

What Uncle Sam is Doing to Reclaim Nevada Lands.

(BY L. H. TAYLOR, ENGINEER IN CHARGE.)

THE passage by Congress of the Act of June 17, 1902, provided Nevada's opportunity. In the early part of September, less than three months after the approval by the president of the United States of the National Irrigation law, the engineers of the U. S. geological survey began the study of the feasibility of an irrigation system, which should utilize the great volume of water flowing to waste through the rivers of the western part of the state, for reclaiming the adjacent deserts.

The first investigations of the engineers were directed to the upper portion of Truckee river, and the valleys to the north and northeast of the city of Reno, embracing some 73,000 acres of rich land.

The Truckee Carson Project.

Exhaustive surveys were made in this district during the fall and winter and close estimates of the cost of the requisite canals were made. It was found, however, that the cost of construction, while not prohibitive, would be relatively high, and it was deemed inadvisable to initiate work at a point where the unit cost, or cost per acre, of reclamation approached too closely the value of the reclaimed land. A preliminary investigation of the possibilities for irrigation in the vicinity of Wadsworth and in Carson Sink Valley was, therefore, begun in January, 1903. Before the opening of spring, it had been determined that a large acreage—over 200,000 acres—could be watered in that region at a comparatively small expense, and it was decided to begin construction at the earliest practicable date.

The definite location of what is now known as the Main Truckee Canal, designed to convey Truckee river water from a point 24 miles east of Reno, a distance of 31 miles, to Carson river, was begun in April, 1903.

Bids for its construction were asked for in May, of that year, opened on July 15, and, on Aug. 28 and Sept. 3, contracts were executed with E. B. & A. L. Stone company and C. A. Warren & Company, respectively, both of San Francisco, California, for its construction. These were the first construction contracts awarded under the reclamation law in the United States.

The first named company were successful bidders on Division One and Two of the canal; about 13 miles in length, and the latter company on Division Three, some 18 miles.

The E. B. & A. L. Stone company first broke ground on Sept. 11, 1903, and completed their work on Sept. 30, 1904.

C. A. Warren & Company began work Oct. 2, 1903, and will finish in 1905.

The Main Canal.

This main canal has a capacity for the first six miles of its course for 1,400 cubic feet per second—70,000 miners' inches under 4-inch pressure—and, for the remainder of its course, of 1,200 cubic feet per second. The depth of water will be uniformly 13 feet, and the top of the banks is two feet above the high-water line. The width at the top varies from 25 to 63 feet, the narrow part being lined with Portland cement concrete, and having a heavy grade. Nearly two miles of

the canal, exclusive of tunnels, are lined with concrete.

Three Tunnels in All.

There are three tunnels of 303, 999 and 1,515 feet length, respectively. All are lined with concrete, 12 feet wide, and about 16 feet high, to crown of arch inside.

The main Truckee canal will discharge its water into Carson river at the site of the Lower Carson reservoir, about nine miles west of Loomis, in Churchill county. Thence, the water flows in a channel of that stream about four and one-half miles to the Diversion dam at the head of the distributing system.

This dam is a concrete structure, built to last for all time, which directs water into two main distributing canals on either side of the river. That on the south has a bed width of 22 feet, a top width of 78 feet, and carries 12 feet of water, the capacity being 1,500 cubic feet per second.

The canal on the north side is 13 feet wide at bottom, 45 feet wide at top, carries six and one-half feet of water, and has a capacity of 450 cubic feet per second.

Thirty-eight Miles Long.

At present these two canals are completed for a total length of 38 miles. With their main branches, they will ultimately have a total length of over 50 miles, while the laterals and main ditches to be constructed in Carson Sink Valley alone will aggregate fully 1,200 miles. Already, nearly 200 miles of these have been finished, and before the end of July, 1905, nearly 300 miles now under construction will be ready for use, and will distribute water to 50,000 acres of land.

This part of the irrigation system comprises the most difficult and expensive portion of the initial item of the Truckee-Carson project, and when finished, will have cost about one and three-quarter million dollars. The extensions of this, in Carson Sink Valley, completing the initial item, and bringing under irrigation not less than 200,000 acres of land, will increase the total expense to about \$2,600,000, and consume about two years' time.

Further extensions of the Truckee-Carson project to a total area of, approximately 375,000 acres of land, involve the construction of expensive storage reservoirs, and costly high-line canals. This work has been planned, however, and as the lands to be immediately watered are being rapidly taken by homesteaders, funds for the completion of the work will be provided by the payments to be made on the water rights therefor.

It is estimated that the entire undertaking can thus be completed within nine years, the total cost being estimated at approximately \$3,000,000.

Lands for Homesteaders.

The number of acres of land, ultimately designed to be irrigated, is from 300,000 to 400,000 acres, of which 200,000 will be supplied within the next three years. Of this acreage, it is estimated that about 40,000 acres were irrigated during the present year.

The land is located in a number of valleys along the Truckee and Carson rivers, extending on each side from the Central Pacific railroad, the distance

being in some places 25 miles from the road.

The main body of 200,000 acres to be irrigated first in the Carson Sink valley, lies south of the railroad. Some of the land is immediately adjacent, while the furthest extends about 5 miles from the railway.

The soil is adapted to alfalfa, all forage crops, potatoes, onions, beets and other vegetables, apples, pears, berries

and other hardier deciduous fruits. The soil and climate are similar to those in the vicinity of Salt Lake and Ogden.

Are Subject to Entry.

The public lands are subject to entry under the homestead act, no price being charged for the land, but the cost of irrigation will be assessed against the land as a charge for the water right to be repaid in 10 annual installments without interest, at the rate of \$2.00

per annum per acre. This covers the cost of maintenance and operation during the 10 year period, and provides for the delivery of water to each farm, and also for a comprehensive drainage system.

After the 10 year period stated, the land and water rights belong to the holders of the lands forever, with no further charge by the government. The care and maintenance of the system

then passes into the hands of the land owners, under laws, however, made for the purpose which will insure protection against corporate or individual greed and fraud.

Drainage and Title.

The drainage is a more important factor than would be commonly supposed, as it has been estimated by the United States agricultural department that one-tenth of the land that has been irrigated by private or corporate enterprises has been greatly injured, if not permanently ruined, by too much water and too little drainage. Drainage is imperative on account of the heavy alkali deposit, which must be carried off to insure the good quality of the soil. This drainage system has increased the cost of the project from \$5 to \$10 an acre, but the prosperity of the settler depends upon the one about as much as upon the other.

Title to the public lands is not given until all payments for water have been made. Lands held in private ownership are supplied with water as desired, at the same price, and upon the same terms as public lands.

The public lands are now open to entry under the homestead act, but intending settlers are strongly advised not to file upon any of the lands outside of the district to be irrigated during the current year, and not until we can inform them when the water will be ready for delivery to such outside lands for the reason that without water they can produce nothing which will yield them a living.

Important to Settlers.

Following we give specific information for the benefit of intending settlers:

The provisions of the reclamation law authorize the secretary of the interior to limit the homestead entry to any area between 40 and 160 acres, to fix the price per acre that shall be charged for water, which price shall return to the government the cost of the irrigation works; to fix the number of annual payments, not exceeding 10, and the date when the payments shall begin; and to perform any acts and make all rules and regulations necessary to carry out the provisions of the law.

The lands under the Truckee-Carson project can be entered under the homestead act only. The United States land office, where entries are made, is at Carson City, Nev. There is no charge for the land other than the usual land office fees. All entries will be limited to from 40 to 160 acres of land, depending upon location, character of soil, roughness of surface and irrigability.

Divided Into Homesteads.

All of the public land will be divided into homestead or farm tracts, each of which will embrace enough irrigable land to support a family comfortably, if well and carefully tilled under irrigation.

An unmarried person over 21 years of age, or any head of a family, who is, or has declared intention to become a citizen of the United States, who has not used his or her homestead right, or who is not then owner of more than 160 acres of land in any state, can file on any one of these tracts. Title to land cannot be acquired until all payments for water have been made. The law requires a homesteader to see and select his land personally. Residence must be established on

land within six months after filing thereon, and must be continuous thereafter, and the land cultivated for the term of five years.

The Cost of Water.

The cost of water to settlers has been fixed at \$25 per acre irrigable, payable in 10 equal annual installments, without interest. The homestead fees and commissions for filing, payable when application is made, are as follows:

For land at \$2.50 per acre for 160 acres, \$11.
For land at \$2.50 per acre for 80 acres, \$5.
For land at \$1.25 per acre, for 160 acres, \$16.
For land at \$1.25 per acre, for 80 acres, \$8.
For land at \$1.25 per acre, for 40 acres, \$4.

Originally the homestead law required the applicant to appear personally at the district U. S. land office to present his application. This requirement was modified by allowing parties, who are prevented by reason of distance, bodily infirmity or other good cause from personal attendance at the U. S. land office to make the preliminary affidavits for homestead entries before a commissioner of the U. S. circuit court having jurisdiction over the county in which the land is situated, or before the judge or clerk of any court of record of such county, and to transmit the same, with their applications and the proper fees, to the commissioners to the register and receiver of the U. S. land office of the district.

How Situated.

The land is situated at from 3 to 4,200 feet above sea level. The climate is dry, the mean annual precipitation being four to six inches. Snow rarely falls to a depth of three or four inches and never lies more than a few days.

Same as Salt Lake.

Temperatures are about the same as at Salt Lake City, and the same crops raised there flourish here.

The soils are sandy loam, and sandy in the main, but in the lower part of Carson Sink valley they are heavier, containing an admixture of clay. It is all valley land, covered with sagebrush and grass, wood, and some alfalfa.

Well water, usually of good quality, can be obtained on the lower land at from ten to thirty feet from the surface, and on the higher land at from 100 to 150 feet depth.

The Central Pacific railroad traverses a part of the land, but the main body of Carson Sink valley lies from five to thirty miles from it. There are now some 12,000 or 15,000 acres of land under cultivation in Carson Sink valley, and the present population is less than 1,000. There are five public schools in the valley.

The contractors on the irrigation works now employ about 1,000 men, and as additional contracts are let, more laborers will be required. In the awarding of the contracts for the construction of the smaller distributing ditches, an effort will be made to give settlers upon the land an opportunity to bid upon the work. It is likely that most of those settlers who desire can find employment for themselves and teams on the canals during at least a part of their spare time for the next two or three years.

New Towns Springing Up.

New towns are springing up along the railroad. The opportunities for business investments are most attractive, and returns certain. The towns already in existence will rapidly grow as the demands for supplies and provisions of the settlers and the irrigated districts, therefore, offer inducements to business interests as well as to the homesteaders. It will take about two years more to complete the construction of the system of irrigation of the above land, but water for about 40,000 acres is now available.



THE USE OF FLOWERS

By Mary Howitt.

Our outward life requires them not—
Then wherefore had they birth—
To minister delight to man,
To beautify the earth.

To comfort man—to whisper hope,
When e'er his faith is dim.
For who so careth for the flowers
Will care much more for him!

GOOD CHANCE for SUGAR BEET BUSINESS in NEVADA.

(BY F. W. FAIRBANKS, EDITOR LYON COUNTY TIMES)

NEVADA, to some extent, is beginning to be appreciated as an agricultural state, her resources in this line having been fairly well advertised at the Chicago, Buffalo and St. Louis expositions, where her exhibits attracted the attention of thousands of people, who now do not look upon our state as being entirely made up of black mountain ranges and barren sagebrush plains. The discovery of mines of fabulous richness within Nevada's borders has also done much to advertise her resources, as it has brought to our state men of means from the east, the middle west and the Pacific coast, and there has been a wonderful revival in the mining industry in the past four years. These people, who have come here to invest in mines, have not all been able to strike it rich and make their fortunes. They have not all been satisfied with what has been offered them in the bonanza camps in the shape of investments, and a large number from their quest for gold to investigate what other resources there might be to develop into paying propositions.

The building of the great government irrigating canal which is to water thousands of acres of land in Churchill county and hundreds of acres in Lyon county, has opened the eyes of many to the advantages possessed by Nevada in an agricultural way, and a year or two hence thousands of families will be settled in happy, prosperous homes along the route of the great canal and its many miles of lateral ditches, and fields of green alfalfa and waving grain will greet the eye, where once there appeared but a dreary stretch of barren waste.

There are numerous fair sized fertile valleys in Nevada, but, situated in the central western portion of the state, lies Mason valley, which, without a doubt, contains a greater acreage of good land in one tract than does any valley in the state. Mason valley is over 30 miles in length and has an average width of about seven miles, and over 50 per cent of this land can be put under cultivation at a cost ranging from \$5 to \$20 per acre. The valley is watered by the East and West Walker rivers, two magnificent streams which have their sources in the Sierra Nevada mountains in California. The land is unsurpassed in fertility, the climate is perfect and sickness is almost unknown, while at the lower end of the valley passes the Nevada and California railroad, which give us communication with the outside world.

About Mason Valley.

Up to the present time Mason valley has in a manner been passed by by the great throng of people coming to our state to seek investments in the mines, but within the past few months a few

progressive men have drifted into our midst. They see the opportunities which here await, and it is predicted that within a very short period these opportunities will be seized. Visitors from Minnesota, Nebraska, Utah and California have expressed themselves as astonished that these opportunities have not been grasped before this, and as these men come from states where the sugar beet industry is carried on quite extensively, they marvel at the fact that Mason valley has not ere this secured a factory and gone into this line of business. They have remarked that this section seems to be an ideal one for the sugar beet industry. It is an ideal spot for such an industry, and there is no time better than the present to bring the matter before those who are seeking opportunities to safely invest their money in some profitable enterprise. Land can be purchased at a fairly low figure in Mason valley now. In five years from now it will double in value, and in 10 years from now every acre of ground in Mason valley will be worth \$100, possibly more.

Tried J. D. Spreckels.

In the years 1888 and 1899, Nevada had a local trial of the sugar beet industry, and about that time an endeavor was made to have J. D. Spreckels locate a beet sugar factory in Mason valley. Those interested in the matter, among whom was the late E. P. Lovejoy, did considerable corresponding regarding the project, but the only result was that Mr. Spreckels sent a quantity of seed to this section, and a number of farmers, with a view of finding out what the land would do. The seed was planted, it thrived, but little care was given to the cultivation of the plants and probably the results were not the best that could have been obtained. As it was, we believe that records can be found in the agricultural experiment station at Reno which will show that the land in Mason valley produced sugar beets containing from 16 to 23 per cent saccharine matter, while the quantity of beets grown was from 15 to 25 tons to the acre. Tests of the soil in this valley have shown that in almost every locality in the valley the alkalies in the land are of the correct proportion to grow magnificent crops of these tubers.

A Distinct Industry.

The raising of sugar beets is an agricultural industry peculiar to itself. Those who have made a business of raising alfalfa, wheat and corn, who, no doubt, need considerable instruction to be able to raise beets profitably. The ground needs deep and thorough tilling and the crop must be hand hoed, weeded and thinned so as to give the beet the proper space to develop in, and this can only be accomplished by experienced hands who are acquainted with the different soils, the amount of moisture in the soil and the amount that is necessary while the beet is growing to secure the best results in quantity and quality. The harvesting of the beet

is another particular feature of the business, and this must be done at the right time—when the beet is ripe—or much of its sugar value will be taken away. There is no reason to believe that, with proper culture, any land in Mason valley will produce no less than an average of 15 tons of beets to the acre, and that the crop would bring from \$4 to \$4.50 per ton at a factory.

In Utah it is usually estimated that the cost of producing a sugar beet crop is from \$24 to \$30 per acre. The average yield in that state is 12 tons to the acre, and the price paid at the factory for all beets going over 14 per cent sugar matter is \$1.50 per ton. This gives the Utah raiser a net profit of \$4 to \$5 per acre. There is no doubt that as good an average as this could be made

in Mason valley, for the difference that might exist in the price of production would be more than made up in the greater quantity produced here and the profit on an acre of ground would far exceed that now made by farmers who raise alfalfa, grain and other crops.

Would be More Profitable.

Beets would even be a more profitable crop than potatoes. Nor is this the only profit that could be made on the acre of ground that grows the beet, which do not go to the factory, are excellent feed for dairy cows, hogs, stock cattle and sheep, and the pulp left from the beets after passing through the mill is also excellent fodder. It can be bought at the factory at a very low figure and would lower the cost of feed for dairy stock and other stock.

A beet sugar factory in any community opens a field for other enterprises. In the first place it creates quite a demand for labor, for a factory of any size, or 400 tons capacity, requires a large number of men to operate it; it consumes a large quantity of lime, and that commodity is plentiful in Mason valley, or rather, the surrounding hills. The production of the lime would also require considerable labor. The question of fuel, anticipating that coal would be used, should not be so expensive in these days, as the railroad could land Utah or Wyoming coal in Mason valley at very reasonable rates with facilities now at hand. Besides, the mercantile and banking business throughout the entire section wherein the factory might be located would be greatly stimulated.

What It Would Cost.

A beet sugar factory is an expensive institution, and a plant to handle 400 tons per day during the operating season, which lasts about 100 days after the crop is harvested, would probably necessitate the outlay of nearly \$500,000, so it is unnecessary to state that a factory will never be built in Mason valley or any other community until the company which considers installing one has a guarantee that a sufficient quantity of beets will be raised in the vicinity to keep it in full operation. It takes but little computation to learn that a 400-ton factory would require beets from about 3,000 acres of land, and as beet raisers do not go into the business on a scale compared with the raisers of alfalfa, so far as acreage is concerned, the 3,000 acres would be divided into 80-acre and possibly 40-acre farms. Supposing then the average size of a sugar beet farm was 60 acres; giving the farmer 40 to 50 acres for beets and 10 to 20 acres for other produce and garden stuff, there would be from 50 to 60 little farms cut out of the 3,000 acres, and each farmer would be making an annual net income from his beets of anywhere from \$500 to \$1,500. These figures are very conservative, considering that there would be many instances in Mason valley where the sugar beet crop would run as high as 20 tons to the acre.

Railroads Would Follow.

In all other states where this industry has been engaged in, a railroad has found its way from some one of



The picture of this four story structure is taken from a plan for a new municipal building for Brooklyn recently submitted to the New York board of estimate and apportionment. It is in classic style and would require an expenditure of at least \$3,000,000. The facade is supported by fourteen great pillars, and the entire building is exceedingly dignified in treatment and would be a decided ornament to the city. In case the plan should be accepted by the board the city will be obliged to acquire more land, for the present municipal site is too small.

WHERE RUSSIA'S FIRST PARLIAMENT WILL BE HELD.



The structure shown in the cut is the building at St. Petersburg in which the first Russian parliamentary meeting under the new constitution will be held. Although it was erected for an entirely different purpose, having been devoted to the use of the municipality, it is sufficiently commodious to accommodate the national legislative body as she has been in her church edifices, one of which cost \$50,000,000, her duma, or legislative assembly, will in time be splendidly housed.