strauss, B. A. Haraszthy, board of supervisors; J. L. Redondo, clerk of the board; C. H. Brinley, clerk district court, Yuma; F. L. Ewing, probate judge and superintendent of schools, Yuma; Mel. Greenleaf, sheriff and assessor, Yuma; J. Fred. Nottbusch, deputy sheriff, Yuma; Althee Modesti, treasurer and tax collector, Yuma; J. L. Powell, recorder, Yuma; Calvert Wilson, district attorney, Yuma; R. B. Martin, surveyor, Yuma; George H. Field, county physician, Yuma.

Commissioners of deeds.—Charles Hall Adams, Boston, Mass.; Charles S. Bundy, Washington, D. C.; Joseph B. Braman, New York, N. Y.; Edwin F. Corey, New York, N. Y.; W. H. Clarkson, New York, N. Y.; L. W. Cleaveland, New Haven, Conn.; John J. Dean, San Francisco, Cal.; Emil Frenkel, New York. N. Y.; Edwin H. Corey, New York, N. Y.; William Jenks Fell, Philadelphia, Pa.; H. V. Graybill, Peoria, Ill.; George W. Hunt, Philadelphia, Pa.; W. T. Hardenbrook, New York, N. Y.; Samuel Jennison, Boston, Mass.; Charles T. Lunt, New York, N. Y.; John McDoald, Pasadena, Cal.; Alfred Mackay, New York, N. Y.; C. E. Mills, New York, N. Y.; James E. Mills, Sacramento, Cal.; Charles H. Phillips, San Francisco, Cal.; George W. Parsons, Los Angeles, Cal.; Theodore D. Reymert, Los Angeles, Cal.; G. E. Readon, Baltimore, Md.; N. G. Rogers, Louisville, Ky.; E. G. Reynolds, Kansas City, Mo.; Samuel Rosenbaum, San Francisco, Cal.; E. B. Ryan, San Francisco, Cal.; Karl A. Snyder, Albuquerque, N. Mex.; Leo Schwab, New York, N. Y.; William F. Taliaferro, Chicago, Ill.; Charles D. Wheat, San Francisco, Cal.; E. F. Wellington, Rochester, N. Y.; Eugene D. White, Portland, Oregon.