



The dean of American deer-hunters, on his home veranda

RECREATION MEN

V.—T. S. Van Dyke, Author of "The Still-Hunter"

By C. T. RAMSEY

(1)

San Diego, Cal., June 20, 1910.

Col. Ed Fletcher,

Dear Sir:

While I have not gone over all the flume I have examined it in enough different places to get a fair idea of its general condition. The side plank seem very sound except at some of the end joints where alternate wetting and drying has affected them. This is mainly on the curves and is not yet serious. The bottom plank seem sound enough but are difficult to examine except at trestles. But some of these plank must have some decay as water runs along them from leaks. In many places this would keep them so constantly wet as to prevent decay, but in others the wetness must fluctuate enough to injure them. It would take too much time to determine this question but as far as can be readily seen there seems no reason why the flume box should not be good for many years. It was made of the finest, butt-out black heart redwood, the most durable wood known in ground alternately wet and dry. At first building the contractor tried to float them from the head down but all sank in water, although fairly dry.

Some of the sills, stringers and mud sills are in bad condition, some from drip and some from neglect to drain the footings. Some of the braces are also very weak at end connection with sills. The whole should be more carefully inspected, as settling from a defective support may strain the flume badly when full.

On the whole it is in far better condition than I expected to find it at 22 years old. It will be cheaper in the end to use it for several years to come. The expense of putting it in good condition should be far less than the interest on any form of aqueduct entirely new. Anything new should be permanent and first-class. Pipe, either steel or concrete, would be very costly to carry the amount of water you expect to have, because the light grade compels a large cross-section. The mere handling of the material for large concrete pipe would be a great item beside the trench necessary to insure its safety. It would require somewhere near a 30 inch pipe to carry what the flume will now carry when running full, and of course you need more than that. It will have to be carried on trestle like the flume over depressions or exchanged for steel. The friction at the entrance of the steel pipe unless the connection is very carefully made will cause some loss of head which you cannot afford. The same where it changes again to concrete. But at points of long detour like the South Fork and Chocolate Creek enough head is gained to make smaller pipe sufficient for the crossing. No matter what form of aqueduct you adopt it will be best in time to cross several places in that way rather than replace trestle or make detours with new aqueduct. When the flume was built there was little or no steel pipe on the market, iron was weak and costly, and the dip was far from being as good as today.

A concrete pipe of such size has to be very strong and also proof against the entrance of roots which are sure to reduce the flow if they once get in. It should be about three to one and you will not find much sand, gravel or broken stone along the way sharp enough and clean enough, but will probably have to run a stone crusher.

Some of these objections apply as well to cement ditch which is generally much cheaper than pipe of same capacity. This cannot be carried on trestle. Detours longer than those on the flume are necessary or else the crossing must be made with steel pipe. At every such crossing a loss of head will occur unless pipe is very large and there will be some even then.

On hillsides such as those along your line the storm-drainage of cement ditch becomes a serious item. A flume is naturally well drained and if on solid cut is easily repaired. But a concrete ditch may need a new fill if washed out and it is long before the earth will settle solid. The debris from a rush of water down the hillsides can hardly be kept out of it in most places and many a blow off would be necessary for quick cleaning. Even with plenty of these cleaning is none too easy. It is much easier to repair than concrete pipe, but pipe can be, and should be, placed beyond the reach of all common storms. There are, however, many places after leaving the Monte where concrete ditch would do very well, such as in parts of El Cajon and the run from there to La Mesa Reservoir. Wherever a run long enough to justify handling the material can be had it will be the cheapest form of permanent aqueduct. If large and smooth the velocity will be great enough to avoid any trouble from algae. Except in such cases the cheapest form of aqueduct entirely new seems steel flume. A thirty inch pipe of smooth steel on present grade (4.75) will carry about 700 inches. It will have a circumference of about 9 1/8 feet. If slit open and made into semi-circular flume it would have, when running full, half the capacity of a six foot pipe. The 6-foot pipe would have about 5 and 3/5ths times the capacity of a three foot pipe, consequently the steel of a three-foot pipe when opened out into a semi-circular flume would carry over 2 1/2 times the quantity of water, without running flush full that it would if rolled into the form of a pipe. The velocity when flush full would be the same as that of a 6 foot pipe, because the hydraulic radius--the ratio of the bulk of water to the surface causing the friction or resistance--is the same for a pipe half full as for a pipe entirely full.

I am using throughout this report as far as possible round numbers, because more easily remembered than the exact figures with decimals generally given--a very silly practice because in all cases they must be discounted from five to fifteen per cent for various errors that can hardly be avoided in practice.

Such a flume can be easily kept covered with dip inside and out, needs little cleaning and if strained by settling can be jacked and hammered into shape with little permanent injury. If not too thin it will need little bracing. Its cost will depend, of course, upon the price of steel, transportation and delivery into place, as well as skill in putting together. But this can be figured quite as closely (if not more so) as the cost of concrete ditch or pipe or steel pipe.

Much of the cost of a new aqueduct of any type should be offset by the value of the plank of the flume box. Thousands of these must still be in good order and when run through the planing mill should furnish a large percentage of the finest finishing lumber. Most of the other lumber will also be valuable for many purposes.

To rebuild or repair the old flume is a question depending entirely on your point of view, with which I have really nothing to do. Nevertheless I must say that the present leakage from the flume can be practically stopped and that with care it will be good for many years. But someone having a vital interest in it must see that the party in charge attends strictly to his business.

I did not take the time to watch the Indians for it would take several days, but it was plain that they were wasting much water. I saw one stream running about six inches which is all they are entitled to. There were several others running at the same time which I could not estimate on account of the speed of the chauffeur which I could not restrain in spite of many attempts. The history of irrigation shows that any mortal, whatever his color, will waste from five to twenty times the water he needs whenever he is getting it for nothing. The chances are many to one that the Indians do not take the trouble to close the gates at night and that they never cultivate, but in the old time style pour on more water whenever the ground begins to bake on the surface as it surely will where more water takes the place of cultivation. Six inches used in modern style should suffice for all the land I saw under cultivation and the department will compel the Indians to use water rightly, if properly brought to its attention, by someone who understands scientific handling of water. The flume walker should camp on the ground a few days and night and get an estimate of exactly what they are doing.

From the head of flume to the South Fork of the San Diego River I found a loss of over two inches in depth--probably over 100 million's inches. The leakage from flume was wholly insufficient to account for 1/10 of that loss. Evaporation is now a well known factor so that nothing but waste seems a satisfactory explanation of most of the loss. If the Indian Agent knows anything of irrigation or can spend a day with anyone who does understand it, he will soon stop this.

One of the worst forms of waste is allowing the winter water to go unused in dry winters and then make up for this in summer by using water almost every day. You have only to consider that the Upper Sacramento Valley (as well as many other places) raises its heavy crop of fruit solely on the rainfall stored in the ground in winter. For oranges and lemons, berries, alfalfa, etc., this is not enough, but for nearly all else it is when good cultivation is continuously kept up. Grapes, figs, apricots and prunes, corn, potatoes, beans, carrots, onions, and many other things will need water but twice after that. Peaches, pears, melons, squashes, etc., will not need it over three times. This is written from the standpoint of a practical irrigator and not a theorist. It is the regular practice in the best sections of Southern California and its recognition and the enforcement of its principles will save you many inches of water that might cost you considerable to replace. The department will aid you in this because it is modern conservation of resources while the old method is the worst sort of waste.

But this saving cannot be fully accomplished by allowing several irrigators to take separate streams all the time. Where they have adjoining lands they should build large connecting ditches and take a larger dead of water for a few hours only once in thirty, forty, or even fifty days. They will not believe this but if the Indian agent knows anything of irrigation he will compel them to. And if he is ignorant of it he can quickly be educated by seeing the work at Redlands, Riverside, Pomona and other places, and talking with the irrigators themselves.

The principle of this is very simple, the only difficult part being to understand why it took the white man so many years to discover it, and why so many have not yet discovered it when it has for years been practiced by all the successful irrigators in all the best parts of the West and especially in Southern California.

For instance, it was long the boast of El Cajon that it could raise good raisins without any irrigation. This was especially true after the long wet winter of 1883-4. The rainfall was 36 inches in El Cajon and its effect lasted fully two years, making a fair raisin crop in 1885 after a very poor rainfall in 1884-5. This was very plain in all parts of Southern California and oven corn, potatoes and other vegetables showed it plainly on all ground well cultivated.

This principle is applied by all intelligent irrigators and instead of allowing water to go to waste in winter it is stored in the ground so that much less is needed in summer. In many cases the rules of distribution are such as almost to compel a large use of water in winter. In others the rates are fixed so as to make it some inducement. In others a larger quantity of water is given for the same money.

The object in all cases is to save summer water. It is the same in effect and is always a great success.

A saving even greater than this is made by using large irrigating heads direct from the ditch instead of a continuous run of small, dribbling streams. If a man had 100 acres of alfalfa in 10 pieces of 10 acres each with 50 or even 100 inches of water he would not dream of irrigating the whole at once. He would irrigate about 10 acres a day. The case is no different if each 10 acres is owned by 10 different men. They simply pass it around either by agreement or under rules of a company. In practice there is no trouble and the custom is universal. For almost anything small heads are waste of labor as well as water, and in continuous flow a constant nuisance to the company. You should compel the Indians to follow these principles.

Wherever possible you should extend these principles to all consumers either directly or to subsidiary companies taking a large quantity and distributing it themselves. Some who have built large reservoirs may object but you can force it under the clause in contract making all delivery subject to rules of distribution. You could

do it without that, for nowhere does an inch of water mean continuous flow. It means always the equivalent of such a flow. No one of any sense wants one inch for 365 days any more than he wants 365 inches for one day. For some purposes the latter would be more valuable. Some will prefer 30 inches one day in a month, others 60 inches one day in two months, others 15 inches twice a month, etc. This works perfectly and makes no trouble. Parties are compelled by the rules to put in their orders so many days in advance so that the ditch tender or secretary can arrange his order book in such a way that no water is wasted and no consumer is left out. Most of your consumers would have to put in larger connections, but those who know the difference in results will be only too glad to make the change. Some will have to make cisterns for domestic use; but Riverside, Santa Ana, Pomona and many other places reached the height of prosperity in the same way. Proper irrigation will not only save you water but be a direct gain through the increased prosperity of the irrigators upon which the value of water mainly depends.

Repair of flume.

The flume can be made water tight with asphaltum in two ways. For several years the Hemet Company at San Jacinto ran the water from its dam several miles down the canyon in a flume made of the cheapest kind of bull pine cut in the hill above, full of rotten knots and the worst of all lumber to warp and twist. It was tight as a bottle from a coating of asphalt. I made no note of its thickness but it could not have averaged over 1/8 of an inch. On my own ditch I had 200 feet of old flume 6 feet wide of Oregon Pine very badly decayed and leaking several inches from only 200 feet. I made it perfectly tight by lining it with burlap dipped in hot asphalt. I kept no account of the cost but three men did the whole in one morning, made all the connections and washed the whole with brooms dipped in asphalt. The American Borax Co. had 15 acres of evaporating basins one foot deep at Daggett made in the same way with the worst of Flagstaff culled lumber for a base. As I furnished all their water for several years I watched them quite closely. They were perfectly tight, and a rain of three inches in three hours last September showed them still perfect though they had stood empty two years under a desert sun. Any leak can be quickly fixed, though it would be necessary to turn out the water and dry the points of contact.

With another board the flume would have ten feet of board measure to each running foot. A yard of burlap a yard wide, 9 square feet, would cover almost a running foot. Its cost varies from 7 to 9 cents a yard but in large quantity should be much cheaper.

The cost of dipping and laying depends so much on the delivery of the material at the proper points as well as the efficiency of the laborers that an estimate would be of little value. The asphaltum can best be handled with a melting tank run on a car in the flume. Mere melting is generally enough and little fuel is needed to keep it hot enough when once melted. It should not be too hot.

For a large order asphaltum should now be had for somewhere near \$9.50 a barrel. This would be about 50 cents a cubic foot. If the dipping and washing afterward took a layer 1/4 of an inch thick this would be about one cent a square foot or about \$528.00 a mile. But half this thickness should suffice for nearly all parts. The burlap should be carried over the edge of the top board and secured on the outer side with small staples instead of tacks or nails. The burlap should be dipped long enough to have the asphalt penetrate all the tissue and have a good coating on the under side as well as the upper and the joints well washed over with a broom. When well done this will last for many years with practically no leakage, and bad spots can be quickly repaired by a patch of the same material laid on warm and swept over with a broom dipped in melted asphaltum. It will outlast its wooden backing.

All of this work can of course be done in sections and at a time when little water is needed for irrigation. The flume should of course be dry but if the mere surface is dry the burlap lining will stick well enough. If the water does not get under it it makes no difference, but you must rely on its being held down by the weight of water in it.

A method much cheaper and quicker is to omit the burlap and merely wash the interior with the asphaltum. In this case the plank must be quite dry at all points of contact but this is a matter of only a few days depending on the weather and easily determined by trial.

On the greater part this will suffice very thin--a mere varnish on plank still good--but all cracks and end joints should be well filled and if extra bad should first be caulked. The caulking need not be perfect and is only to save asphaltum. Spots very bad can be patched with dipped burlap. If well fastened around the edges with small staples and well washed with asphaltum these will make almost no perceptible resistance to the flow of water.

All of this work can be done in sections at times when little water is needed below and in any case consumers will have to stand any delay for repairs unless such delay is unreasonable. Its cost will depend more on the efficiency of the men than on cost of material and you will save money by paying good wages to lively practical men instead of employing cheap and ignorant labor. Very few Indians or Mexicans are of any value for such work. For if anything breaks or goes wrong they are apt to sit down and wait for the boss to fix it. Both of these methods may be used according to condition of flume.

Of course this mending with asphaltum is a mere makeshift and I recommend it only as such because I do not yet know your point of view. If you had the city supply which was lost through the idiocy of some of your ancient predecessors and at a price which the city can well afford to pay, 8 to 10 cents per 1000 gallons, I would say build an aqueduct both new and permanent. This could be done in sections and spread over considerable time, but it would pay to begin very soon. Without the city supply it would not now be a business proposition, unless you wish to imitate the wisdom shown

by Mr. Spreckels for the past 20 years and are prepared to spend a large amount of cash and trust to Providence for the time when it will pay interest.

Increasing Water Supply.

With water as valuable as it is under the flume every inch you can get is worth struggling for. You ought to get at least \$1500 an inch with \$80 a year for maintenance. To afford this the consumers have only to reduce the price of their land to what it is worth without water. A man who pays a large price for dry land necessarily thinks he should get water for nearly nothing so as to make his land worth what he paid for it. You can force them to pay your price or go without for you have no surplus which you could be compelled to furnish under the law to one tendering rates fixed by supervisors. All not now consumed you need to carry ahead in the reservoirs. But you can always find a few inches more for anyone willing to pay for them. This was the way the old Riverside Company for years beat Tibbets who had 40 acres at the lower end of Magnolia Avenue. He got legal decisions in his favor but always with the proviso that the company had a surplus over the amount needed for established consumers. For some reason or other the company never had any of this in the ditch and his place remained some ten years a desert surrounded by orange groves. But they never had any trouble to find water for anyone willing to pay a good price for it.

Probably the quickest way to get a little more water would be to take in the South Fork again.---There must be a break in the side flume for none of it is running there. This is quite a good stream most of the year. It was part of the original plan to take up Chocolate Creek which was deemed good for about 10 inches in midsummer. But it has never been done. Both are now (June 13th) running at the trestles several inches and farther up there is more of course.

Streams like these can have the summer flow greatly increased and often doubled by cleaning out the channels in Spring. The flow is greatly retarded and the seepage and evaporating surface doubled or tripled by sand bars, dams of rubbish, stone, etc., left by the winter floods. One man going upstream with a mattock can cut these out very fast. In many of the smaller streams of Los Angeles and San Bernardino Counties this has long been practiced with great success and at very small cost. But it should be done early in spring as soon as the last floods are over so that the new channel can become puddled before the stream falls too low. If done in summer it generally means a loss of water instead of a gain.

Raising Reservoirs.

Whether the Guyamaca Reservoir will pay for raising again will depend entirely on the amount and number of years of overflow. I find that in two years since raising it before, the catchment and overflow have been about 3 3/4 billion gallons. But I can't yet find how near full the reservoir was at the time the overflow began. Without that I cannot tell the actual overflow above amount necessary to fill reservoir at present level. As we are liable at any time

to have several good years in succession or a long series of years alternately very good and very bad, it will probably pay to raise it some, as every foot now makes somewhere about 1000 acre feet. And an acre foot is about an inch to 14 1/4 acres--plenty for all deciduous fruits, grapes and most vegetables, and if properly used more than enough for most places not irrigated for profit.

La Mesa Reservoir.

As a dumping ground for surplus water from the flume, La Mesa Reservoir is of great value on account of its size and elevation. It should be raised to full capacity, but just how soon you can say better than I.

Lake Helena.

As the projector of the whole system I surveyed a dozen or more reservoir sites but never dreamed of trying the level on what is now called Lake Helena. As promotor, consulting engineer and director I took J. D. Schuyler, Wm. Ham Hall and 4 or 5 other engineers directly through it up Eagle Peak Grade without any of them suspecting it was a reservoir site.

Last week I passed through it with another engineer and we decided at once it was not worth examination. At least a quarter of a million of cost can be seen at first glance, assuming a safe foundation at present ground level. But of the actual foundation we can know nothing without a complete excavation clear across and up both sides costing thousands of dollars. The strain on a dam counts from its foundation. The danger from undercutting from the pressure must be counted in the same way no matter what means are used to puddle the bed or the contact. For a high dam no chances whatever can be taken, rotten granite will not do, and it must all be cut away to clean hard rock. Fissures in hard rock may leak without danger as they have for years in many dams, but in rotten granite cutting is certain under such pressure as there will be in a dam here. Nothing is in sight anywhere but loose rock bedded in rotten granite and whether it is ten, thirty, fifty or a hundred feet to hard rock only an actual excavation can show.

The Barret Dam Site on the Cottonwood was at first sight infinitely better than this, but I understand had been abandoned because about 100 feet of excavation fail to get through the decayed granite.

As no one but you can use Lake Helena you can for a while spend money to better advantage elsewhere.

There is a fair dam site on the upper part of Cedar Creek, with a possible flowage of 60 or 70 acres behind it and plenty of water in most years to fill it that is worth a careful examination.

Such small reservoirs were not considered when the flume was first planned, but water is now worth so much more that this one may be all right. But it must be remembered that a dam for a small

reservoir must be built with exactly the same care as for a large one and the great question--how many cubic feet of water back of the dam are you getting for so many cubic feet of material in the dam--cannot be avoided.

This one is probably the only small reservoir that it will pay to build. There are many places that look tempting but on examination they fail in amount of watershed, or need too high or too long a dam or have no visible foundation for one. There is so much uncertainty about any foundation not in plain sight that in case of a small reservoir you cannot afford to explore it properly.

T. S. Van Dyke H. E.

the City of San Diego. When the question came up a few years after, these rights had all been lost and so much water already sold to land owners that the flume people could not show any way of getting a surplus for a city of much size.

I have some modesty about advising others how to spend their money, but as you ask for my opinion on your general policy outside of the engineering, I do not hesitate to say that you should secure more water the first thing and let the question of new aqueduct wait until you are sure of the rights necessary to increase the supply. You can keep the present flume running for several years with good attention and asphaltum lining, while you concentrate your resources on more water. If you do not get more, it will not pay you to build even cement ditch on the whole line. You will not be in a position to talk to the City or to oppose others who want to sell to the City. But with another 1000 inches in sight by rights secured and the great advantage of the elevation of La Mesa Reservoir you should be able to secure the City before the new works are actually built. This valuable asset was lost by stupendous ignorance about water. If you should spend your energies on a new aqueduct first and depend on getting water afterwards, you would come very near making the same mistake.

I would advise the filing of a condemnation suit at once on all of Dye Valley, saying nothing of Santa Ysabel, but talking only of filling it from your own watershed. There is one right there that you can safely secure only by condemnation. The other land you might buy cheaper by keeping quiet. But you also might not. The first purchase no matter how quietly made, will give the thing away and prices will rise or some one may jump in to shut you out. A condemnation suit is more apt to reduce prices than it is to raise them for a jury will be sure to say that land abandoned for common farming after years of trial is not a subject for fancy prices and the owners know this right well.

But the greatest value of an immediate suit is the lien it will give you. It is like an attachment or mortgage. No transfer can affect your first right and when the lis pendens is filed no one can claim to be a bona fide purchaser no matter what the consideration.

This is well worth securing even to fill from the north fork of San Diego River which for several months generally runs a large stream far beyond the needs of the flume. But I think you will have little difficulty in securing the Santa Ysabel waters because you need only flood water, of no value to riparian owners below and of which there are very few that can use any.

At the rate San Diego's adjoining country is growing, it will soon pay to make a very high dam in Dye Valley and fill it from both streams.

I would not sell any more water for mere farming or fruit growing for anything like present prices. You can get twice or thrice as much by buying dry land on fine situations, cutting into residence tracts and selling at a good figure with water at 5¢ per 1000 gallons- about \$237.00 an inch a year. For beautifying dry property, this is the cheapest. The experience of irrigating

projects in California and the west generally has always been that by getting dry land and selling it wet you can get from twice to five times as much for the water than you can if the buyer owns the land and you merely sell the water. There is no place where the real solid value of the difference between land dry and land wet is so great as under your flume. You ought to pocket the whole difference for the owner of the dry land is taking no chances and no trouble. By showing a certainty of the water you can get it. They know very well that if you have the water, a safe conduit will be built in time because it will pay. But if you have not the water, the land owner of good sense will say Where is the inducement to build a new aqueduct? The city will look at it in the same way.

T. S. Van Dyke
H. E.

THE VAN DYKE RANCH

Located in the Silver Valley on the main lines of the Salt Lake and Santa Fe R.R.
WE MAKE A SPECIALTY OF FINE ALFALFA FOR HORSE FEED

July 9th, 1912.

Mr. F. S. Van Dyke,
Daggett, Calif.

My dear Mr. Van Dyke:

I don't suppose you are aware that the consumers under the Cuyamaca system applied to the Railroad Commission last February to force us to develop our system. We in turn turned around to the State Railroad Commission and asked them to establish rates. I am satisfied in my own mind that there will only be three rates made: one for domestic, one for wholesale domestic, and the other for irrigation water. This increase in rates will affect the water rights contracts as well, on the ground of public policy if for no other reason.

Now Mr. Van Dyke, if the first place, have you any definite knowledge as to the original cost of the San Diego flume or any part of said system? We have not the books of the San Diego Flume Company. The Railroad Commission will undoubtedly make an appraisal to ascertain the present value of the property, and have had their engineers here for the last three weeks for that purpose, and I expect them to establish such rates as will bring in a reasonable return upon that value after defraying

DAGGETT, California Nov. 7th -18 191

Dear Fletcher .

As the nearest stenographer is 90 miles away I have written this out myself .It is merely a record of all the important facts and not intended to be printed as it is .I have omitted all names, because those who made failures dont want it and the few friends the flume had are mostly dead and will care still less . I think it better without any, for it increases the length of your article which should be short, and because the reader will care little about them at this date.

If you need more particulars I will furnish them but I think it better not to have too many .

I hope you are free from the tribulations we had .I would like to look over your work ,but though feeling fine and being quite active for 76 I am tired of travel, and get all the exercise I need on the ranch, which is growing larger and better every year.

If you can ever get away long enough I should enjoy a visit from you .I dont have much company and every one with a machine is of course in an ungodly hurry .

If you find this what you want you can pay me what you please

T. S. Van Dyke

The original article returned at Mr JSVD's request Nov 9 1912

operating expenses and providing a fund for annual depreciation. Nothing less than this would be justice.

This hearing has been continued until the 22nd of August. Can you furnish me any information or pointers? If so, kindly write me a letter covering same, and would it be possible, if necessary, for you to be here at the hearing? In that case I should certainly be glad to pay you whatever was right for your services.

Very truly yours,

EF AK

Other Irrigation Enterprises .

The building of the Sweetwater dam was not inspired by the building of the San Diego River Flume although it was not begun until after the flume was under way and all rights to water acquired. ~~The parties building this~~

This was a very simple affair because it was only some six miles from the coast very low down and needed only a dam and a few miles of pipe. It was good only in seasons of flood and had no living ~~etc~~ streams available as ^{those} the few there were in the mountains sank long before reaching the reservoir.

The plan of the flume was quite the reverse .It was to begin at the very source of all the water that was available ~~is~~ in years of low rainfall ,unite the living streams and bring use them to save any draft on the reservoirs to the last day possible .Moreover the reservoirs were to be in the mountains where the only reliable rainfall is found and so be free from loss in transit over many miles of dry sandy bed in summer. This had to be brought nearly forty miles over rough country , with many tunnels through the hardest of granite , high above all the alleys , to reach the highest lands along the coast ~~on account of their freedom from frost~~ , which even at that time ^{were} ~~was~~ the best asset of any land in the State provided ^{they} ~~it~~ could be reached by water.

The man who build the Sweetwater Dam had plenty of money for all the work and several thousand acres of fine land below it and had plain sailing all the way ,except a bitterly contested law suit that held them up for ^{some} two years . It was a "hold up " in another sense with the ignorance of two San Diego Juries of very respectable men to back them. At the price these juries allowed ~~for~~ for land fit only for sheep range ,the rest of the county would ~~be we~~ have been worth more than the entire taxable assessed value of the whole state . But in spite of it the enterprise has been a success.

The starting of the flume set some others to thinking/ The first move was at what is called the Lower Otay dam ,that went out ^{some two years ago}

out of the San Diego River at the head of Mission Valley where the river flows only over a rocky bed. This was to be run into a reservoir and from there pumped upon the mesa back of San Diego pumped to the top of the mesa back of San Diego. It could also water Mission Valley. I don't know how much was spent on it, but it was several thousand dollars, which of course they had to spend before learning what every old settler could have told them that in seven or eight years out of ten the river runs there only in winter and that in four or five out of ten it does not run there at all and even when it does that it is for such a short time in most years that very little could be caught without a very large and expensive aqueduct. Moreover pumping to the top of the mesa would hardly have justified the expense while the lands in Mission Valley were too low and frosty to be of much value even for deciduous fruits. The project was suddenly abandoned.

A little later some parties filed on two reservoir sites mentioned above as useful to catch waste water from the San Luis River system in case it should be taken ~~across~~ across Escondido and San Marcos, while in wet winters they would catch considerable water from ~~their~~ ^{the} own watersheds. A condemnation suit was filed on one to hold the land but no money was ever spent as it was not certain that they would be of little value without the water from the San Luis. Both are valuable for that purpose.

In 1889 ~~The Paso water Co. was formed to take the Waters of Santa Ysabel Creek which the Flume Company had neglected to secure by doing work to hold the filing that had been made on it four years before, also the water of Santa Maria Creek where there is a good reservoir site to catch it and Paso Creek which has considerable good water shed of its own. A large dam was to be built in Paso Valley where there is a good site and Santa Maria Creek was to be tuned in several miles below in to the aqueduct leading from it. About a thousand acres had been secured by J.M. Woods who had lived there, and he asked me to help him on it as soon as he found I was out of the flume company.~~

~~other Enterprises page 547~~
~~when it might pay if the country along the mesa would justify it. But they were quite certain to go dry in at least six four years out of ten and very rarely get completely filled. So the scheme was abandoned without spending any money.~~

The rainfall at Fallbrook is so good and the land and climate so well adapted to fine fruit growing that in 1887 a company was formed to take the water of Temecula Creek—the head of the Santa Margarita River—eleven miles distant, with a fall of about nine feet to the mile, on an easy line which would bring it over most all of the Fallbrook Country. Temecula Creek was the steadiest of all the streams of the county with the largest minimum flow in summer. ^{the} With the large rainfall of Fallbrook country it would alone irrigate some four thousand acres by using it in winter to soak the ground. This water could then be dropped over four hundred feet for power if needed. Temecula Valley is an immense basin with a narrow dam site of good rock. But it is too big for its watershed and with a dam sixty five feet high would not fill more than once in several years. But with a dam at thirty feet it would hold enough to irrigate 10,000 ~~more~~ acres more ^{than} the creek alone. For a small proposition it was the best in the county. Some ten thousand dollars were spent on getting it into shape for construction. But the projectors met the same difficulty that was met in the flume. The land owners, with one small exception would do nothing, and claimed that their land was worth more because it did not need irrigation. And the owner of the Santa Margarita ranch who had some ten thousand acres under the system adjoining Fallbrook, all of the finest fruitland, would not listen to anything but claimed that whole fruit growing business in California was a fraud good only to break up settlers and leave ^{them} without any money for decent farming. As the parties well knew that every irrigation project in the U.S. that up to that time had built irrigation work without having a large tract of land had been a failure they abandoned the proposition. Carried out it would have made a settlement equal in prosperity to anything in the adjoining counties.

About this time a company was formed to build a dam below the head of San Felipe canyon over the divide from Warner's ranch. This dam was to perform the wonderful feat of raising all the under flow of the San Felipe creek and at the same time make a reservoir for the flood water. ~~It was~~ This water was to be taken down to a tract of land called Boreg ^{Valley} Bay on the desert. ~~Such a dam is an impossibility anywhere.~~ The water shed was wholly insufficient in size, and being on the desert slope, in rainfall also, it was useless to tell them of this and they seemed actually sincere. They got considerable money put into it and spent it on the work. It collapsed of course, because there was nothing in it at that time even if it had had plenty of water and cheap water too. They could not at that time have sold anything on the desert at any price *that would pay for even the conduit.*

None of these ~~sk~~ schemes were fakes as far as I could make out. I knew the parties in all of them and was in all their offices from time to time and talked with them on the street a great deal. Every one of them seemed honestly to believe that they had a fortune by the collar. And here is something I must tell you. *one day I* I was in the San Felipe ^{office} ~~office~~ when a letter came in from the ^{San} ~~front~~ *Felipe Valley* and lit up each countenance with such a smile of hope as San Diego Bay itself was never able to raise. It was short and sweet.

"We have struck moist gravel at 84 feet. All feel much encouraged."

This is no joke but a fact.

In 1889 some parties organized the Pano Water Co. some ^{twelve} hundred acres had been secured in different ways as a reservoir site and the idea was to carry the water to Linda Vista. ^{Two} parties with plenty of moco looked it over and decided to buy enough land in Linda Vista to make it a success. They bought half the stock of the Co/ for fifty thousand dollars, and paid five thousand down and were to pay in the rest as needed. ^{they} ~~to~~ were to go right ahead with the surveys and ~~and~~ ^{they} as soon as ~~as~~ could get options on the big tracts in Linda Vista for which they would furnish the money. ^{almost} Some of the plan leaked out in San Diego and you can imagine

the rest. In a few days they demanded a return of the money claiming it was only a loan and finally brought suit to recover it. The company counterclaimed for \$20,000 damages for failure to pay for the stock, the contract for which was in writing and signed by both. The company got judgment for the twenty thousand and they paid five thousand more to get out of the judgment.

~~sk~~ The company tried to run things too fast on a collapsed boom and soon got forty thousand dollars in debt. This compelled them to sell out to the Linda Vista Irrigation District for \$165,000 in bonds of the district. With this they paid all debts and made a dividend in bonds and cash that repaid all the stock holders about twice what they had invested.

The Irrigation District boom got under way about this time and one was formed at Linda Vista, another at Fallbrook, Escondido and Jamacha, Perris. Escondido got through by finding a contractor who took the contract at a price that meant a heavy discount on the bonds and as the work was not very costly it was completed in that way. The others failed as did most all others in the state mostly from too big notions, the apathy and opposition of most of the land owners, the lack of enough actual settlers on the lands and many defects in the law, most of which have since been remedied.

Somewhere about 1893 or 1894 George Chaffee who afterward built the Imperial Canal and L.M. Holt who had founded Pomona years before were struck with the value of the Fallbrook project and tried to revive it. They intended to increase the flow of Temecula Creek by a reservoir on the north side of Mount Palomar. They could have made a success of this or by a dam at the head of Temecula Canyon. But they struck the same old snag with the land owners ~~did~~ that the first promoters did and after spending considerable money on it they concluded that *San Diego County was good but perfectly slow, as bankers sometimes say of borrowers.*

The Building Of The San Diego Flume

Introduction .

As the only survivor of those who ~~started and helped plan~~ started The San Diego Flume and completed all the hardest part of the work I have been asked ~~as the only~~ to give a detailed account of how the money was raised and expended, what difficulties we met ~~and overcame~~, and how it afterward got into trouble, ~~when it passed into other hands~~.

I have talked over the subject so many times since and laughed over so many of the objections we had to meet from so many of those ~~it~~ was intended to benefit that my memory is very clear except as to exact dates and some of the ~~numbers~~ figures given. But the figures are so very approximate that a little variance amounts to nothing in comparison with the whole .

The miners Inch of water that I use in this account is the old "Miner's inch" under four inch pressure. This is the only inch so far recognized in Southern California .It is very convenient because it is almost exactly one fiftieth of a cubic foot a second which is the standard measurement of the United States .It makes just an inch deep an hour on an acre or ~~an~~ two feet of water, called an acre foot, in twenty four hours , easily figured for any quantity without any fractions. It is in use all over the southern counties and perfectly well known with all water rights based on it . Some twenty years ago one of the law tinkering cranks with which legislatures are cursed all over ~~our~~ our country had it changed to the ~~Colorado~~ ^{an} inch ~~which is~~ under a six inch pressure .This makes fractions in almost any calculation for ~~irrigating~~ depth of water in irrigating and is not recognized by irrigators anywhere so far as I can learn. The genius who did this did not know enough about his business to have the appropriation law changed to correspond. So that ~~sath e-lv-l~~ ^{as the} law now stands you must state in any notice of ~~appra~~ appropriation a certain quantity under four inch pressure while the other law makes it six inch the legal

This can be omitted

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standard. This is a ^{cubic} foot and a ^{half} ~~quarter~~ a minute whereas the four inch pressure is a foot and a quarter . There was no reason whatever for changing it and it is not likely that it will ever be adopted in practice .

I have enlarged ~~perhaps too much~~ on the great possibilities of the ~~mesa~~ ^{mesa} mesa which lines the whole lower coast line of San Diego county . But I have done it because I suspect very strongly that it is not yet fully appreciated by ~~most~~ of the residents of the county . While cut in many places with ravines like the best part of Southern California it contains fully ^{hundred} ~~to~~ three thousand acres . Water enough for ~~nearly~~ half of this can be stored to supplement the ~~winter~~ ^{winter} and spring flow of the streams if the winter water is ~~used~~ ^{is used to} put the ground in the same condition it would be after a winter of ~~excessive~~ ^{good} rainfall along the coast and the ground then kept well cultivated . There is not water enough to keep it all in lemons and oranges but there are many things like almonds and olives that need very little water that will certainly be grown at a fair profit. Much of the remaining ~~creage~~ ^{creage} will be attached to the ~~irrigated~~ irrigated pieces as they are in other sections for raising ~~grain~~ grain and for pasturage in rainy ~~winter~~ winters . Many other pieces will be used for "dry farming" by people who will work on the irrigated tracts , just as elsewhere . Southern California averages about one person to the acre on the irrigated lands and there is good reason to believe that if all the reservoirs are built the same will happen on ~~nearly~~ half of this mesa ~~in~~ time .

All this does not mean that there will always be a full apply of water. Every part of the temperate zone has to endure an occasional drought and Southern California is no exception. But the experience ~~of~~ in the nineties—the worst known since the earliest ~~set~~ settlement of California — proved that in most all parts and especially in the cool sections along the coast the effect is not very serious, where thorough cultivation is kept up all through the season . The small amount of water needed to carry the trees and vines and even produce considerable fruit was a great surprise to the oldest growers .

In troduction 3

I have also been asked to give some account of other irrigation enterprises that were begun after surveys on the flume line showed that it was possible to bring water from the mountains upon the highlands along the coast and the reasons why they were not carried out. Also the earliest attempts at irrigation in San Diego County.

Circumstances enabled me to ^{acquire} ~~do~~ at practically no expense an amount of information about all the water resources of the county that could not have been otherwise obtained without an amount of time and money that at that time would not have been justified. From earliest boyhood I loved the country far better than the city and have spent over half my life in it from choice. I was always interested in everything that ran or swam, flew or grew. Consequently when my health and voice both failed in business and I had to come to California to get an out of door life in a warm climate, in-stead of enquiring about the best hotel I asked the way th to the most unsettled part of the country where there was plenty of game, trees, flowers and evrything ~~most attractive plenty~~ that was wild. Los Angeles people told me that the interior of San Diego County was exactly what I was looking for and that the climate was for my purpose the very best in Southern California.

I was more than pleased with it and for ten years made it my home. During this time I ~~ha~~ hunted and travelled over most all of it outside of the desert ~~on the east out side~~. Besides the natural attractions which were very great on account of their novelty I became greatly interested in the results of such little irrigation as there was, as it also was a great novelty ~~as~~ because I had always been fond of gardening from a boy and always interested in seeing anything grow even where I had nothing to do with it myself.

From this I soon became in-terested in the sources of water and it did not take me long to discover that there was far more water available than was generally supposed ~~by those who~~

4 ~~could~~ ^{into} Introduction 4
~~to escape the attractions of San Diego Bay.~~

On fishing trips into the mountains of the adjoining counties I took plenty of time to see what they were doing with the water from the fine streams where the trout ^{le} fished through the water at almost every cast of the hook. Visits to the settlements then starting with irrigation as a ^{basis} and on the highlands instead of the bottom lands along the rivers to which all the early irrigation had been confined, opened up to me a new world. I found ~~not~~ ^{only} an entirely different class of people from any I had ever seen cultivating the soil before. It was plain that most all of them were well to do and that while some had come for their health most of them had not. Still more surprising was the fact that many ~~of them~~ of them said they could not yet make any money out of it. That if in time they could get a good market for what they raised so much the better, but if they could not ~~hang the odds~~, they were ~~going to be~~ ^{ing to be} going to have a fine home anyhow and be surrounded with neighbors of a kind worth having.

As I had found the climate of San Diego County so superior for comfort and freedom in so many places from frost, which is the bane of most fruit ~~growing~~ ^{growing}, this set me to thinking about what would happen if the best lands along the coast could get a good water supply. ~~It~~ ^{It} was plain that ~~there~~ ^{their} remoteness would for-bid at that time any such expense as would be necessary. ~~fert~~ But at the rate settlement on such lands was going ahead in the adjoining counties and the prices at which the lands were readily sold and immediately settled how long would this remoteness last?

Up to 1885, ten years after I came to California, there was nothing in the whole of San Diego County that would now be dignified with the name of irrigation ~~works~~ ^{works}. There were windmills ~~in a few places~~ for the watering of gardens and small orchards with many small streams and springs used for the same purpose with some winter irrigation for grain from the San Jacinto river,

Introduction .

now included in Riverside County. But in what is now San Diego County there was nothing that could properly be called even a ditch except one in San Pasqual Valley which was taken out of the San Dieguito River by land owners there in 1877. This ^{was} for the spring irrigation of ~~different tracts~~ of alfalfa, but most of the time it ran well into the summer and the results were very profitable as it was the first alfalfa raised in the present county, except a few small garden patches. There was no attempt anywhere to get water on any land except the low bottom lands which were too frosty ~~for any certainty with fruit of any kind~~ for fruit of any market value, too many crops being lost with spring frost. A few artesian wells were bored in the river bottoms near the coast and some of them flowed for a few days or even weeks but were finally choked with sand that could not then be controlled even where tolerably coarse.

By 1885 I had found about every reservoir in the county that was high enough to reach the ^{high} coast lands with several good ones that were too low. I could not afford any regular survey of anything but was confined to the barometer and hand level. But by going over the ground often enough I could get a very fair idea of the capacity of the reservoir and find a clear outlet to the coast mesas. Some were also too small to justify ^{the} expense which ~~as~~ they will later on, and the main object was to find out what could be ~~done~~ built then with land values low, markets almost unknown and San Diego County even less known to the outside world.

About all I then knew about water was that it would run down hill if given a fair chance and I knew little about cost of dams and aqueducts. But one thing was so obvious that it needed little figuring or knowledge of construction. That was that the flume ^{though not the largest} system on the San Diego river was far and away the cheapest of all that were worth building at that time. This was large enough and could have been built within the estimates afterward made for a million dollars. But cost was increased ~~by the~~ nearly forty percent by the rise in all materials of construction and all

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and all incidentals, even to reservoir land, by the great boom of those days.

This system had some special advantages over most others. 1st Three other good streams could be turned into the San Diego River at moderate cost and three other reservoirs could be used to catch water from each. ~~Two of the best of them~~

2nd . It commanded thousands of acres in El Cajon, the largest of the coast valleys and the nearest to San Diego City. # 3 It commanded the entire highland between the city and El Cajon. 4 ^{What} ~~that~~ was very important, it ~~reached~~ reached at its lower end a fine reservoir site of about a hundred acres, which ~~would catch~~ could always be filled with winter water and also save at all times any surplus water in the flume.

5 It reached all the highlands within miles of the city as well as the city itself and everywhere under heavy pressure from the end reservoir which could carry a steady supply for months for the city in case of any accident to the main line.

Many may think I have exaggerated the apathy and ignorance of the people in regard to water. But it is a fact that of those who built up San Diego to a city of twenty ~~one thousand~~ five thousand, as it was when the great boom broke, scarcely one in a hundred ~~neither~~ knew or cared ^{whether} there was ~~anything~~ a foot of arable land within a hundred miles. Many came for the climate only which was well worth coming for. But the great majority came only

on account of the bay which they were sure would make a great commercial city there. I can give but one instance out of the many. One morning in May after the boom collapsed and people were leaving by the score every day I was walking on the wharf with W.H.H. Fuller. He was a lawyer from Chicago who had given up his business there and had opened an office in San Diego some two years before. Suddenly he said as he discovered a new mowing machine just unloaded from the steamer

"Why, there is a mowing machine. Well now that is encouraging isn't it?"

"That's nothing. There are at least two hundred of them running now this minute back in the country," said I. He wheeled around in a ~~hurry~~ hurry, stared me out of countenance ~~almost~~ and then exclaimed

"What? Where?"

[assumed 1919]
CSM

DYE CANYON.

Jaggett, Dec. 27/18

Dear Fletcher

I will get the details asked for in your last in a few days. But I must take some time to think ^{them} over. I want to be sure to get them right. There are some amusing things that I did not put in my ~~last~~ first article, as I did not want to fill it to much with stuff you might not use.

I have no good photos such as you probably want & cannot get one without a trip to San Bernardino or L. A. which I do not like to make in winter. But I have the original of the enclosed which as far as the face goes is the best I ever had. It was taken by an agent of Recreation two years ago - he preferring the position surroundings &c.

I hope some time to accept your kind invitation to make you a visit, but summer would suit me better than winter
T. S. Van Dyke

DEC 26 1918

This was included in the flume system from the beginning along with Pine Valley and the head of the Sweetwater on the south side of the San Diego River.

Dye Valley has the advantage of solid bed rock in plain sight at the dam site for 200 feet, with a width of only a few feet at the bottom. Its own water shed is so small that there is no big stream to fight and no sand wash to fill it. A rock fill dam- the cheapest type of stone dam- can be very easily made and maintained with safety. Great quantities of loose rock lie on the adjacent hillsides, easily raised and swung into place with wire cables. Up to 25 or 30 feet a dam will cost little. It then becomes longer. But as the principal part of the cost of most dams is in the first, third, or fourth, a high dam here will cost less in the end than many good dams of the same height. Such a dam can be easily raised as needed and one of 40 or 50 feet will furnish all the water you will need for several years. A contour of this was made years ago but I cannot find it in the records of the flume Company, although it is in the index of maps. It is of little importance however because it will certainly pay you to secure the site. As the valley is so cold in summer nights that all farming has been abandoned and as no one else can use it, you should get it for \$10,00 an acre. But as soon as it is suspected that you want it, the price will of course rise.

In a condemnation suit, you can get all the evidence you want that it is good only for cattle range and of no value as a reservoir to anyone else.

You can drop the water in a few miles of heavy fall through a rocky channel directly into the San Diego River above head of flume. Dye Canyon Reservoir can be filled from the north fork of the San Diego River and I would not intimate that you have any other intention.

But the really valuable source is the Santa Ysabel creek, the head of the San Dieguito or Bernardo River. This stream has the best average flow of any of the mountain streams of the county, especially in summer when it will rarely average less than 200 inches for the season. In fall and winter, it runs nearly twice this amount without waiting for the winter rains. After good rains, it flows a large and steady stream well into June. It can be brought into Dye Valley by about five miles of conduit with a fall of some 20 feet per mile, though this line was never actually run out, because it was so plain. Properly handled this should give you 1500 inches for six months in most years with much more in years of heavy rain fall. In a series of short winter rains, it will be your main reliance.

This was intended for the main supply for the Flume- the Cuyamaca dam being built first because the cheapest. New parties who came into the flume were so pleased with the Cuyamaca that they thought they had water enough for the whole coast region, refused to listen to my protests that there was nothing of the sort, and threw away all the rights I had secured on this stream as well as on Pine Valley and the head of the Sweetwater in 1885 ahead of every one else. This was my reason for selling my stock as quickly as possible for I knew it meant just what has happened- the loss of the supply of

the City of San Diego. When the question came up a few years after, these rights had all been lost and so much water already sold to land owners that the flume people could not show any way of getting a surplus for a city of much size.

I have some modesty about advising others how to spend their money, but as you ask for my opinion on your general policy outside of the engineering, I do not hesitate to say that you should secure more water the first thing and let the question of new aqueduct wait until you are sure of the rights necessary to increase the supply. You can keep the present flume running for several years with good attention and asphaltum lining, while you concentrate your resources on more water. If you do not get more, it will not pay you to build even cement ditch on the whole line. You will not be in a position to talk to the City or to oppose others who want to sell to the City. But with another 1000 inches in sight by rights secured and the great advantage of the elevation of La Mesa Reservoir you should be able to secure the City before the new works are actually built. This valuable asset was lost by stupendous ignorance about water. If you should spend your energies on a new aqueduct first and depend on getting water afterwards, you would come very near making the same mistake.

I would advise the filing of a condemnation suit at once on all of Dye Valley, saying nothing of Santa Ysabel, but talking only of filling it from your own watershed. There is one right there that you can safely secure only by condemnation. The other land you might buy cheaper by keeping quiet. But you also might not. The first purchase no matter how quietly made, will give the thing away and prices will rise or some one may jump in to shut you out. A condemnation suit is more apt to reduce prices than it is to raise them for a jury will be sure to say that land abandoned for common farming after years of trial is not a subject for fancy prices and the owners know this right well.

But the greatest value of an immediate suit is the lien it will give you. It is like an attachment or mortgage. No transfer can affect your first right and when the lis pendens is filed no one can claim to be a bona fide purchaser no matter what the consideration.

This is well worth securing even to fill from the north fork of San Diego River which for several months generally runs a large stream far beyond the needs of the flume. But I think you will have little difficulty in securing the Santa Ysabel waters because you need only flood water, of no value to riparian owners below and of which there are very few that can use any.

At the rate San Diego's adjoining country is growing, it will soon pay to make a very high dam in Dye Valley and fill it from both streams.

I would not sell any more water for mere farming or fruit growing for anything like present prices. You can get twice or thrice as much by buying dry land on fine situations, cutting into residence tracts and selling at a good figure with water at 5¢ per 1000 gallons- about \$237.00 an inch a year. For beautifying dry property, this is the cheapest. The experience of allirrigating

projects in California and the west generally has always been that by getting dry land and selling it wet you can get from twice to five times as much for the water than you can if the buyer owns the land and you merely sell the water. There is no place where the real solid value of the difference between land dry and land wet is so great as under your flume. You ought to pocket the whole difference for the owner of the dry land is taking no chances and no trouble. By showing a certainty of the water you can get it. They know very well that if you have the water, a safe conduit will be built in time because it will pay. But if you have not the water, the land owner of good sense will say Where is the inducement to build a new aqueduct? The city will look at it in the same way.

T. S. Van Dyke H.E.

THE VAN DYKE RANCH

LOCATED IN THE SILVER VALLEY ON THE MAIN LINES OF THE SALT LAKE AND SANTA FE RAILROADS

WE MAKE A SPECIALTY OF FINE ALFALFA FOR HORSE FEED

DAGGETT, CALIFORNIA

Dear Fletcher .

You may send me back what I wrote for you before .I have followed your ideas stated in your last letter and have it much more full than the first — some forty five pages .

I have of course duplicated most all I sent you before, but there may be some things in it that I have over looked or ^{which may be} stated better .

That was meant merely as a basis of facts for you to rewrite according to the size of your publication which I imagined was to be a small pamphlet .What I have written now will save you that trouble to a great extent .

How soon do you want it? I want to keep it on hand as long as convenient for correction ,which is a job that should never be done in haste if it can be avoided .

Send me back that last photo I sent you when you get it copied. It is the only one I have that is good for much.

Dix is sending you the State Engineer's report made in '88. It is quite accurate but he has some mistakes .The amount for which stock was sold he gives at \$40,000. It was more than twice that but I cannot remember the exact amount.

T. S. Van Dyke

FEB 17 1919

THE VAN DYKE RANCH

LOCATED IN THE SILVER VALLEY ON THE MAIN LINES OF THE SALT LAKE AND SANTA FE RAILROADS

WE MAKE A SPECIALTY OF FINE ALFALFA FOR HORSE FEED

DAGGETT, CALIFORNIA

May 2 / 19

Dear Fletcher

Here is the main part of that article, carefully corrected. But much more can always be done in the proof sheets. Strike out whatever you think impolitic, undignified or needless & go it over carefully. Then send me the proofs.

I have been very sick for 6 weeks with a bilious attack, but am all right now though very weak. Otherwise you would have had all before this. The rest is short & will be sent soon — on time. We must not make a careless job of this for even the most ignorant reader is impressed by literary dignity, compactness & the general effect as a combined whole, although he may not know the reason. Go over it carefully two or three times & cut out whatever does not accord with your policy.

T. S. Van Dyke

The first work actually done on the San Diego flume was in April 1885. ~~At that time~~ The proposition had been outlined to ^{S. H.} B. F. Marlette of Los Angeles who had been surveyor General of the State and ~~had~~ had much experience in building and planning waterworks, and ~~also~~ ^{to} Bayard Smith of Oakland in Los Angeles County and W. E. Robinson of San Diego, both of whom had unbounded confidence in the ultimate results of uniting water and land in Southern California. Gen. Marlette had spent ^{most of his life} his north in the northern part of the state where they had long been bragging about their vast amount of rich land and abundant rainfall, and ~~privately~~ advising the dwellers in the south to abandon the miserable "cow counties", as they were ^{then} called, and ^{go} ~~come~~ up there, where the land was all the more valuable because it did not need irrigation.

But after coming to Los Angeles and seeing the wonderful ~~go~~ growth on the irrigated sections, the vastly different type of settlers from those in the north, ~~and~~ the effect ~~it was having~~ on the growth of Los Angeles itself, and comparing the settlement with ~~what~~ what they called prosperity and growth up north—sleepy farming communities widely scattered—he thought what we told him of San Diego County worth investigating. Robinson had hunted with me over ^{some of} the best parts of the county ~~many times~~ and ^{was} being familiar with Los Angeles County, and the results of irrigation on the warm uplands there and in San Bernardino County, ^{He} became an enthusiast at once when I told him that while there was less water in San Diego County, ~~smaller tracts to~~ ~~put it on,~~ and that the expense would be greater, but that the land was much ~~warmer or~~ more free from frost and better for almost all kinds of fruit, he lost no time in getting to work. He was a "rustler" of ancient lineage and, as a promoter, hard to equal. ~~in the first stages of a game, though he needed a balance wheel when the scent of big money became too strong on the trail.~~

Robinson said he had \$6,000 in ready cash which he was willing to gamble on it. ~~and~~ Marlette had about the same. ~~Smith~~ Smith had an elegant ranch about where the Huntington Hotel now is, but relied more on raising money from wealthy friends, than on the income of the ranch. I agreed to put in my time against that and we at

at once started accurate surveys to test the lines I had been compelled to locate with only barometer and hand level. ~~Gen.~~ Marlette did ^{some} most of this ~~work himself~~ with our ~~assistance~~ assistance, but the final location ~~line~~ of the flume took several surveys to determine the most economical line, as it had to reach the La Mesa Reservoir site, and ~~had~~ could not well start above the mouth of Boulder Creek.

All this ~~took~~ with other surveys on the branch lines took about all the money Marlette and Robinson had. Smith ~~soon~~ found that no one would listen ^{to} ~~about~~ anything ^{about} in San Diego and ~~soon~~ dropped out. Summer dragged through with little more work than making ~~the~~ filings of appropriation on all branches outside of the San Diego River watershed, even to two streams from the north side of Volcan Mountain that belonged to the San Luis river, but which could be turned into the Santa Ysabel and so into the San Diego. All these filings were ahead of anything on the Tia Juana, Sweetwater, San Diego and Santa Ysabel and San Luis Rivers and under a decision of the Supreme Court, ^{were} would hold for years if work ~~was~~ ^{such hydraulic engineering} continued on the main line. Much of this year was spent in studying the water law of the state, in making estimates of cost and trying to interest ~~some~~ others in the proposition ~~and they~~.

We did not expect at that stage of the game to interest large capital. But there were many in San Diego with money enough to help us carry it along to a point where it would. Just then was the greatest chance for a big deal with little money that San Diego has ever seen. ~~or ever will see and nothing could have done more to help out the~~ ^{work} city. It was very easily handled with no trouble about titles and plenty of time could be had on most of the payments. The Ex-Mission Rancho ^{forming} ~~just back~~ of the city and extending from the Sweetwater to some miles beyond Mission Valley was then in partition. All the rights of different owners ~~two or three dozen of more~~ had been adjusted by the court, no appeal taken, and the referees appointed to divide ~~up~~ the land. Practically all of this great tract was then regarded by its owners as fit only for stock range, and very poor at that. But ^{on account of the dense} the one part of it on which no stock had ever been seen, because there

growth of heavy brush

never was grass enough for more than the rabbits, was the strip lying between San Diego and ^{El} ~~San~~ Cajon, with Chollas Valley on the one side and Mission Valley on the other, some ten thousand acres. ~~It was well known to us that~~ none of the large owners wanted it and ~~we~~ actually feared they would be compelled to take it, as in partition the poorest land is never given to small owners, but is attached to the good land given to large owners — the tail with the hide.

Now at that time the selling price of an undivided interest in the ranch was about four dollars an acre. The large owners would have been only too glad to quitclaim, ~~to any one~~ before the final decree, to any one who wanted no more, the whole of that ten thousand acres. It was almost certain that in the partition the referees would grade that tract at ~~at most~~ only ~~one~~ half the value of an average acre. ~~And~~ they actually did so. So that a five thousand acre interest would have secured the whole ten thousand.

Moreover the land from Chollas Valley to the Sweetwater including most of Spring Valley, all of ~~Lemon Grove~~ what is now Lemon Grove, and a lot more of good upland could have been bought as a whole for about seven dollars an acre after the partition, as the best of it was then only very poor sheep range. ~~But the ten thousand acres would have been enough to make a fortune for half a dozen people with plenty of water.~~ But our plan did not stop there. Coronado Beach could then have been bought for far less than it was a year afterward, and with a full supply of irrigating water piped across the Bay could, by proper handling, have ^{quickly} made a far better settlement than it has.

By running a pipe down Fifth Street first we could have compelled the City Water Co. to buy water from us. And if they objected, a pipe down ^{streets} Fourth and Third the next year would have taken the heart out of their business. Cheap water for sprinkling would have taken the rest of the town, as it could have been furnished at a ^{good} profit for less than it cost the old company to pump it at Old Town. The amount used in ^{the whole city} at that time was ^{only} about 65,000 gallons a day on ^{ac-} count of the high rates, and the rates were high because of the ^{high} lift. This ^{amount} was only about five inches a day. Five times the quantity at half the cost for taps and one fourth for sprinkling would have ^{made}

a good profit for the flume, ~~and~~ with practically no draft on its supply. No city would refuse a franchise to a company like that and when we asked for it a year later it was granted without ~~a~~ question. ~~But~~ ~~not~~ because anyone believed it could be done, but because it could do no harm and might possibly aid in attracting some one to put an ~~extra~~ extra dollar in circulation.

Besides all this was the Cajon Valley which could be run around, as it afterward was, ^{it was believed that} and the owners ^{would part of} compelled to give half their land for water on the rest. ⁱⁿ Success years proved that this would have been a blessing in disguise, instead of a highway robbery, as the proposal was later on considered.

Robinson and I spent most of the fall of 1885 in trying to find some one who would even ~~go so far as to~~ prick up his ears at the mention of such possibilities. ^{almost} But every ear was stone deaf. Marlette had no better luck farther north, for as one man from San Francisco told us

"I don't doubt your word in the least but let me tell you that San Diego has got the blackest eye of any spot in the known world."

During this time J.D. Schuyler, the noted engineer who built the Sweetwater dam, told me he would like to look over the proposition. I spent four days with him going over it and he recommended it so highly that W.E. Fitzhugh, assistant State Engineer wanted to see it. He ~~was~~ was so pleased with it that ~~he~~ he told the State Engineer himself about it and later on he came down and went over it with me. They all concurred in the opinion that there was water enough to make ~~a garden~~ ^{a garden} of the whole territory, such as Los Angeles was, and that three thousand inches would do ^{it} the business with such a ~~no~~ provision for an occasional failure of rainfall as all irrigating companies have to have in every part of the world.

This was soon well known about the city but there was no corresponding ~~elevation~~ elevation of the San Diego ear. In the meantime Robinson and ~~me~~ ^I, with our office on the curbstone, had for months as our only consolation the fact that no one attempted to jump the rights we had ^{ac-}quired by appropriation, slim as they were. But this encouragement was sadly dimmed by the reflection that there was no danger of any ^{body}

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Jumping anything in San Diego county at that time.

Late in the fall when we had discovered ~~that cussing and discussing~~ ~~were of no avail~~ and that the "new blood" that was beginning to come in and buy property was immediately inoculated with the old, I happened to see George D. Copeland on the next block.

"An irrigator at last" said I "A man who actually irrigates himself, ~~and makes it pay~~ and knows its value. He has lately sold some town lots and must have some money. I collared him at once. ~~and in two minutes his ears nearly lifted his hat off.~~ The next day ~~he went out with me~~ ^{over the project} and the night he returned ~~with me~~ ^{gave me} he wrote his check for \$6000. ~~and gave it to me. He had known me well for some years but so rarely left his ranch on the Sweetwater that all this time I had not seen him.~~

The very next day he appeared ~~unto us~~ with A.W. Hawley, a new comer of such retiring disposition that he had not mingled with the ancient longhorns of the town, and before night our bank account was \$21,000. ^{above} ~~better than~~ the zero ~~mark~~ at which it had stood for months. He did not even take the trouble to ~~look at~~ go out in the country, but relied ~~entirely~~ on his confidence in Copeland whom he knew pretty well. Copeland was well worthy of it and during his whole connection with the flume no one ever lost a cent through any fault of his.

In the Winter of 1885-6 we incorporated the San Diego Flume Company, with Capital stock ~~at~~ ^{at} \$1,000,000 a million dollars, with ten thousand shares of ^{the} par value of a hundred dollars each. With Copeland for President and Hawley, Marlette, Robinson and Van Dyke as directors. I cannot remember the exact amounts of stock we took but ^{about} we left half of it for treasury stock. We decided without a vote that it was a beautiful opportunity, ~~for~~ not for making millions over night, but for getting down to "'brass tacks" at once and staying there. So we hired a small room at \$15.00 a month with about twenty dollars worth of furniture and stayed there about a year, when we just doubled the luxury in space and rent. For many months we had no secretary and from ~~the start~~ ^{start to} ~~until final~~ finish not one of us asked a cent of salary. Every one ^{paid} his own expenses on trips over the line which

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never took less than four days and often more. We spent nothing for stenographer or typewriter but did all our own writing ~~and did it~~ with a pen.

We filed new notices of appropriation in the name of the company at every point where I had made them, and added Ballena Valley as an ultimate possibility, as quite a reservoir could be made ^{at} ~~the~~ ^{and the} flood waters of Santa Ysabel easily turned in, ^{a part} ~~with~~ of Witch Creek, ~~in wet winters~~ and the whole turned into the San Diego ~~by~~ a tunnel through the ridge between. We also began work at the head of ^{the} flume line just enough to hold rights, but, as before, we soon discovered that there was not a particle of danger of any one jumping any water rights connected with San Diego.

Though the great boom was getting well under way in the ~~winter~~ Fall of 1885 and property selling faster in the spring of 1886 than it had done even in the "'Tom Scott boom" of 1872, it was all on city property based on the greatness of the Bay, the certainty that San Diego would ^{eclipse} ~~eclipse~~ San Francisco, as proved by the fact that it was 500 miles nearer New York. Not only was cultivation of the soil ^{not} mentioned anywhere, but scarcely any knew or cared whether there was any available, where it was, or what it was good for. And one of the great men of the town declared to an applauding crowd that it ~~didn't~~ ^{didn't} "dout" make a particle of difference if you could't raise even a scabbage within fifty miles of San Diego. (G.C. Reed)

The lovely climate was also a great factor of course, but the fact openly admitted by Riverside growers that it was the best in California for citrus fruits, grapes, and especially lemons, was never mentioned, except by a ~~small~~ number so small that their voice was drowned in the old chorus of "'Bay & Climate" which had for years been so loud that outsiders believed that was ~~all~~ all there was to talk about.

For ^{ten} ~~eleven~~ years before this time I had lived entirely in the country ^{with headquarters} ~~most of the time~~ in El Cajon, ^{and Montecito} ~~and~~ Fallbrook. I travelled with my camping outfit over most all of the county and during all that time the last thing to be seen was a man from San Diego. At election time a few candidates came out but the most they saw was the sky

on each side of an upturned demi John. ~~C. J. Fox, Jon G. Capron, E. W. Morse~~ were the only ones I ever saw beyond the limits of El Cajon while Levi Chase, "Father Horton" and W. W. Stewart were the only ones I ever knew to reach ~~the~~ get even that far except on business.

What wonder then that the new company with \$21000 in bank soon found itself up against the same old lop-eared deafness? And now the "knocker" ~~appeared~~ appeared on the scene, not from any rivalry or enmity toward any of us, but quite as effective, as either could have made him. One of the great real estate men who were fast developing with the boom bawled out to a crowd in front of our office that we were a set of beggars getting up a swindling ~~see~~ scheme that would only damage San Diego.

Note This was (Dolph Gassen) but ~~it~~ there is no use in saying so. Hereafter in a like case I will put the name in brackets for your edification but the brackets will mean that ~~it~~ the name had better not be mentioned.

Another (Col. Bradt) told me that it would injure San Diego by making people believe such things were necessary to its prosperity. He summed up by saying "Our commercial interests are paramount to everything else."

Others suddenly discovered that irrigation produced malaria, and that ~~for~~ freedom from malaria was a great advantage San Diego had over the rest of the state. Another class who thought country lands might come into the market along with town lots discovered that San Diego County lands were all the more valuable because they did not need irrigation. Others as suddenly became aware that irrigation injured the flavor of fruit & C/ These ideas, over twenty years old at that time, and abandoned ~~even~~ years ago in the rest of Southern California, were brought into town by George A. Cowles and Hosmer McKoon, two of the largest land owners in El Cajon and ~~spread~~ spread rapidly, ~~the~~ through the town, as it was ^{about} the first ~~idea that had~~ ^{time an} idea about irrigation ~~that~~ had ever penetrated the average San Diego ~~man's~~ brain.

This was all the more effective by having some truth at the base, truth just enough truth to ^{deceive} feel ignorance. It had been discovered long before that land well cultivated after the winter rains and

kept well cultivated during the summer would retain moisture enough to raise fair crops of many things. This had long been ~~practiced~~ practiced in the north for wheat and other crops and was called "summer fallow". That is it lay fallow — cultivated but not planted, for the whole of the first year ^{and} caught the rain of the next winter in addition to what had been saved by cultivation the year before. All of which meant that only half of the farm was worked each year. It is ~~now~~ known throughout the west as "dry farming". This had been practiced in Los Angeles and San Bernardino Counties years before San Diego folks ever heard of it, and was applied to deciduous fruit trees and many other crops with great benefit where irrigation was impossible.

But this was all that ever reached the San Diego intellect. The fact that it failed just at the point of producing fruit large enough to ^{be} marketable outside of small local fruitstands, and was almost a certain failure when trees were old enough to produce in sufficient quantity to pay, never reached that charming Bay or the brilliant brains of El Cajon. It was a great discovery because it made a much ~~smaller~~ ^{much farther than} quantity of water go ~~sometimes twice as far as~~ before, but did not at all eliminate the necessity for some irrigation. It was on this that we largely rested our faith in the flume, as a large flow of winter water was ~~almost~~ in the mountains was almost a certainty, and if run into the ground in winter would greatly lessen the summer draft on the reservoirs. In this way water reservoired could be made to do ^{nearly} about twice the work that the same amount ^{in a} ~~from~~ ~~as~~ permanent stream of the same quantity could do.

But "No irrigation required" became the watchword for all who wanted to sell anything but town lots and it carried nearly all before it. And large quantities of land were actually sold on that basis. When the Escondido Land Co. was organized I told them that they could get water across the country from the San Luis ^{River} and outlined the very plan by which Escondido has since been made so prosperous. But the only answer I got was that the land was "all the more valuable because it did not need irrigation". And they actually sold, at a good price, thousands of acres with that as the principal recommendation. Of the thousands of acres sold in the El Cajon during 1886 and '87 and

all was sold on that basis except some ~~three hundred acres~~ to Hawley, who bought it only because it could be irrigated, ~~and would be at some time~~. It was just the same on the mesa, though little was sold there until ~~the~~ near the crest of the great boom, when anything would sell that was within ten miles of that marvellous sheet of water known as San Diego Bay.

This idea, which took possession of nearly every one whose thoughts could ~~wander~~ ^{wander} ~~as~~ a minute from the Bay ~~was our great stumbling block~~ the great weight that held us down. With more and more people coming every day and money increasing in easy flow almost by the ~~our~~ hour, we seemed steadily sinking in a ravenous quicksand against which all struggles were hopeless. Gen. Marlette had said in 1885

"These are the queerest people I have ever seen. Up in Los Angeles county where the rainfall is nearly twice what it is here everybody wants water, and although they have plenty in flowing streams so that it can be cheaply got it is considered worth a thousand dollars an inch. At Pasadena and other places on high ground it could not be bought for twice that. Yet here, with better conditions of ~~warm~~ soil free from frost, no body wants water at any price. Los Angeles is the largest spot of solid and perpetual green in the United States and San Diego the largest ^{blot of} ~~spot of dust and wilted grassy plants and~~ dusty streets, dusty dooryards, wilted plants and sickly trees of anything claiming to be a city, but they won't talk about water or listen when I talk."

"Oh they will get over that," said I. "Nearly all these people came here on account of the Texas Pacific Railroad which Tom Scott would probably have built but for the panic of 1873 which broke him with thousands of others. They did not think of anything else but the Bay and have not had money ^{since} enough to travel and see ~~any~~ ~~the thing of~~ the rest of Southern California."

"Well they are a darned peculiar people," he said.

He spoke about it often but we laughed away his fears for a time. But soon after our incorporation he said.

"It is bad enough anywhere to try to educate a people up to some-

thing new, but when you are dead right you can make an impression on somebody. I have not been able to do it here and don't want to waste any more time talking to people who sleep in their coffins like the monks of the middle ages. I'll lose what I have put in and quit."

Whereupon he left, ~~for good~~.

This was our hardest blow as he was a man of the highest character who commanded great respect outside of San Diego. But we could not blame him as he did not have to build water works for folks that did not appreciate them.

Robinson, who never had a trace of despair in the darkest hours, soon ^{found} ~~dug up~~ a man who had been farming in San Dieguito Valley and was sufficiently amused with "no irrigation required"—Frank Judson, who, after after going over the ~~work~~ work with me, took three hundred shares of stock at ten dollars, the price that Copeland and Hawley had paid. We then concluded to sell some water as low as \$150 an inch with ^{thirty} ~~trity~~ dollars annual payment. This was to get some of the Cajon folks interested. But the only one it interested was Hawley who promptly laid down \$15,000 for 100 inches. He already had land there and intended to buy more for his children.

About this time we offered to sell the city a large block of water at about one ^{fourth} ~~fourth~~ of the price ~~at~~ consumers were then paying. But the council ~~unanimously~~ voted it down. W.W. Stewart, ~~the~~ a prominent member, is on record in the Union as saying ~~that the scheme is~~

"If a flume were started full of water at the upper end it would all be consumed by the atmosphere before it could reach town". From the very start, we had some friends of course, for there were some in San Diego who had been able to get away from that wonderful Bay long enough to see Southern California awaking from the long sleep of "The Cow Counties". They saw plainly what made its ~~prosper~~ prosperity and that the great boom so fast spreading over the land was due to that and not to anybody's Bay. Climate of course was doing its work but Los Angeles, making the most rapid growth of any part, was bragging only of land and water and never mentioned the possibilities since developed into realities.

But these friends were as poor as we were and like the talk

of the "beggars" trying to build the flume their words went for nothing.

But now ^{some} ~~most~~ of them were able to sell at good prices the dusty town lots they had held so long without an offer and ~~consequently~~ some folks began to discover that they ~~knew something~~. I were willing to help us ^{but} ~~they~~ only in a small way as they were yet far from being capitalists. Bryant Howard of the Consolidated Bank and R. A. Thomas who had just started the First National told us that their deposits had become large ^{enough} ~~enough~~ to justify a loan on the Company's note unsecured, and we found either one would lend us ten thousand dollars or even more if needed.

The Pacific Coast Land Bureau of San Francisco suddenly concluded that they would like some water for their immense tract in ElCajon through which we had to have a right of way for several miles, about half of it cutting ~~was~~ very fine orange and lemon land. G.A. Cowles and Hosmer McCoon, also large land owners, were on hand when they reached the Horton house and spent most of a day trying to persuade them ~~to~~ not to do it. But they made a dead failure. We had just before that withdrawn the offer to sell water in ElCajon at \$150 an inch, but the Land Bureau had not heard of it. They offered to give us the whole right of way if we would let them in ~~to~~ on that offer and the papers were quickly signed. Although the agreement was that they were not to pay for the water until used, it was still of great value in boosting out ~~cause~~, as they were a wealthy company of long standing in the north.

From the fact that men with some money were now on our side ~~some~~ many of those who had all along given us the ~~deaf~~ deaf ear now began to conclude that the "beggars" must know something about what they were doing. Robinson took advantage of it at once and said he believed he could sell some water ^{\$500} at ~~\$300~~ an inch and ^{for by five} ~~thirty~~ dollars a year an inch. ~~He named it Teralta, and soon sold it most of it at a big price and piled the company \$15,000 in cash.~~
He and others bought some 200 acres back of the city.

This made folks prick up their ears so high that we thought it time to put La Mesa on the market. We had known from the start that

That land and water combined ~~in one hand~~ will sell for several times what either one in different hands will bring, and is also far more readily sold. Also that the failure to recognize this had bankrupted many irrigation companies in the west. But we had not the money to ^{such land} get ~~it~~ and relied on the City supply of San Diego to overcome this ^{disadvantage} ~~disadvantage~~. The best we had been able to do was done by Copeland who had lately bought some twelve hundred acres where La Mesa now is for six dollars an acre. This price shows how cheap it would have been a year and a half before when we tried to get folks to buy an undivided interest as above mentioned.

Copeland turned this in to the Company at exactly what he had paid for it. We had it surveyed into a hundred ten acre tracts of clean land. Any ~~rough~~ rough or rocky parts were thrown in, so that ^{some} ~~many~~ pieces contained ~~more~~, ^{as} as high as thirteen ^{acres} but all called ten acres. As it was extremely probable that there would some time be a railroad to ~~ElCajon~~ ElCajon with a station here, we ~~had~~ laid out a small townsite of one hundred lots ^{feet} 100 by 150. We put the price at one thousand dollars for each ~~ten acre~~ tract of ten acres or more, with an inch of water and an annual payment of thirty dollars after the water was in use, and ~~for good measure gave a lot with each tract with free water~~ ^{we} gave with each ten acre tract a town lot with free water.

~~A unise~~ g A general guffaw from all the smart ones followed this as not a mile of the flume ~~land~~ line had even been graded and not a foot of lumber in place. But they were a few days too quick. One half was to be paid in cash. And to prevent ~~any~~ question as to what we would do ~~with~~ the money we arranged that it was all to be paid into the two banks and drawn out only in payment for actual work. Bryant Howard and R. A. Thomas readily ~~accepte~~ accepted the trust, led off the subscription with two tracts each, and in four days the whole ~~land~~ ~~twelve hundred acres~~ were sold and the cash in bank. Robinson alone sold thirty seven and the rest of us the balance. The lots were afterward drawn by a child ~~in~~ at a public meeting which ^{Thomas} Howard and ~~Thomas~~ ^{Thomas} superintended and everyone was satisfied.

This was ~~our greatest boost~~ and made a reaction that never

12 1/2 died down. and though we had many difficulties ahead we ~~were~~ had plainly ~~made the great turn~~ crossed the divide.

In the meantime Thomas Goss of Los Angeles, who owned a large tract in the Cuyamaca Basin Reservoir site, ^{had} told us we could have it for ten thousand dollars. We now told him we were ready to pay. When he came to us to make the deed he said he had had several people after him to induce him to refuse, and some to tell him we would now give twice that because we had the money from La Mesa Sale. He ^{said} his answer was that he had given his word and ~~although not in writing~~ and that he was not in the habit of repudiating ^{it} ~~his word although~~ ^{even if not} ~~it was not~~ in writing. We paid him out of our ~~general fund~~ and left the La Mesa fund for construction of the dam.

There were two other owners of the Cuyamaca that for lack of money we did not at that time ~~try to buy~~ but concluded to go ahead with the dam and trust to luck or condemnation later on. So the Cuyamaca dam was commenced in the fall of 1886 and ^{one half of} the La Mesa ~~sale~~ fund paid for it. ~~to almost the last dollar.~~

Here was made the first and almost the only mistake in the whole project as long as it was in our hands. But it was unavoidable. The area of the Cuyamaca watershed was computed from the partition map of the Cuyamaca grant which had been made with extreme care by C.J. Fox, a very careful surveyor, at 16 1/2 square miles. The only dams in the state that had kept any account of the runoff from rain were the Dams of the Spring Valley reservoirs at San Francisco. I got the data from them, Four engineers, who had seen them and been over ^{them} the water sheds, all said, on seeing the watershed of the Cuyamaca, that the steep hills and ~~tight~~ tight soil with the great increase in rainfall would ~~fill the reservoir~~ turn off nearly twice the water that the Spring Valley hills did. This would have filled ^{the reservoir} it in any year of average rainfall, and given a good supply for the driest winters up to that time known. Whether the error of area was due to Fox or our engineer we could not tell but an actual survey made a year or ~~more~~ two later showed only eleven and a half square miles. A test of several years also showed that some of the rainfall was cut off by the three high peaks and that much that fell in snow and lodged on the thick brush and timber was evaporated rather than melted by the dry winds

^{winter sweep} that in ~~winter sweep~~ over from the desert of the Seleda Colorado Desert. Nevertheless it was worth ^{much more than} ~~it~~ its cost and its building was a vast help to our farther progress.

In the mean time Howard Crittenden ~~of~~ of San Diego who had been one of our friends from the start took a large block of the ~~stock~~ stock at thirty dollars a share.

Note I am not sure about the amount or price but if he is in San Diego he can tell you.

As he had been over the system several times this farther increased confidence and another large block was bought by W.H. Ferry of ElCajon at forty, which boosted ^{confidence} ~~things~~ still more.

But before this and when the prospects were not so bright Robinson had gone to San Francisco to see about getting some one to take the contract for the flume itself. He got ~~more~~ ^{More} and Smith, said to be the richest and shrewdest lumber dealers in San Francisco interested, and ^{More} came down to ~~see~~ examine. After dismissing the knockers at the Horton House who had heard of his coming with the remark ^{that he was no chucker} he came to our lowly office and ^{waited} first of all to see our books and papers. He went through them like a combination of ^{pro-}bate Judge and Bank Examiner, and remarked

"Your expense account is so ridiculously small you cant have been doing things in the orthodox style. I dont see anything for salaries, personal expenses, rolltop desks, or velvet carpets. For promoters you dont seem up to date."

We told him we were not banking on a swell front but on what was back of it, to which he replied that ~~we were the first he had seen~~ ~~with sense enough to know that~~ people who understand ~~that~~ business cant be fooled with show, ~~and~~ that in our economy we had ~~demonstrated~~ were starting right ~~at any rate~~, and that he would take the contract and some stock, too, if the proposition ~~proved up as Sated~~ ~~we said~~ was as good as we thought it was.

I spent nearly a week taking him over the system and had the ~~cross-examination~~ ^{then building} of my life. I found he had had much experience in waterworks and was ^{beginning} a great lumber flume for his firm in the Sierras. He was ~~well posted on water works and the engineering~~ ^{hydraulic}.

When we returned he said he would take the contract, furnish all the lumber and carpenter work and take all that part of the construction off of our hands, and also take twenty thousand dollars worth of the stock at the going price which was then forty dollars. He became a great friend of the enterprise, helped us with good advice, kept his word to the letter, ~~and~~ furnished the best heartwood heart redwood on the coast for the body of the flume, and finished on time, making a better job than we had really expected.

We now thought the time ripe to issue bonds and issued 600 of a thousand dollars each at six per cent. But, as in the case of the La Mesa sale, the laughers ~~had~~ sold themselves out too cheap, though the number was much less this time. In a very few days we sold ~~over a hundred thousand at par~~ ^{over a hundred} ~~at par~~ ^{worth} right in San Diego, something like \$150,000. We all took some of them, though I had to pay for mine with a note with bonds as security which Bryant Howard cashed. This was the first money I had put up as it was agreed at the start that I need not give anything but my time. But I thought I ought to do something more by this time and lost ^{little} nothing by it as I later on took up the note from the sale of stock and sold the bonds at a slight discount.

Hawley took twenty thousand, Copeland ten thousand, E.W. Morse twenty thousand, "Father Horton" ^{ten} ten thousand, More and Smith twenty thousand and so on in smaller lots, but all of them of ^{fair} ~~good~~ size. I can't remember them all, but it showed that at last we had gained ^{the} confidence of the best people in the ~~city~~ city.

This was a bad move in one ^{way} for it is bad ~~policy~~ policy to scatter a block of bonds, for bond buyers generally want the whole block so that none can be thrown back on the market at a lower price than the one they have set. But we had no time to hunt up bond houses. For it was plain that we, ~~were~~ ^{were being} like the rest of Southern California, ~~were~~ ^{were being} bought up by the fast rising tide of a boom so great and fast ~~growing~~ ^{growing} so crazy that its ~~own~~ collapse was inevitable and no one could fix the date.

By the Spring of 1887 the boom was under such headway that we had little trouble. J.W. Seften took a lot of stock at forty, and a little later we raised the price to sixty ~~two~~ dollars a share, and J.M. Studebaker took five hundred shares at that price.

About this time we had our first lawsuit. J. ~~John~~ John-drew had been given the contract for grading the flume line. On account of the difference ~~one~~ occurring every few yards, and even a few feet, in the hardness of rotten granite in which most of the line ran, it was agreed that all disintegrated granite should be classed as "simple earth" at twenty five cents a cubic yard, with "hard blasting rock" at a dollar and a ~~quarter~~ ^{most} quarter. As ~~some~~ ^{most} of the soft granite ~~is~~ can be worked better by blasting he claimed that it was all hard blasting rock. Letters from folks in town, found in his camp after he left, showed that he had been advised that he could hold us for the dollar and a quarter on all the soft granite. So after doing a few miles he brought suit for \$175,000. The matter was submitted to arbitration of the Judge of ^{the} Superior Court (then John D. Forks) with two engineers J.D. Schuyler and one Copeland of National City but ~~no~~ no relation to our Copeland. They went over the line carefully and all decided against him. As he had ~~some two hundred men and thought a saloon so much better than the contract he had to quit~~ ^{had} and we had to hire a boss Chinaman to complete it. This he did in good shape and for less money, but it cost us ^{considerable} money ~~and~~ in other ways and ~~considerable~~ ^{some} ~~money~~ delay.

We had some trouble in getting the rest of the Guyanaca reservoir site which cost some forty odd thousand dollars more but we finally raised the money.

In order to raise the price of water we got ~~outside~~ ^{or adjoining} parties to buy some land south of the ~~La Mesa tract~~ ^{La Mesa tract} and ~~sold~~ ^{water} they formed the Ex) Mission Land and Water Co. They paid a thousand dollars an inch for the water and we got the money. Soon afterward Schuyler and Fitzhugh paid two thousand an inch for water for La Presa, a small townsite they had laid out overlooking the Sweetwater Reservoir. But these ~~ex~~ quantities were not large and we found it impossible to do anything with the land owners of even the driest land

This may be omitted if thought too long
 Walter Smith can tell us how about these figures if alive) omit this in printing

None would give ~~half the~~ land for water on the rest, and one of the largest ^{owners} ~~said~~ he would not consider a proposition to give any part of it for water on the rest. He was frank enough to say what the others really thought, that "land under ^{this} ~~that~~ climate and with such a view of San Diego Bay ~~was~~ ^{is} worth a thousand dollars an acre without any water."

All this compelled us to make the first assessment we had had and which brought in about a ^{fifty} ~~hundred~~ thousand dollars without hurting ^{much} ~~any of us much~~, for money was now almost the cheapest thing to be had in San Diego. But the building of the flume went on so fast that we were soon short again. We met the emergency by borrowing a hundred thousand from James D. Phelan of San Francisco which he loaned on the security of some of the unsold bonds.

~~By this time~~ This brought the flume to the outlet in the upper part of the Cajon Valley. After finding so much indifference and even opposition in the town and from the land owners we had decided if we got into any trouble to ~~stop~~ stop the work at the Cajon and keep it there until folks came to their senses. In this More and Smith fully concurred, and agreed if necessary to take bonds for any unpaid balance and, as stockholders, to help us through in holding on until water was appreciated. But now came a change.

Up to midwinter of 1887-8 the boom had raged over the greater part of Southern California. As in all great booms folks said it was only a natural growth. I had seen some booms back east and heard the history of a ~~big~~ lot more, and much as I believed in the future of Southern California, I could not believe that such a crazy excitement and such ~~a~~ reckless buying, on margin, at ^{such} monstrous prices could last long. In truth it did seem as if ~~the~~ World and his wife had just discovered what they had been looking for all their lives, and I often wondered whether I was a fool or not when I saw so many "millionaires" who had started with no more capital, or ~~even~~ credit, than I had. Still I kept out of it and tried my best to keep my friends out of it. Most of them told me I was not born a money maker and was always thinking of something else, which was true ~~as good~~. But ^{some} others admitted that it was a boom but that there was no immediate danger, although they conceded that the collapse would be a big and

and a long one when it did come. But they ^{thought} ~~thought~~ water would still be king. And it was in all the rest of Southern California. One of the strange things was that the boom was ~~started~~ ^{started} by the rapid ~~growth~~ growth on the watered lands out side of San Diego County. Then it ~~switched~~ switched off to town lots and dry land. During all the uproar ~~there~~ there was little increase in the selling price of watered lands and after town lots and dry lands dropped ~~else~~ out of the market the irrigated tracts sold at the same steadily increasing price that they did before. ~~and~~ ^{they} have kept on ever since.

~~On this~~ For this reason, which was very apparent during the whole boom, Robinson, Judson and Copeland thought danger remote in spite of the fact that no one can tell where the top of the boom is, and that "suckers" quit biting as quickly as trout sometimes do, so quickly that it ~~sometimes~~ seems as if an electric wire ran all along the stream and that the signal to quit had been ~~pre-~~ pre-arranged.

Hawley agreed with me and kept well out of it. But ~~The~~ other three had some time before taken up the idea of a motor line to the El Cajon and gone in with a man named Henry who had invented an electric car. San Diego had almost the first if not the very first operating electric road in the United States and although noisy it was so powerful and worked so well that they invested too heavily in it. The loss of power ~~had not then been~~ in transmission had not then been overcome to the extent it now has, but it took too long a time to discover the loss and, however good in principle, it was ~~bound to be a failure for some time~~ ^{the} ~~at least~~.

There are plenty yet living who remember how like a thief in night the collapse came. How even one thought it was merely a much needed rest of a few days for the nerves overworked by raking in the new comer's money, ^{also} ~~and~~ the terrible tumble from champagne to beer that so quickly came. And how water soon took the place of beer at the noon lunch and beans displaced the porter house steak. And the worst of it was that it was all over Southern California, except on the irrigated tracts which continued selling the same as before. This latter deceived me so that I held my stock a bit too long when I could have got fifty for it, ~~so that in~~ But it was not long before

practically three fourths completed, as all the time and every best part of the work with the City and the Reservoir were finished as well as the strutting dam on the river which cost some \$50,000.

It was thought by some of the town folks that Robinson was speaking many things that belonged to the Company. But we moved out buying things of the sort. In two cases he bought land with others & made in good profit. But the profit was on the land. He paid for the water and paid in cash a much larger price than we would have been glad to take at those times. It was done with consent of all to buy at the price of water.

18 I found that three new directors were to come in, leaving Hawley and me in the minority on the board. I had a short time before given my place to Ferry because I had to be out on the work so much. But I was as much an actual director as before and when in town was present at all the meetings. This left Hawley the last of the old regime. ^{being well along in years} Hawley had not been very active in the matter and knew really very little about it, believing that all was right, so that practically the board would be composed of new men ^{men} who could not know anything about it except after long study as well as advice from those who had made it thus far a success. And it did not take ^{me} long to ~~for~~ ~~me~~ to learn that they would not study and cared nothing for advice, even from Copeland. I scuttled at once for cover and got out at about thirty five for seven hundred shares. The rest overstayed the fateful hour with the little end of the proverbial horn narrowing up at ever ⁱⁿcreasing speed.

Thus far this narrative ~~is~~ is of interest only in showing what can be done by patience, perseverance, ^{and} perfect harmony, ^{and} coordination of work, with practically no money to start with and with the construction money visible only to the eye of faith in a worthy project. ^{Many} of the people of San Diego alleged to be intelligent had never heard of this, and the man who sneered at us "beggars" was merely one of many. But it has been done ^{as} at thousand times, though the promoters for one reason or another rarely stay ^{to} with it ~~to~~ the end and get all the profits, as did the promoters of the Southern Huntington, Stanford and the rest ^{of} with the ^{Central} ~~Central~~ Pacific Railroad ^{board}.

We had never had a dissension ~~of~~ a divided vote on the ~~board~~. All stockholders were given a general invitation to be present at any meeting and air their views whatever they might be. None of them ever criticised our work. We studied every point and gave all our time to the work. Yet ^{without pay} while we all took part in everything ^{there} ~~there~~ was a special ^{we had} ~~we had~~ ty fo-r each one. Robinson surpassed all men that I ~~have~~ ^{we had} ever seen in the ability to scent out a stranger with money, round him up ~~the~~ first ~~day~~ he was in town, and make him think that something the man had never even dreamed of was the biggest thing alive for making sure money. He would then introduce him to Copeland and keep his own tongue still. Copeland would give him a fine corroborating talk but

without going much into detail. He was a man of perfect honesty and had the rare faculty of showing in almost every word that he firmly believed what he said, *and the victim became more interested.*

From the very start I became deeply interested in hydraulic engineering, got all the books extant and studied it very hard and kept it up. Consequently every one was turned over to me to take out over the system, and stand the cross-examination. This used to take most of a week and the first day out I kept quiet about water and talked about the ~~country~~ ^{of the land} climate, birds, animals and other peculiarities, until the intended victim began to open up about the ~~project~~ ^{project}. Then I had to answer a string of questions as the victim was getting more and more interested. Having been born with a happy faculty of concealing ignorance and of skirmishing all around and beclouding something I did not ^{fully} understand ~~fully~~ I landed every one in town fully satisfied that it was a great project with hardly a fly in sight. ~~Not~~ But they did not all bite by a long way. Many of them thought the price of the stock was far too high for a raw proposition. It was. But we saw no other way to ^{raise} ~~raise~~ money at that stage of the game except by assessment and that ~~is~~ was exactly what none of us wanted. It was safer to move more slowly and take chances on getting ~~enough for the stock~~ so much for the stock that it would be a substantial aid, and also make the victim interested so much that he would put in some more ~~in some way or another.~~

All this worked so well that if the boom had lasted a few months more we could all have held our stock. Or if the others had kept all their money for the flume alone we could have done so. But I was afraid of new men and although they thought I was too fast in getting out it took but few days to show that I was too slow.

It is not necessary to mention the names of those who now got control as they are all gone where they will need no water. They were all good men, good citizens in every way, had been successful in other business and ^{were} sincerely anxious to make a success of the project for the benefit of San Diego where they were all property owners. All of them were rich, as rich was called in those days, and had not yet felt any decided effect from the sudden collapse.

Their first move was to decide that the water then flowing into ElCajon must come at once to San Diego. And if ever a town needed it San Diego did. It was bare, ~~and~~ brown and dusty enough when it had only twenty five hundred people. But now it had ten times that and nothing to get water from but the few sand wells in the river bed ^{by pumping} near Old San Diego. And this against a head of some ~~four~~ ^{three} hundred feet to the top of the mesa, and then against the friction of ~~three~~ ^{or four} miles of old pipe that had been rusting inside for years and never was any too large for the small population of earlier days. Their motives were the very best but all the same it was a ~~fatal~~ mistake, for the people of San Diego were still a very peculiar people, ^{as} ~~as~~ Marlette had said two years before.

~~It now seems almost incredible that, for fear the reader may think I am wandering in my dotage, I will copy what I wrote a year afterward in "Millionaires Of A Day" a history of the great boom that had a ^{good} ~~great~~ sale in Southern California with never a criticism even in San Diego. Remember that San Diego County was then much larger than it is now, with a settlement going on independent of the city and quite unsuspected by the average citizen, who in those days had no automobile to fly about in. The line reached nearly to the river-side plain, taking in San Jacinto and the Perris country with all between.~~

~~Here insert pages 20b d & c.~~

~~That book was highly praised for its truth and the above was about the truest part of it.~~

The new board was a fair representative of the whole, ^{of San Diego people} except that they had come to realize the value of more water for San Diego City, and that it could not be supplied by ^{pumping} ~~pumping~~. They also knew what the average citizen did not—the difference between mountain water and coast water in Southern California. They also knew that irrigation would be of some help even under the "no irrigation required"

^{Knowledge}
Theory. Right there their ~~with~~ evaporated and they became typical San Diegans, ~~as to all else.~~

The first thing I had done, after we had decided ~~to go ahead~~ in the Spring of 1885 to go ahead, was to spend a month in San Bernardino and Los Angeles Counties, Orange county being then a part of Los Angeles County. I had seen much of their work before but I wanted to get full details of all their methods of handling and distributing water with their modes of irrigating and the quantities in use for different products. For nothing is more unbusiness like ^{than} ~~to~~ to try to work out one's salvation alone on something new, when other, close at hand, have been travelling the same road for many years and made a success of it.

But these new hands, all good friends whom I met and talked with almost every day on the street, never did anything of the kind and never asked me a question. When I occasionally volunteered something they listened politely, smiled and receded into the profundity of their self sufficiency. Copeland who held his stock long after I quit had his ^{office} ~~office~~ in an adjoining room adjoining that of the directors, with a door between. He told me that they not only never asked advice from him but ~~occasionally~~ when there was a director's meeting and he had to go through the room ~~that~~ they all quit talking and did not begin again until the door was closed. He and Robinson and Judson soon quit talking to any of them. But I was anxious to see the thing a success, especially as I had some of the La Mesa tracts on one of which I intended to make my home ^{and a lemon orchard.} So I kept on trying to make them believe what they should have known without any advice. ~~But it was all in vain. I never~~ I tried my best to ram, slam, jam or cram a hydraulic idea, or an idea about irrigation, into at least one of them. But it was all in vain.

I ^{was} ~~was~~ a little too fast ⁱⁿ ~~in~~ the above paragraph. There was one question asked. I hesitate to record it as it is so absurd as to be incredible. But one day one of them, who had bought the most ^(Parker) of my stock, rounded me up in front of the ^{Bank} First National window, traced out ~~upon~~ on the glass with his finger two mesas, on about fifty feet higher than the other, with a valley between and then said

"Now suppose you lay a pipe across this ^{higher} mesa and down the side of this valley and up the other side onto the ^{lower} mesa, and this ~~mesa~~ is higher than this one (pointing to each to be sure I understood the conditions) will the water run up hill onto this lower mesa?"

I could not get my face straight in time to answer him when he added

"Our board of directors ~~were~~ had a dispute about this this morning and I said it would, but the others all said it would not."

Everything connected with water, ~~is~~ ^{is} from the Hydrostatic Paradox to the last detail of its application in irrigation, is something so remote from all business experience that one who understands it seems a crank to one who does not. ~~He can get a dozen of points~~ He can have a quarrel with ~~with~~ the average citizen in two minutes by some statement of a fact that is as true as the law of gravitation, yet never dreamed of by a stranger to water. Consequently the good men — good in other business — who were now in charge of the flume never contemplated the possibility of there being anything for them to learn about water.

From the start they showed even better economy than we had used all through. The chief engineer told me one day that he had just seen a paper lying on the desk in the office to be sent out to El Cajon reading as follows.

"Flume tender
Cajon Valley"

"Arrange with Duncan McFadden

for two barrels of water a week from flume. Be sure and be there when he takes it."

Gen. Manager."

The flume was then running six hundred inches and McFadden, the blacksmith, probably wanted some mountain water to drink instead of the hard water in his well. As ^{one} inch will fill a forty five gallon barrel in five minutes you can figure what six hundred will do in a second.

If ever economy was needed it was in the building of that flume.

But like many other good things it should consider some of the weaknesses incidental ^{of} to human nature. The La Mesa ~~reservoir~~ ^{some eighty acres} site contained ~~Of the La Mesa reservoir site~~ the greater part had belonged to C.J. Fox, C.C. Seaman, and John G. Capron, who owned a large tract ~~in Mission Valley~~ at the upper end of Mission Valley. On this they had laid out several hundred acres for a colony called Grantville. They knew we needed the land and we knew they wanted water. Fox was appointed on their side to make the deal and I was appointed to make it with him, ~~all others to keep out of it,~~ as a long ~~poor~~ ^{was} ~~was~~ expected. I knew that twenty five cents a thousand gallons had long been the rate for irrigating town lots in San Diego, and that it was considered very cheap, because the rate for houses &c had been a dollar. So when we met I said for a starter, "how would ten cents a thousand gallons suit you?"

To my surprise, for he was a first rate railroad engineer and had made all the surveys for the Texas Pacific ^{under} Tom Scott, he said

"I'm satisfied with that but I'll have to consult my partners."

That same afternoon he came to our office with the contract and had it duly signed, although Copeland could hardly keep a ~~straight~~ ^{face} straight while doing it.

Some weeks afterward Fox said to me

"Van, that contract we got is not good for anything."

"No?" said I. "What's the matter with it?"

"Why, at an inch to ten acres it comes to forty seven dollars and forty cents an acre each year."

"Well," ^{said I} you are a far better mathematician than I am." And he was too.

"Oh I'm not blaming you at all. I was too hasty," ^{said he.}

"Oh, well," said I, "I just gave you that more for a joke than anything else and never expected to ask ^{much} over a cent a thousand. Come around any time and we will fix it for you."

For some reason they delayed fixing it and we thought no more about it. But when the new hands came in ~~control~~ ^{control} Fox and the flume was built to La Mesa, Fox, told me he went to the ~~president~~ ^{president} and said

"There several hundred inches running down Chappelle Canyon on our land and I understand nobody is yet using ~~any~~ ^{their} much water from the flume. We have some settlers at Grantville and ~~their~~ ^{the} wind-mills dont give enough water, ~~to raise much~~. I dont want to take up the water running to waste without your consent. The company was to give us a new contract, but we have neglected to get it, and ~~cant~~ ^{cant} possibly the settlers cant possibly pay ten cents a thousand gallons. We are ready to ~~make~~ make a new contract when you are ready to deliver permanent water and only want now to use water that is doing ~~none~~ no one any good."

"We are running this flume now on strict business principles" replied the president. "That is the only decent ^{contract} for water the old ~~gen~~ directors ^{will} ever made. " "We stand to our contracts ~~and~~ and expect you to do the same "

"Well then "said Fox "You can keep the reservoir land and be hanged, but under no circumstances will we ever buy water from you at any price."

And they never did ^{so} ~~as~~ far as I know.

San Diego ^{Conditions of}
That this was not rapacity, but pure ^{ignorance} of the ~~possibil-~~ ^{ities} in irrigation is well shown by another transaction.

We had staked the line over a piece of public land lying between El Cajon and La Mesa. This gave us the right of way under the U.S. law of 1886. Forty acres were about all that were of any value and this area was on the summit some 60 feet above the flume. Louis Entner took a homstead on the forty and wanted pay for ~~o~~ the right of way. Rather than quarrel with him I tried the same game I had on Fox and got ^{it} in half a minute. That is the privilege of pumping sixty feet at ten cents a thousand ^{gallons} ~~dollars~~ at the bottom of the lift. A year or more afterward a prominent banker in San Diego loaned ^{two years afterward} five hundred dollars of his private funds on it. I heard him say to R.A. Thomas, ~~one day~~ ^{while talking about this piece}

"I would like to plant trees on ^{it} that piece this spring. But I am afraid if I do that he will redeem it." (Jerry Toles)

"Incredible?" do you say?
"Yes, anywhere out of sight of that lovely lovely bay."

The attorney who foreclosed the mortgage told me that the amount with interest ~~was~~ ^{is} over \$4000.00

^{From}
It was due to ^{the} this ignorance ~~that~~ the flume lost the water supply of San Diego City. ~~The possibility of this~~. The apparent certainty of getting this was the best asset we had, and the La Mesa reservoir which could save all waste water from the flume and hold a sure supply for the city for many months at a time, at an elevation that no other system could reach, ~~no matter how far back the growth of the city extended~~, and with a heavy pressure all the way, made it almost a certainty. ~~and~~ we had the franchise without any time limit, or any requirements as to the money to be spent, or amount of work to be done. By failing to take up ~~some~~ work on the branch lines, after work on the main line was done, the directors lost the rights we had ^{acquired} on the Santa Ysabel, Sweetwater and Pine Valley ^{Creek}, the head of the Cottonwood. ^{They} were ^{then} not in condition to prove that they had water enough to supply El Cajon and La Mesa, ^{and the city also.}

The reason ~~of this~~ was this. When we first began to talk about bringing water from the mountains folks said

That there was no water there. Meaning no large permanent streams such as Los Angeles and other counties had.

That reservoirs would not hold water in this county because the formation was too broken.

That if they would the evaporation was so great that they would all dry up.

^{a wooden}
That ~~an open~~ flume would all leak out.

That if it did not leak out it would all dry up before it reached town..

When the building of the ^{Guamaca} reservoir and the completion of the main line showed there was nothing in any of these objections, then those, who could think or talk about water at all, went to the other extreme and began to talk about inches of water like so many sacks of barley. It was only a matter of how many you wanted. All you had to do was to grow them.

"All the water you want" "Put a dam in any canyon &c." was the talk."

The president of the Company told me one day what a number of fine reservoir sites there were on the San Diego River.

"We are not doing anything with them just now" he said, "because no one else can use them. There is no farming land in them and we can get them at any time for nothing." Our only trouble now is to sell what water we have. ("Parker")

The fact that there ^{then} they were worthless because there was no farming land back of the dam site apparently did not occur to him. At that time few ever thought about how much water you can hold back of a dam that cost so many thousands of dollars. Any narrow, steep canyon was all right, provided it had a narrow enough site for a dam.

Seven different engineers had gone over the whole and none of them had found any reservoir site except the one I had found—the Cuyamaca. That is none that could be built at that time. Dams can now be built for far less and the demand for water will justify what could not be thought of at that time. We never could have floated the project at all, and none of us would have wasted any time on it, ~~then~~, had it not been for the branches which fed the Dye Canyon Valley reservoir, Pine Valley and Japatul Valley. The Cuyamaca was built first because it was the cheapest. While it was very valuable it was not enough. Neither was any one of the others taken alone. But all combined, and used only when the spring flow of the streams declined too far, there would be enough for a city several times the size of San Diego and all the country between it and the mountains.

I tried over ^{again} and over ^{again} to impress this fact on the directors

but the only answer I could get was that there was plenty of water without any of the side branches and that the main trouble was to sell it.

And why ^{then} did they not sell it then to the city water company? This is one of the questions that I never could solve. How good business men as they all were in other ways, and deeply interested in making San Diego a green town instead of a brown one, and with water running to waste more than five times what the city was actually using, could have ~~permanently~~ lost the city supply, when they already had the franchise, lost the most valuable part of the whole project, lost it too without a struggle

will probably never be known. The city water company, at that time owned by the Coronado Beach Company, was miserably inefficient. They could have well afforded to pay the Flume Co. the cost of pumping at the very least, and could have so reduced the rates that people would have used ~~at least~~ twice the amount of water and probably much more. On account of the high price of coal and the depreciation of machinery at such a high lift they could well have paid the flume four cents a thousand gallons.

~~Suppose~~ The Flume Co. already had a large enough pipeline at University Heights. Suppose they had

This would be about 190 dollars an inch a year or ten percent on 1900 dollars revenue to the flume. The Flume Co. already had a large pipe line to University Heights, carrying enough water for a city several times the size that San Diego then was. And they were ^{at much less than half that price,} complaining that the land owners would not buy it. This part was true enough and we shall see one great reason farther on.

~~But suppose they~~

They knew too that Sprinkels was at work on the Cottonwood project and had money enough to complete it. ~~alone,~~ They knew the needs of San Diego well enough and the danger of any competition. Why then did they not start a water main down Fifth street and say to the City water company

"We are ready to talk business and go no ~~farther~~ farther, for the present at least, as we do not wish to duplicate your distribution plant just now."

How much of that main do you suppose they would have had to lay? And why did they not do it? I never could find out. But I ~~do~~ know to a certainty that it was not for lack of money.

And now look at the situation aside from the interests of the Flume Company and only at the interests of San Diego. Of all the mesa lands reaching up and down the coast the very best for such a large area are those that lie between the Sweetwater and the Tia Juana. Thousands and thousands of acres rich and more free from frost, commanding ^{almost everywhere a} view of the sea, but also ^{the} that great desideratum of that time, a view of the bay, perfectly adapted for making a picturesque body of highly productive orchards and elegant residence land

so much in demand among the wealthy settlers, who, in the other counties will have nothing else and pay the highest prices for it, lay for years all bare and brown because the water was taken away from where nature intended it to go. Including the lower land which is equally good, though not so free from frost, there is enough to take every drop the Cottonwood system can furnish. The Sweetwater ^{Co.} cannot reach the best of it and has land enough of its own to take all they have. But at great expense for pipe line the water was taken over the Sweetwater River up to San Diego, and over the San Diego ^{River} to Linda Vista mesa ^{twenty miles or more from its proper place} to come in competition with another great water project that will help San Diego immensely. ~~miles and miles away from its proper place~~. Even if the city sells water to some settlers along the line it can never be anything like the place it would have been if the owners of the San Diego Flume had done their obvious business duty. And the people of San Diego are about equally to blame for not seeing what the consequence would be. ~~You~~ ^{Such} a gigantic botch and shameful waste of great resources could never have happened in the adjoining counties ^{where they had no wonderful bay to absorb all their brain power.}

The next move of these business men was to reverse the system of distribution of water, universal in the United States, and probably in the whole world — the distribution by time of the run and not by ~~the~~ ^{the} continuous flow of the quantity due the irrigator. This results from the ~~very~~ simplest ~~form~~ of common sense and must be the custom of the rest of the world. Suppose two men have fifty acres each, one on each side of a natural stream of ^{ten} ~~two~~ inches, and that one inch is enough for ten acres. ~~Do you~~ ^{Can you} imagine that they would be crazy enough to cut it in two and each take ~~half~~ ^{five} inches, running all the time? Not if they were the bitterest enemies and their wives scowled fury at each other ^{every day} ~~also~~ across the stream. They would each take the whole, half the time. If they did not, and got into court over ~~the~~ the ownership, the court would so decree it. ^A child can see the reason.

Now if the one hundred acres were cut into ten acre tracts and held by ten owners ~~the~~ this would become an absolute necessity, because a single inch would ^{hardly} ~~not~~ take care of one acre properly, ^{without constant work.}

Each one could of course build a reservoir and empty it in so many days. But why go to that expense when the stream itself was a reservoir if divided by time of run instead of the quantity of run? An inch of water runs almost exactly 1728 cubic feet in twenty four hours. This makes a twelve foot cube of water. Now in the United States fully nine tenths of all land worth irrigating does not need watering more than once a month. ~~Some~~ Some things like berries and cucumbers need it oftener, and so does alfalfa on some soils, but on the other hand ~~many things like deciduous fruits~~ most all fruited, especially deciduous fruits, do better with water only once in six weeks or even longer. But, assuming once in ~~thirty~~ ^{thirty} days to be enough, then a reservoir to get that head of water in thirty days would have to be thirty times the capacity of a tank twelve by twelve by twelve feet. Or thirty times 13000 gallons. Such a tank, cemented so that it would not be a mud hole full of tules, ^{algae,} and moss and ~~weed~~ water weeds, would in most cases cost from two to three thousand dollars or two or three hundred dollars an acre, when the stream itself might be just as effective if divided by time.

This is the ~~system~~ ^{principle} of ^{on} which all irrigation works are managed, whether the water is owned by a private company, or by the land owners themselves. It works to perfection because every irrigator knows it is the only way. ~~It~~ Methods used in city distribution or for small suburban residence tracts, where ~~the~~ water is on tap every day, with or without a meter, will not do at all.

It works without a bit of friction because done in the following way. The Ditch tender, or sometimes the secretary, keeps a book in which ~~we~~ are listed the consumers with the amount of water, to which each is entitled, measured by the quantity he has bought, or by the amount of stock he owns in the company. All water ^{delivery} is subject to the rules of distribution, the first of which is that no one can touch a water gate except by ~~permission from~~ the ditch tender or secretary. ~~Suppose~~ Suppose A. has ten acres and a right to one inch of water. He goes to the officer having charge and says I want thirty inches, twenty four hours run to morrow morning at six o'clock. The officer looks over his book and ^{perhaps} says you are just a bit too late for ~~six o'clock~~ ^{the morning} run but you can have it at six in the evening.

It makes no difference whether you want fifteen inches twice a month or forty five inches in six weeks. You get it always in that way and just when you want it, provided you get in your order in time ^{for} ~~so that~~ the officer ^{to} ~~can~~ arrange everything on his books so that you do not interfere with other consumers. If you should happen to be so ignorant as to ask for a single inch —well, I don't know what would happen. At Riverside thirty years ago they would not open a gate for less than ten inches. And this was only to accommodate some of the owners of orchards that had been cut into residence tracts in the height of the boom. At Santa Ana it was fifty inches, minimum, and the same under the irrigation supply of Los Angeles City. They will not be bothered with small heads of water any more than the irrigators will. It is also far easier to measure water accurately with large heads than with small ones. ~~And~~ a large number of small streams running all the time over several miles would tie any system up in a cast iron snarl that would prevent the delivery of large heads for ranches that positively must have them so, such as alfalfa ranches. And it would take so much trouble to look after them all to see that no one was getting too much water ~~would~~ that it would not be ~~tolerated~~ tolerated.

All this is under control of the company which, in its contracts, or by-laws, if a mutual company, makes all delivery subject to the rules and regulations of the company.

Among the very first of these is a rule that is often unwritten, but none the less strong. That is, so long as there is water running that no one else wants you can have all you want at any time. In the early stages of any irrigation system this is a matter of course, and often to the detriment of the green irrigator who drowns his land and raises alkali that never would have troubled him if he had been careful.

Now can you believe that the directors of the ~~Flume~~ ^{Flume} Company utterly ignored the experience of our whole country ~~carried and the~~ founded on the simplest common ^{sense}, and compelled the owner of a single inch to take it running all the year through? Yet that is exact-

ly what they did. And did it when there was running in the flume several times the amount they had sold. And it was running ~~g~~ to waste down Chappelle Canyon into Mission Valley, and they would not allow any one to touch it there for less than ten cents a thousand gallons or four hundred and seventy four dollars an inch, a year.

As the owner of several La Mesa tracts that I had bought from the first buyers I protested against this, explaining everything, and that it would be impossible for any one to do anything of value under such a distribution. ~~But~~ I had no more success than I had had as the planner of the system. Copeland and Judson and others had no more influence. The directors listened politely and kept right on with the policy.

One of them said to me "We must be very careful about setting any dangerous precedents" (Ferry)

"How can you?" said I, "when the contracts make everything expressly subject to your rules of distribution?"

"Well we have decided that it is a dangerous precedent."

To Copeland one of them (Barber) said

"We must not ^{abrogate} ~~abrogate~~ our prerogatives."

Copeland surrendered ~~unconditionally~~ ^{on the instant}.

To Judson one said (Seften) "Well, if that isn't enough to do good irrigation let them buy some more. That's what we are here for —to sell water".

Hawley ^{also} ~~who still remained on the board~~ protested, but was ~~overruled~~. But he was not "a business man". He had made his money only on the "unearned increment" of a farm that the people of Lincoln, Nebraska, ~~he~~ needed for expansion.

The result of all this was that ^{some} ~~many~~ like myself, who had intended to make a home and an orchard at La Mesa, sold out for what ~~they~~ they could get. Dr. Wilson, the first settler and J.D. Schuyler, the well known engineer, who started to improve forty acres and had built a house for his home, left. ~~When I last saw La Mesa some years ago~~ A very few lingered ~~and~~ beside some miserable little mud holes that they called reservoirs, but the whole thing was practically hung up for years.

was a mass of cobble stones stuck together with fine clay or concrete showing plenty of lime. This all became ~~wet~~ soft when wet and roots ran through it readily in all directions. The stones did no harm except to take the place ^{might} that ~~would~~ have been better occupied with ~~fine~~ soil. On the other hand ^{stone} folks claimed that they kept the soil warmer in winter and more retentive of moisture. Whatever the reason may be it is a fact that can be seen in many places that fine orchards and other crops are grown on such lands where care is taken not to waterlog it. And it was proved forty odd years ago around National City that the mesa lands required much less water than the valley lands like those of El Cajon. The Kimball brothers used to say it was due to the hardpan holding moisture like a sponge and giving it up gradually, which was probably true to some extent. But the cooler climate of the mesa had also something to do with it. At any rate the trees, then ten to twelve years old, which the Kimballs and others had raised, with nothing but windmills pumping from deep wells and applied in basins around the trees, showed a wonderful ~~growth~~ growth for such treatment, and proved plainly ~~that~~ what they would do with water handled as it then was at Riverside.

At the time the flume was built every ~~particle~~ variety of the mesa soil had been somewhere tested in this poor way. Some parts would grow trees faster and larger than others, but mere size of the tree is not so important as the quality of the fruit, for they can be planted closer and get the same general quantity. All this had been seen by ~~the~~ men from Riverside who knew about all off fruit growing that was known at that time. Scipio Craig, whose father was one of the pioneers of Riverside, and ^{he} for two years editor of a new paper — (San Diegan, I think) started by Mrs Taggart before the boom in San Diego — was very emphatic ~~on this~~ in his opinion that the mesa around San Diego ~~was~~ had the best conditions for ~~citrus~~ fruits and especially for lemons, than any ^{other} part of Southern California. L.M. Holt another pioneer of Riverside, who had ~~examined it all~~ and for years editor of the Riverside ^Press, and considered the best authority there on the subject of oranges and lemons ^{sustained} Craig on every point. One day I heard him tell a bunch ^{of} ~~of~~ bay ^{worshippers} boosters.

"If you folks would only develop your fresh water your salt water might do you some good."

In 1882 ~~there was~~ the Horticultural ~~fair~~ Fair for Southern California was held at National City. I ~~took the trouble to come~~ ^{went} in from the country to attend it and became acquainted with many growers from the next counties. They all expressed great surprise at the exhibit of San Diego county, especially the oranges and lemons, most of which were then grown only along the coast on this mesa land. I was appointed one of the judges of oranges and after we had disposed of the two best samples, ~~we~~ were so puzzled that we had to send for ^{more} ~~two more plates~~. After rolling our eyes around for some time we finally concluded that one sample was just a trifle ^{sweeter} ~~sweeter~~ than the other. And as we were instructed that sweetness was a very important point we decided in favor of that plate. It turned out to be from Riverside and the other from below National City. The Holt told us privately that they ^{Riverside sample} had been picked several weeks before purposely to become sweeter and that ~~the~~ the San Diego man did not know that ^{and that} trick. If he had we could not have told the difference.

The lemons were away ahead of those from Riverside, though the art of curing them for eastern shipment was hardly known then in either place. But since that ~~every~~ man I have known from Riverside has said without reserve that the mesa lands were superior for lemons ~~to anything~~ in the other counties. They all attributed this to its greater warmth in winter and the greater coolness in summer which ~~make~~ the lemon especially needs. The difference in climate of ~~these~~ this San Diego County mesa is plainly noticeable ~~also~~ after leaving Capistrano. The coast line is swinging rapidly ~~away~~ to the east away from the cold ocean current from the far north which makes San Francisco so cold in summer and makes San Diego ~~its~~ summers just right for comfort. By the time you reach Oceanside the difference between that ^{place} and Santa Monica is as great as that ~~between the~~ ^{between} you find in ~~crossing~~ ^{passing Point Concepcion} Tehachapi Pass from the north. It is only different in kind, At Del Mar it is ^{much} ~~still~~ greater, and so on down to below San Diego. At San Quentin Bay a hundred and seventy ~~some~~ miles south of San Diego, in Lower California, it becomes cold and foggy again in summer

37 and the shore is lined with drift wood that must have come from Alaska, showing that the northern current is again close in shore.

I have heard & a great many Los Angeles men talk about San Diego and every one admitted that San Diego County was as far ahead of Los Angeles county in climate as Los Angeles County was ahead of it in land and water. And this long strip of ~~sea~~ mesa ^{they thought} is the best of it all.

But the people of San Diego, always at that time from ten to twenty years behind the rest of Southern California in everything relating to production-s of the soil, suddenly discovered that La Mesa was no good because of hardpan. Although the same thing could be seen in any day in San Diego where ~~on~~ streets had been cut down ~~above~~ ^{over} the middle of the town and could see the roots of trees growing through several feet of cemented cobble stones, they were quite certain that every one would fail on ~~La Mesa~~ the mesa between the city and El Cajon. The directors came to believe this themselves.

Knowing that care should be used in planting and watering, the old directors had planned to get one of the skilled men from Riverside, who make a business of caring for orchards of people who lived there only in winter, and start him on a twenty acre tract. We were to pay him a good salary and give him the tract in five years if he made it shine as we knew he could. But ^{new directors} they scouted this idea and said no greater harm could be done the flume than to have folks make a failure out there, ^{and} actually discouraged settlement for a time.

One day I strolled down n Fifth Street with an envelope enclosing a photograph that I had taken. One quarter of ^{the envelope} it on the lower corner was cut off, showing a pile of cobble stones worse than any to be found at La Mesa, just the kind that are ~~always~~ concreted a foot or two below the surface. I showed this to a prominent citizen of Tom Scott days and asked him his opinion of ^{suck} stuff for growing trees. After he had given a scornful snort that plainly intimated that I must be crazy, I said

"Can't you imagine any purpose ~~for~~ for which that might be used?"

"Nothing but old style street paving," he said.

"But could'nt something be raised in it with water and heat?"

38.

^{a long} He snorted out another scornful "Nooooo"

Then I slipped off the envelope, showing a fifteen year old lemon tree ^{heavily loaded with fine lemons} growing right in the midst of the same stuff.

"There," said I, "is a lemon tree on Copeland's old ranch on the Sweetwater that yielded last year twenty two boxes of fine lemons. It has been for years ~~is~~ only four miles from your nose. And you can see oranges as well as lemons a little farther up the valley doing the same thing on the ranches of Higgins, Frisbie and Whitney."

"Why said he "I never knew anything about that".

"Of course not," said I, "you can't see it without getting out sight of the bay for two or three hours."

I amused myself the rest of the morning ^{at the} with ~~holding up~~ ^{hunting} a lot more and bagged every one of them first shot.

So persistent had this idea become that ^{at} a railroad meeting to consider a through line east by way of Morongo Pass, John Ginty, the promotor of the proposition and as firm a friend of San Diego as ever lived, said, by way of showing the necessity of a railroad to make anything of San Diego

"I went out the other day ~~for fifteen miles~~ back of San Diego over fifteen miles of rock, covered with about four inches of sand saawaaaaand". (The Linda Vista mesa to Poway he referred to)

I protested against this statement but no one else said a word and dead silence reigned until Judge Kinny rose and said

"Give us a through line direct to the east and you can count your business houses, not by the block, but by the miiiiiiiiiiiiile."

The house shook with ~~the~~ ^{the} ~~thunder~~ ^{thunder} of applause.

Finally the directors got afraid they could not float their bonds. One day the president came to me and said

"Mr Cole of Cole and Coffin of Chicago is hereto see about ^{the rest of} taking our bonds. I wish you would come out to La ~~mesa~~ ^{mesa} with us and demonstrate what you have been saying about the hard pan out there." It happened to be in Spring after ~~x~~ good rains and all three of us took turns at the shovel. It did not take many holes to satisfy Cole that it was all right with proper management of the water and the

None of us ever claimed that all the water that could be developed in San Diego county would make any such city as its people actually thought of. A city of thirty, forty ~~or fifty~~ thousand on a solid business basis never entered their heads. The only thing they could think of was about ten times that. We never dreamed of any such a city, in our day, at least. But we did claim that the development of irrigation all the irrigation possible would help greatly in getting a start and holding it on a business basis the same as was plainly evident in Los Angeles and other places. In the mean time how could it damage the bay? The bay never needed any development. Nor any coddling. It showed for itself and the U.S. charts proved all that was ever claimed for it as a bay. Whether it was too far ~~on~~ ^{of the center of population} to one side or whether it would ever have return cargos enough to induce many ships to call and build up a commercial city like San Francisco was quite another question that only the future could answer. In the meantime it was certain that irrigation of the lands around it would not keep away any ships. But it was just as certain, and had been seen for many years, that miles of desert around it would keep away many who would otherwise be glad to settle and produce something that would bring in money that would go into immediate and general circulation. In its natural state it was even worse than desert. For true desert will clean up a man with neatness and dispatch and leave him time to go somewhere else and make a new start. But the desert around San Diego would toy with a man's hopes for years and send him forth broken in pocket, hopes and grip.

Many fully believed that Southern California has been made by the money of tourists. Of course it has, but by what kind of tourists? Those that squat at a big hotel and pay out money that takes a quick whirl around and goes back east for liquor, ~~cigars~~ ^{and tobacco}, chickens, butter, hams &c. ^{in carload lots for} to face those same tourists? Or has it been made by the tourists that settled and produced stuff that brought in money from the east, of which every dollar gave a chance for a "rake off" to scores of people here and stayed in circulation? And on what kind of land did these tourists settle and spend millions in paying for it and improving it? Where did those who had money enough to do all this

make the long lines of orchards and elegant residences that are to day the wonder of all new comers, and make so many of them crazy to do the same? ^{spend all this money?} The answer was as plain thirty years ago as it is to day. In the adjoining counties, where there was ^{is} double the rainfall of San Diego County and far more rich land, the contrast between the scattered, slow, sleepy, farming communities on the dry lands and the beautiful, ~~and~~ bustling settlements like the suburban residence sections of a large eastern city, was as ^{striking} ~~striking~~ as it is to day. Nothing but that elegant bay could ever keep the people of San Diego from seeing it. ~~But in doing that it made so far its greatest success, of its long life.~~

Some day when people now living see the mesa strung from Los Flores to Tia Juana with just such settlements as you may now see from Pasadena to San Bernardino, with special beauty spots from Fallbrook to the ocean, ^{at Oceanside, Del Mar, Linda Vista, Del Mar, and Linda Vista and other places} they will wonder why it was so long in coming. But it will come. ~~believe me when I say that I know~~ ^{what} ~~at~~ I am talking about when I say that San Diego County has more good reservoir sites than all of Los Angeles, Orange, San Bernardino and Riverside Counties put together. Also that one inch of water in a reservoir properly handled is ^{almost} ~~about~~ as effective as two inches in a natural stream. Moreover most of these reservoirs are at an elevation that will reach higher and warmer land than most of the water in the other counties. Some ~~were~~ ^{are} too low ^{for the past} ~~at present~~ but the time is ~~now~~ ^{at hand} when it will pay to pump from them ^{to higher lands}. And many that could not be thought of thirty years ago because of expense can soon be made profitable. There are other ways of getting water by tunnels and pumping from deep wells that have not yet been touched but that will pay in time to supplement ^{the flow from} ~~reservoirs~~ ^{County} reservoirs. And although San Diego ^{County} can never get the amount of water that Los Angeles ^{County} has it can concentrate what it has on ~~an~~ ^{an} area that will make a far better show of paying orchards and handsome residences than can be seen in Los Angeles County.

One half the money squandered during and after the ~~great~~ ^{mere} boom in and around San Diego on conveniences for ~~tourists~~ ^{mere} tourists, ~~and~~ enterprises that were broke every one who banked on them, ~~and improve~~

Along with this ^{came} ~~was~~ the idea that the mesa land was of no value because ~~so much of it was~~ underlaid with hardpan. The flume directors did not start this idea, but took it up after it had been started by some of the city folks who thought they were great judges of land.

The mesa or table land that runs from Tia Juana to beyond Oceanside and ~~reaches~~ extends back from ten to fifteen miles from the coast is part of an immense formation of silt, sand, gravel, cobblestones mixed with clay, and soft shales containing much lime, that forms a large part of the coast line of California and reaches far into Oregon on the north and far into Lower California. Its formation is a puzzle but the action of an immense stream, perhaps from the melting of vast glaciers, is apparent in most parts of it. So ^{far} as I can learn no wells have ever reached the bottom of it or struck bed rock, which should be either granite or porphyry. All the oil wells of the south are in it and many artesian wells have gone a thousand feet without finding its bottom.

The stuff thrown out from wells, as also from cuts by roads or railroads, everywhere indicates that it is rich in plant food ~~as~~ all the way through, for vegetation grows rankly on it wherever the rains have been sufficient. In this respect it is wholly different from subsoil in the greater part of the east which is generally of little use for ^{several} years and almost never very good. The great streams that carried it into place evidently carried plenty of humus,

for it every here yields good crops of anything without fertilizing, though like most ~~California~~ soils, however rich, it will require fertilizing in time.

Most all of the California ~~slopes~~ outside of the bottom ~~of~~ lands of the rivers, that is the soils formed by the wash of the rivers in recent times, is underlaid by some sort of hard material. On the upper slopes of the granite or porphyry hills, where so many of the orange orchards have been planted to escape frost, it is the bedrock of the hills from which the soil has been ~~formed~~ ^{formed} and which now lies in place just where it was formed. On much of this, which, to the careless eye looks so rich and deep, it is often only a foot ~~and a half~~ deep and rarely as much as three feet. Almost everywhere

the rains of centuries have carried down ~~to the bed rock~~ the finer particles of the top soil, and left upon the bed rock of disintegrated granite or porphyry, a ~~fine~~ sheet of fine clay almost impervious to water for several days or even weeks, when it finally soaks ~~away~~ ^{into} the soft bedrock.

The ~~same~~ thing has happened on the great washed formation of the mesa. But in many places it contains so much lime that it has formed a concrete which in ~~the~~ the dry season becomes hard enough to strike fire from a pick. But in a wet season it will bog a horse in a very few days ^{of rain}. There is one kind that will not soften in pure water as most of it will but must be covered with moist earth. About one hundredth of one percent will not soften even in this way, but almost the whole of it is like ^{what} you may see ^{at} Del Mar ^{or Oceanside}. It looks like rock where it crops out but where covered with soil it becomes practically good soil when kept ^{moist} wet enough.

The result is that everywhere in Southern California where such soils are found — and that means about all the most valuable fruit lands — care must be taken in planting and especially irrigating trees of every kind. That was learned forty years ago at ~~Riverside~~ Riverside, Pasadena and other places. They found that if the trees were planted in potholes down ^{to} the hardpan, the hole then filled with fine top soil and the ~~irrigating~~ irrigating water poured into the hole, ~~that~~ in time, the fine particles of top soil put into the hole leached down with irrigation and puddled the bottom ~~of the hole~~ so that the trees suffered from poor drainage. The remedy they found was to keep the water ~~x~~ two or even three feet away from the tree, and instead of growing the tree in what would be a practically a flower pot, they ran a number of very small streams in furrows between the trees so as to wet the whole ~~of~~ ground. Then cultivation followed to aerate the ground and retain moisture. ~~This changed~~ Until this change was generally adopted the fruit ~~was~~ was nothing like it now is, and the oranges were simply ridiculous except where grown on alluvial soil which was almost always too ~~fast~~ for frosty. And what did survive were far from equal to those grown on the thinner and poorer high land.

The same was the case where the whole formation for many feet

ments that did not improve, ^{with} houses and business blocks that for years did not have tenants enough to pay the taxes, and that crippled the mortgagee who was compelled to take them, would have built all the best of these water works and given the investors a better income than they got ~~or could get~~ out of anything else during the long snooze of years into which San Diego fell.

The new board of directors said ~~their~~ ^{financial} failure was ^{because} ~~due~~ to the fact that the old ones were not business men and sold too much water too cheap on contracts that could not be set aside. ~~That we were not business men is true.~~ And some said that our failure discouraged the building of other works.

That we were not business men is true. Hawley ^e was ^{only} a retired farmer, Judson ~~only~~ a tired one, Robinson only a bookkeeper, ~~and nothing to brag of~~ at that, Copeland had been compelled by ill health to give up a law business years before and take to windmill ranching to get an out of door life, I was ^{the same} in his fix but took to ~~hunting~~ ^{shot} instead of windmill the rifle and ^a gun instead of windmill. ~~If at the start a sound business idea had ever hit one of us it would have killed him. I know the shock would have been too great for me. But~~ ^{we} ~~renew our weakness and studied. The others thought they needed no study.~~

There is a shadow of truth in the idea that we sold water too cheap. If the plan had been to rely solely on the ~~San Diego~~ water shed of the San Diego River then the water sold Hawley — about one hundred inches — was too cheap. But if we had had to rely on that river we would never have touched the proposition. We knew very well that it alone would not supply ~~one quarter~~ ^{except the Guyanaca} of the water we needed because every ^t storage site for water on that river was at that time ~~was~~ far too expensive to consider. We had tried our best to get some ^{over} land ~~was~~ in El Cajon to do something to start sales of water. Hawley was the only one that would. As we had set a ~~low~~ price we could not well back out when Hawley accepted it, especially as he had paid ~~is~~ for his stock at a critical time ^{of} fifteen thousand in cash.

The only other case was that of the Pacific Coast Land Bureau. We got all other rights of way for nothing, ~~because if they could do no good they could do no harm.~~ The owners were very ^{good} reasonable about it. But ^{in the case of} the Land Bureau ~~had an immense tract~~ and several miles of

the right of way cut ~~in~~ ⁱⁿ two what was their best orange land and which was actually ~~self~~ ^{at} a fair price on the no irrigation required racket. Or rather it was worth more because it did not require irrigation. To condemn it would have taken at least two years which we could not afford to lose. ~~The scandalous verdicts afterward given~~ We knew we had no standing at that time before a jury of San Diego County. ~~The scandalous verdicts afterward given in the Suit of the Sweetwater Dam people, of nearly three hundred an acre for~~ land ~~which~~ which the owner had bought only four years before for about three dollars, land, low, frosty ^{and} cut by the river, which in flood would wash out all that was good if plowed, ^{showed} ~~that~~ ^{how} we would have been "cinched" by people who looked on such things as a ~~mere~~ private money making scheme in which the people at large had no possible interest.

In both these ^{other} cases there was an annual payment reserved, in Hawley's case six per cent on five hundred dollars more than the hundred and fifty an inch that he paid for the water right. In case of the Land Bureau they wanted that left to the Supervisors to fix under the law. We were ~~only too glad to~~ ^{ed} consent because we knew it could not, under the law, be less than six percent on the cost of works. The supervisors later on fixed it at about one hundred and twenty ^{dollars} an inch a year, ~~on proof of the cost up to that time.~~ The Bureau objected and refused to take the water and it was afterward compromised by the ^{new} directors at Seventy five I think.

It was a common remark at that time in the adjoining counties that water was worth a thousand dollars an inch. But this meant that it was worth at least that as a wrapper for a package of dry land. It was really worth much more, as was seen afterward in the sale of ten dollar land at Chula Vista for two hundred and over when the Sweetwater Dam was finished. At La Mesa we really got nine hundred an ^{inch} with six per cent more, annually, on another five hundred. This ^{selling land & water together} was the way almost all water was sold in California then. To the owners of dry land it was almost impossible to sell at any such prices. The largest price I could find at about the height of the boom for which water would sell without land was about six hundred at Highlands ^{Company} for stock in the company and about the same ^{under the Bear Valley}

Both were ^{1st} class water rights with the water already brought to the best orange land in San Bernardino County. In neither of these was there any reservation of any annual payment, ^{except the Bear Valley water,} though the stock in the Highlands Co. was subject to assessment. But neither was higher than the water sold Teralta which brought five hundred an inch and five percent a year on nine hundred more. The Bear Valley water was seven dollars an inch a year.

It is true enough that the failure discouraged investors in ~~other~~ ^{later} projects that should have been built long ago ~~to~~. But this amounted to very little for it was easily explained. What could not be explained ^{away} ~~and never can be~~ was the apathy of the people of San Diego County in general and the people of the city in particular. None of the landowners ^{under other projects} with the exception of one at Fallbrook ~~and a few~~ in Escondido and one in Linda Vista would give any part for water on the rest, ^{though the projects were} ~~all~~ ^{first class.}

This apathy continued as bad as ever up to the time I left San San Diego in 1893. One instance must suffice for the reader must be growing weary. ~~of it~~.

For four years a very eminent citizen, deeply interested in the welfare of San Diego had spent an hour or more ^{every} evening at the Cuyamaca Club. He was always wide awake and interesting in conversation. One evening shortly before I left, Judge L.L. Boone began talking water. For a long time I had quit as I was generally considered a "crank on irrigation". In about five minutes the citizen rose to go remarking.

"I have to go home now but I ~~am very glad~~ will be very glad to hear some more about this. You must tell us about it. I have't any time to study it out for myself."

The next evening Boone opened up again, talking very intelligently about the value of irrigation and its effect on the growth of every place where it was used. In ^{less than} ten minutes our citizen was snoring. ~~enough to wake the dead.~~

It was the first time since the club was started that he had gone to sleep in the ~~easy chair where he always sat~~ ^{club}. And his name

Ed Fletcher Papers

1870-1955

MSS.81

Box: 31 Folder: 37

General Correspondence - Van Dyke, T.S.



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