

IRRIGATION IN CALIFORNIA.

The Most Economical Method of Distributing Water.

Crude Petroleum the Coming Fuel of the Future.

California an Oil Producing Country—A Vast Territory Yet Unexploited. Thousands of Acres in this Vicinity.

William Lacy of the Lacy Manufacturing company was interviewed yesterday by a representative of the HERALD on the subject of irrigation. The apparent scarcity of water, said Mr. Lacy, and difficulty of conveying it long distances, was for a long time a great drawback to the success of large irrigation enterprises. It was found that an open ditch to convey water was a slow and expensive process, as the seepage and evaporation during the long, hot summer months very soon exhausted the supply and to the people at a long distance from the source it was usually useless, and besides it could only be used in level portions of the country and where water was very plentiful. Wood-pipes and cement pipes were tried but did not answer the purpose. The expense and difficulty of carrying water in ditches for long distances over a rough country is very great, and they are only used where large quantities of water are to be conveyed from a great distance for redistribution to consumers. Sheet iron or steel pipe is the most economical method of distributing water. By use of the irrigation plant is much simplified, as water can be carried under great pressure over hills and across deep valleys and ravines, and its cleanness and lasting quality is recommended as the best possible medium for the conveyance of water for long distances. Of course, it is not claimed that it is any better for that purpose than cast or wrought iron pipes, but in Southern California no iron is manufactured, and the cost of railroad transportation from the eastern states is so large that it precludes the possibility of use of a pipe in any quantity or of a large size. But riveted sheet iron or steel pipe is so much lighter and, if properly manufactured, of such strength as to be able to resist such enormous pressures that it is now universally adopted in countries where the cost of transportation of heavy cast or wrought iron pipe is too expensive to allow of its general use. Of course great care is necessary to be used in its manufacture; the exactness of fitting, the method of riveting, the selection of material, all have to be honestly and intelligently attended to, otherwise the pipe is a failure. Then not only to prevent it rusting, but also to add to its strength and prevent any possibility of a leak, (for a well made, well dipped, and well laid sheet iron pipe will never leak), the pipe is coated thoroughly inside and out with a mixture of cement, petroleum and asphaltum in a bath of great heat. When this is thoroughly done the mixture is largely absorbed by the metal, and is greatly toughened and strengthened thereby.

THE COMING POWER.

Among the prominent young business men of Los Angeles is A. S. Perry, the proprietor of the Standard Electric company, carrying on an extensive electrical construction business.

His firm is well and favorably known among the building fraternity, and bears a reputation for doing the highest grade of electrical work. He has in his employ only skilled workmen, who thoroughly understand their business. Mr. Perry is a practical electrician himself as well as a shrewd and energetic business manager, having been in the electrical business in this city for the past five years, he personally inspects all work done by his house. In the finest residences in the city are to be found testimonials of his work, where first-class material and workmanship are demanded.

It is quite safe to state when in need of anything electrical he is the party to call on. At his office is displayed in working order electric bells, burglar alarms, annunciators, electric gas lighting apparatus, speaking tubes, etc., etc. in great variety. Estimates on all kinds of work either in city or country, are cheerfully given. Parties building and others interested in electrical apparatus are sure of a cordial reception.

Particular attention is devoted to repair work and reconstruction of electric bells, burglar's alarm and gas lighting systems. Orders may be given over the telephone and prompt and satisfactory work will be assured.

His place of business under the style of the Standard Electric Co., is at the old well-known stand, 126 S. Main street, near Grand Opera house. Telephone No. 470.

NATIONAL BANK OF CALIFORNIA.

One of the Solid Moneyed Institutions of Los Angeles.

Its Conservative Management Demonstrated During the Flurry.

An Executive Committee Which Gives Close Attention to Details. Depositors' Interests Carefully Guarded.

While one of the youngest of the banking institutions of this city, yet it is one of the most solid and substantial. Its officers and directors are men of large experience and well known ability and their careful attention to the details of the business and courtesy to the patrons has built up a business of which they justly feel proud.

Their conservative management was well demonstrated during the late financial flurry that visited this and other cities on this coast by the fact that they withstood the shock of a three-days run, paying in coin every depositor who called for his money, and at the end of the disturbance had on hand more than twice the legal reserve, and that without having called in any of its loans.

It has been among the first to grant assistance to other banks, and more than one institution owes its life and present existence to the timely aid furnished there. Its executive committee gives close attention to the details of its business and examines particularly all paper offered for discount, requiring the best of security in all cases, preferring their funds should remain idle rather than make any questionable loans.

To those requiring the services of an institution of this kind, the Bank of California offers its services, believing that stability, careful attention to the wants of their customers and courteous treatment to all will merit a share of the business of this community.

The president, J. M. C. Marble, is accredited with being one of Los Angeles' shrewdest business men.

O. H. Churchill is its vice-president, a most careful and active man. W. L. Graves, second vice-president, a former Fresno banker, who has been able to retire from active business, is a self-made man, and A. Hadley, the cashier, is a gentleman in whom every citizen of Los Angeles places trust and confidence. He came to Los Angeles after 25 years' experience in the National Bank of Lawrence, Kansas, having left there to come to Los Angeles on account of his health.

San Antonio Water Decision. An Attempt to Monopolize a Mountain Stream Broken.

Following is Judge Van Dyke's decision in the matter of the preliminary injunction asked by the San Antonio Water company and Pomona Land and Water company against the operations of the Sierra Water and Power company et al. This is not final, for the case is yet to be tried on its merits.

For more than 10 years prior to the commencement of this action the plaintiffs corporations have diverted and distributed for use among their respective stockholders all water flowing down the San Antonio cañon, except 20 inches thereof appropriated by and belonging to one Dexter.

At the dam in said cañon, near its mouth, the waters appropriated by and belonging to said companies is equally divided; the San Antonio Water company taking one-half thereof on the eastern side of the stream, and conducting the same in a south-easterly direction to the city of Pomona and the Ontario settlement or colony, so called, down to Ontario, and distributing said water to the inhabitants of the town of Ontario and the owners of lands in said colony, for irrigation, domestic and other uses; and the Pomona Land and Water company, by means of ditches and aqueducts, diverting the other one-half of said waters and conducting the same to lands in the city of Pomona and its vicinity, in the Loop and Meserve tracts, and furnishing and distributing the same to the inhabitants of the city of Pomona and the Ontario settlement or colony, so called, down to Ontario, and distributing said water to the inhabitants of the town of Ontario and the owners of lands in said colony, for irrigation, domestic and other purposes.

The defendant, a corporation, has commenced the excavation of a tunnel up the cañon some five or six miles from its mouth, for the purpose of developing water, intending to convey the same down and out of the cañon and upon land for the purpose of irrigation and other uses.

It is alleged upon the part of the plaintiffs that the tunnel is constructed so near the channel of the creek as to draw some of the water from the said stream and from springs and cienegas adjacent thereto which would otherwise flow into said stream, and that the further prosecution of said tunnel will increase the amount of water which would be diverted from said stream.

The defendants on the other hand deny that the tunnel, as already constructed, has drawn off or diminished in any degree the water that would otherwise flow into the stream, and deny that the further prosecution of said tunnel in the direction and at the depth below the surface proposed, would have the effect to draw off, diminish or otherwise divert any of the water that would otherwise flow into the stream.

At the hearing of the application for a preliminary injunction, a large number of affidavits were read on each side and the case fully argued. At the conclusion of the argument it was proposed by counsel for the respective parties that the judge of the court should visit the premises, which was done in company with the attorneys, engineers and surveyors for the respective parties.

From the showing in court at the hearing of the application, as well as from a personal inspection of the premises as aforesaid, it does not appear that any diminution or diversion of the waters flowing into the creek or any other water flowing into the cañon, has so far occurred, nor is it at all certain or even probable, that the continuation of the tunnel along the line at the depth below the surface proposed, would result in any diminution or diversion of any water that would otherwise flow into the stream and to which the plaintiffs are entitled.

In view of the large number of people and vast interests depending upon the distribution of water by the plaintiff corporations in its accustomed and undiminished flow, it is not strange that apprehensions should be entertained that water right should be aroused whenever other parties attempt to explore said cañon for water. Still, in order to justify the court in restraining such parties

ARID LANDS.

Some Ideas from a Long Time Resident of Arizona.

(Tucson Star, Oct. 3, 1893.)

The statement of Governor Hughes is that if the lands of the arid regions were ceded to the states and territories in which they are located, they could be utilized for the raising of the amount of capital necessary for their reclamation, by granting a portion of such lands as a bonus to the investors, the lands, of course, to be held by the territories or states, with such limitations made by the federal government as to their disposition as might be deemed advisable.

The plan suggested is that the money be raised by the selling of lands secured by the land. This land would only be sold to bona fide settlers, on the instalment plan, the money so raised to be used as a sinking fund for the redemption of the bonds. When reclamation of the water system itself would belong to the territory or state, as served, according to the law made to govern the same. But, though it did belong to the territory, the restrictions placed upon its disposition would still exist. There would, therefore, be no danger of the interests of the people being sacrificed to the whims of a legislature so corrupt as that of California, where, when the public funds are squandered, the surplus is not at the amount misused, but at the fact that anything has been left at all to the government of the territory or the people at the present time? Only in the places where private capital has been expended in their reclamation are they worth more than the space they occupy. The national government will not be asked to do anything in the way that through the states. And if it were willing to do so, its action would hardly be in keeping with our ideas of local government. If the lands were ceded to the states and territories, with proper limitations as to the manner in which they should be dealt with, there is no doubt that money would be found to bring the whole of the great arid region under cultivation. This would provide homes for thousands and would open up new channels for the investment of capital. It would add largely to the taxable property of the states, and bring in the enrichment of the country at large.

STORAGE RESERVOIRS.

An Important Matter for the Congress to Consider.

San Bernardino Courier: One of the most important measures for the consideration of the irrigation congress which meets next week at Los Angeles is that of storage reservoirs to be built by government appropriation. Millions of dollars are voted at every meeting of the legislature and the nation's congress for the benefit of navigable rivers where the traffic is scarcely enough to pay the interest on the investment, or in building sea walls and harbors in which nine cases out of ten the money is squandered without any benefit to the public. Now the time has come when the fruit growers and farmers should demand some recognition at the hands of the law makers in the way of appropriations for putting water on arid lands. Here is a field for investment by the government for the benefit of the people. Now the proposed bill pay back a good round interest and be beneficial to more people than any other expenditure in the list of appropriations.

So far all the water obtained for use on the dry land has been secured at the expense of the private citizen. Now the money that would have been invested in developing the land had the water been furnished by the government. What a growth Southern California would have made had all the money invested in reservoirs, large canals, tunnels, etc., been expended in developing the land in the way of water. Let the national and state governments take a hand in this and furnish the water by putting in storage reservoirs wherever they are needed and use less money for sluggish rivers and similar useless means of irrigation.

The great irrigation works of India, some of the finest in the world, are built entirely by the government, and the coming irrigation congress should make strenuous efforts to bring our own government to do as well for us.

A Fine Citrus Tract.

The Colton Terrace Citrus tract is very choice land which has recently been subdivided into pieces of about 10 acres each. The entire tract has been set out to oranges of many good varieties. The fruit is in season and has been between Colton and San Bernardino. Being on the motor line, its situation makes it very desirable for homes. The water supply is ample, being double what is generally sold with similar tracts of land. It comes from artesian wells in the main range of the upper part of the depth of 600 feet, thereby assuring permanent supply. The land will be put on the market for sale on easy terms. For terms apply to A. S. Pomeroy, 105 South Broadway, Los Angeles, Cal.

Union Iron Works.

The above named institution, corner First and Alameda streets, is identified with the progress of Los Angeles. Everything in the line of iron is manufactured there, boilers, engines, elevators, castings, architectural iron and every other article of iron can be ordered there and secured. It is the only firm in Los Angeles who manufacture bolts, Albert Thomas, the proprietor, is a thorough mechanic who understands his business. Upward of thirty men are constantly employed.

PREHISTORIC IRRIGATION.

The Waterworks of an Unknown People in Arizona.

In the July Anthropologist, Mr. F. W. Hodge gives some interesting notes on this subject, from which we take the following:

In none of the extensive archeologic remains of Southern Arizona are the industry, perseverance, and degree of advancement of a large pueblo population more faithfully illustrated than in the many works of irrigation that abound in the valleys and on the mountain slopes of that section.

Judging from the remains of extensive ancient works of irrigation, many of which may still be seen passing through tracts cultivated today as well as across densely wooded stretches considerably beyond the present non-irrigated areas, it is safe to say that the principal canals constructed and used by the ancient inhabitants of the Salado valley controlled the irrigation of at least 250,000 acres, even without considering the economical methods employed by a primitive people in all its undertakings.

The mode of canal construction employed by these pueblo builders was another indication of their patience and industry. Their canals are models for the modern farmer to imitate; yet they could have been dug in no conceivable manner save by the tedious process of hand excavation with stone or wooden implements, the earth being borne away by means of blankets, baskets or rude litters. Notwithstanding this, the outlines of at least 150 miles of ancient main irrigating ditches may be easily traced, some of which extend southward from the river a distance of 10 miles.

Unlike ordinary irrigation ditches, these were constructed in such a manner as to control to some extent the depth of the current as well as to prevent waste through seepage. The bed of the canal was about four feet wide, but the sides were constructed so that within about four feet of the bank, where a "bench" three feet in width on each side of the canal had been made. From these benches the banks continued, broadening until they reached the brink, which were about 30 feet wide. Thus a main ditch consisted of a series of watercourses within another, so that if at any time a small current of water only could be supplied at the head gate, owing perhaps to drought, the lower and narrower ditch was doubtless always filled sufficiently to supply the towns beyond, while during the rainy season the upper ditch carried a much broader portion of the great canal water readily accommodate all surplus waters.

Several years ago, when the Mormons first settled at Mesa City and began the irrigation and cultivation of the fertile plain about them, they utilized this ancient canal bed for a considerable distance, including that portion encircling the knoll of volcanic tuff mentioned. The writer has been informed by one of the founders of this settlement and builders of the Mesa canal, which is nine miles in length, that the saving to them by using the ancient canal was from \$20,000 to \$25,000.

In tracing the routes once pursued by many of the canals, great depressions—the sites of ancient reservoirs—are observable. The remains of one of these reservoirs, nearly a mile long by about half a mile wide, occur on the open plain at the terminus of one of the main canals that formed the source of water supply of Los Muertos, and about three miles southwest therefrom. It is possible that this great depression was, in part, a natural sink, deepened by artificial means to serve more fully the purposes of a storage basin of surplus waters from the Los Muertos irrigating system. Every cluster of communal structures in Los Muertos was supplied with a reservoir on a smaller scale than the one mentioned, a single canal forming both its inlet and outlet. Sometimes a lesser communal dwelling with a neighboring structure in the water supply from a single storage basin.

Kamona's Water Right.

The Alhambra: Situated seven miles east of Los Angeles, at the jun-

WENDEL EASTON, President.

GEO. W. FRINK, Vice President.

GEO. EASTON, Secretary.

Secretary.