

## UNION MILL &amp; MINING CO. v. DANGBERG et al.

(Circuit Court, D. Nevada. May 24, 1897.)

No. 520.

1. **WATER RIGHTS—TENANCY IN COMMON—INJUNCTION.**  
One tenant in common may maintain a suit in equity to restrain infringement of his rights in the water of a stream, without joining his co-tenant.
2. **SAME—PARTIES IN EQUITY.**  
In a suit in equity to determine complainant's right to a specific quantity of the water of a stream, and to obtain a decree against all parties asserting rights therein, to the complainant's injury or damage, persons who use the waters of the stream, but against whom no relief is sought, and who claim no rights adverse to the complainant, are not necessary parties.
3. **SAME—JOINDER OF DEFENDANTS.**  
In a suit in equity to establish complainant's right to a specific quantity of the water of a stream, several persons who divert water from such stream, and claim the right to divert it as against complainant, and whose acts are such as to make their individual diversion injurious to complainant's rights, may all be united as respondents, though they do not claim the water jointly, nor by any common right.
4. **PARTIES IN EQUITY—PERSONS BEYOND JURISDICTION.**  
Persons who, if within the jurisdiction of the court, might be regarded as proper or necessary parties to a suit in equity, will not, when beyond the jurisdiction of the court, be regarded as indispensable parties, so that their absence would defeat the jurisdiction, if the rights of the complainant and of the respondents before the court can be determined without them, and they will not be in any manner affected by the decree.
5. **PRESCRIPTIVE RIGHTS—RIPARIAN PROPRIETORS—APPROPRIATION.**  
No prescriptive right to the use of the water of a stream can be acquired by one riparian proprietor, as against another, by a use of the water at times when such use does not interfere with the latter's use of the water, and when, as often as there is interference, the latter has protested, and sought to prevent the use.
6. **WATER RIGHTS—RIPARIAN PROPRIETORSHIP.**  
The rules and principles applicable to riparian proprietorship discussed and explained.
7. **SAME—PRIOR APPROPRIATION.**  
The rules as to the rights of prior appropriators of the waters of streams, and as to the methods of exercising such rights, stated.
8. **SAME—WASTE PROHIBITED—BENEFICIAL USE.**  
Waste in the use of water is not permissible. To secure protection in the diversion and use of the waters of a stream for irrigation, or any other purpose, there must be an economic, beneficial, and reasonable use thereof, so as to prevent waste. An excessive diversion of water for any purpose cannot be regarded as a diversion for a beneficial use.
9. **SAME—APPROPRIATION FOR IRRIGATION.**  
There is no superiority in rights acquired in the water of a stream for the purpose of irrigating arable land over rights acquired therein for mining or milling purposes.
10. **SAME—TITLE OF PRIOR APPROPRIATORS.**  
Parties failing to connect themselves by title with prior occupants who had appropriated the water of a stream for the cultivation of the land cannot avail themselves of such prior appropriation of the water. Their own appropriation of the water must be treated as the inception of their rights.
11. **SAME—RIGHTS OF SUBSEQUENT APPROPRIATORS.**  
The right of the first appropriator of the water of a stream is fixed by his appropriation, and, when others locate on the stream or appropriate the water, he cannot enlarge his original appropriation, or make any

change in the channel to their injury, but each subsequent locator or appropriator is entitled to have the water flow in the same manner as when he located, and may insist that the prior appropriators shall be confined to what was actually appropriated or necessary for the purposes for which they intended to use the water.

12. **SAME—TIME OF APPROPRIATION.**

In determining the question of the time when a right to water by appropriation commences, the law does not restrict the appropriator to the date of his use of the water, but, applying the doctrine of relation, fixes it as of the time when he begins his dam or other appliance by which the appropriation is effected, provided his enterprise is prosecuted with reasonable diligence.

13. **SAME—EXTENT OF APPROPRIATION.**

The true test of the extent of an appropriator's rights in the waters of a stream is the actual amount that is applied, without waste, to some beneficial use, within a reasonable time after he has given notice of his intention to appropriate the water.

14. **SAME—CHANGES IN APPLICATION OF WATER POWER.**

When water from a stream has been appropriated for the purpose of running a mill, the mill owner is entitled to increase the working capacity of the mill by alterations and improvements in the method of applying or using the water power, provided the amount of water used does not exceed the amount first appropriated.

15. **SAME—ECONOMICAL USE.**

An appropriator of the water of a stream is required to make an economic use of the water appropriated, for the purpose of the appropriation; and, if the capacity of his ditches is greater than is necessary to provide for such use, he should be confined to the amount necessary for such economic use, though less than the capacity of his ditches.

16. **SAME—PLACE OF USE.**

The right to water acquired by prior appropriation is not dependent upon the place where the water is used; and one who is entitled to a given quantity of the water of a stream may take the same at any point on the stream, and may change the point of diversion and the character of its use at pleasure, if the rights of others be not affected thereby.

17. **SAME—CAPACITY OF DITCHES.**

The capacity of a ditch, making due allowance for evaporation, seepage, etc., is the amount of water that it will carry from the point of diversion to the point of use.

18. **SAME—EQUITABLE RELIEF WHERE RIGHTS ARE VIOLATED.**

Where there is a clear violation of a right, and equitable relief is prayed for, it is not necessary to show actual damage. Every violation of a right imports damage, and this principle is applied whenever the act done is of such a nature as that by its repetition or continuance it may become the foundation of an adverse right.

19. **SAME—EFFECT OF FORMER DECREES—RES JUDICATA.**

Former decrees which are final and unreversed are res judicata of the subject-matter of the suits as then decided between the parties thereto and their successors in interest, whether the courts base their decrees upon a correct or an erroneous view either of the law or of the facts. They are not conclusive as to matters which might have been decided therein, but only as to such matters as were in fact decided within the issues raised by the pleadings.

20. **SAME—INJUNCTION AGAINST DIVERSION—CHANGE OF PLACE OF USE—RES JUDICATA.**

A decree awarding to a riparian proprietor, by virtue of his rights as such, an injunction against diversion of the water, so as to prevent its flowing freely to the lands and mill of such proprietor to the extent necessary for his uses in carrying on any lawful business, does not cease to be res judicata as to his rights in the stream because of his abandonment of the particular mill, and removal of his business to other land owned by him on the stream.

## 21. SAME—RIGHT TO INJUNCTION.

No one having rights in the waters of a stream is entitled to enjoin interference with such waters by others, when the uninterrupted flow of the stream would be insufficient to afford such person any beneficial use of it.

## 22. SAME—INSUFFICIENT SUPPLY—APPORTIONMENT.

In this case, where several parties were found to have rights in the waters of a stream, the natural flow of which was at certain seasons insufficient to supply the needs of all, *held*, that the use during such season should be so apportioned by the decree as to preserve so far as possible the equities of the several parties, and meet their necessities.

This suit is brought by the complainant, as the owner or part owner of seven quartz mills situated along and upon the banks of the Carson river, in Ormsby and Lyon counties, in the state of Nevada, to wit, the Mexican, Brunswick, Merrimac, Vivian, Santiago, Franklin, and Rock Point, against H. F. Dangberg and about 125 other respondents, comprising all of the farmers residing in Carson valley, in Douglas county, who live above the Mexican mill, and use the water of the Carson river for irrigating lands and for other purposes.

Complainant claims that it and its grantors have owned and used the mills above named, with the dams, ditches, and water power connected therewith sufficient to run the mills, since the following dates, and to the following extent, viz.: The Mexican Mill since March, 1860, with a capacity of 8,640 inches of water on a grade of 1 foot per mile; the Brunswick since April 22, 1861, with a capacity of 9,792 inches of water on a grade of 1 foot in 2,200 feet; the Merrimac since May 12, 1861, and used until 1888, when the mill was partially dismantled, with the capacity of 6,336 inches of water on the grade of the ditch, 3.32 inches to the rod; the Vivian, April 12, 1861, with a capacity of 7,344 inches of water flowing on a grade of 1 foot in 1,220 feet; the Santiago since April 12, 1861, with a capacity of 11,520 inches of water flowing on a grade of 2.2 feet in 1,910 feet; the Franklin since May 7, 1861, with the capacity of 5,184 inches on a grade of 1.6 feet in 1,228 feet; the Rock Point since December, 1859, with a capacity of 4,608 inches of water on the grade of the ditch.

The following table shows the dates of the original surveys of the land upon which the respective mills are situated, with date of recording, also dates when patents were issued to complainant, its associates, or grantors.

Name of Mill.	Date of Survey.	Record of Survey.	Patent.
Mexican.....	June 24, 1861.	June 25, 1861.	Feb. 10, 1865.
Brunswick.....	May 11, 12, 1861.	June 3, 1861.	Sept. 15, 1864.
Merrimac.....			Sept. 15, 1864.
			Oct. 10, 1866.
Vivian.....	April 12, 13, 1861.	Apr. 26, 1861.	Oct. 10, 1866.
Santiago.....	Apr. 12, 13, 1861.	Apr. 25, 1861.	Oct. 10, 1866.
Franklin.....	May 30, 1863.	June 19, 1863.	Dec. 18, 1869.
Rock Point.....	Dec. 14, 15, 1860.	Dec. 21, 1860.	
	Apr. 16, 1861.	May 7, 1861.	
	Oct. 30, 31, 1860.	Feb. 23, 1861.	May 11, 1867.

The bill, among other things, alleges, in substance, that on the 1st day of July, 1889, respondents wrongfully diverted the water, and have wrongfully continued since that time to divert the water, and threaten to continue such diversion, and, unless prevented, will continue, etc., to complainant's injury and damage; that respondents severally take and divert the water by different dams and ditches, and use the same on different parcels of land, claiming a common right to make such diversion; that complainant, in August, 1871,

commenced 11 suits in this court against a portion of the respondents herein (about 40 in number); and that judgments therein were entered for complainant, some on the 8th day of August, and others on the 18th day of August, 1873, for the property described in the complaint as the Merrimac Mill, ditch, and water power, and it was therein adjudged that complainant was entitled to the rights of a riparian proprietor in the waters of the Carson river, and that the respondents were seized and possessed of the land described in the answer, and, as incident thereto, were entitled to the rights of riparian proprietors. These were the only judgments pleaded; but upon the trial it was shown that other similar suits were brought in the state courts, and similar decrees rendered therein, which were introduced in evidence in this case. Several of the respondents made default. Others entered into stipulations as to the character of the decree which they agreed should be entered herein, as against them; and a few others appeared, and answered separately for themselves, but a large majority of the respondents were represented by the same counsel. Their answers set up a joint defense for all the defendants so answering, and a separate defense for each. They alleged that complainant's injury, if any, was not the result of respondents' acts, but was occasioned by the excessive and unprecedented drought of the year 1889; that, as to some of the respondents, they are riparian owners, and, as such, entitled to the water under the prior judgments, pleaded against them, for stock and domestic purposes, and for the irrigation of their lands; that, as to some of the others, they are entitled to the water by prior appropriation; that, as to some of the others, they are entitled to water by prescription. Their answer alleges that complainant's co-tenant is a necessary party plaintiff, and should be brought into court; that there are other persons claiming and using the water who are not before the court; that defendants made no joint diversion or common claim to the use of the water, but diverted, claim, and used it in several and independent rights and uses, and not by virtue or under claim of common right; that, in addition to the joint or common defense, defendants severally plead their several and independent rights to the water, some of them claiming by riparian proprietorship, some by decree of the court, some by appropriation, and some by prescription, and others by right of appropriation and prescription.

The Mexican Mill, as originally built, in 1861, had 12 stamps. It was changed in the spring of 1862 to 44 stamps. The mechanism and machinery of this mill, at the time of the commencement of this suit, as shown from the testimony in this case, consisted of 44 stamps of different weight, 20 amalgam pans, 10 settlers, 2 sulphuret pans, 2 agitators, 19 concentrators, 1 force pump, 1 grinding stone, 1 main driving shaft 160 feet long, 1 line shaft 160 feet long, 1 Archimedian screw elevator, 1 boiler feed pump, 1 dynamo with 48-inch Pelton wheel. The estimated power to run this machinery is given at 360-horse power, by the foreman of the mill. The penstock from the bottom of the petticoat to the surface of the water in the penstock is 29 feet 6 inches. The testimony of all the civil engineers shows that 50 inches of water under a 4-inch pressure equals 1 cubic foot per second. Previous to the commencement of this suit, complainant employed Capt. J. W. Haynie, a practical civil engineer, with many years of experience, as a surveyor, in the construction and operation of ditches and flumes, to measure and calculate the carrying capacity of its several ditches and mill races, and the amount of water flowing at different points in the Carson river. With reference to the quantity of water flowing in the east fork of the Carson river, he testified as follows: "On July 14, 1889, I surveyed a section of 500 feet of the east fork of the Carson river at a point about  $\frac{3}{4}$  of a mile above the dam from which water is taken by P. Heitman's ditch from the left bank, and J. Rodenbaugh's ditch from the right bank; \* \* \* the survey being made for the purpose of ascertaining the amount of water passing that point at that date. By careful cross sectioning at 5 equidistant points in the 500 feet, and taking 6 observations of the depth in each cross section, I ascertained the mean sectional area to be 46,525 square feet. The slope of the surface of the water was 0.00712, or at the rate of 37.614 feet per mile. The amount of water flowing was 249.60 cubic feet per second of time, or 12,480 miners' inches, 4-inch pressure." He also made surveys of all the ditches

taking water from the Carson river in Carson valley. In the month of August, 1889, he surveyed a number of artificial waterways or ditches constructed for the purpose of conveying water from the Carson river to supply power to the various quartz mills along that stream, with a view of ascertaining their respective capacities. With reference to the Mexican Mill ditch, he testified that it takes water from a dam in the Carson river, and conveys the same to the Mexican Mill, a distance of 27,380 feet. "The highest point in its bottom is 132 feet below or towards the mill from the head gate. Its total fall from this point to its discharge at the mill is 5.99, or 1.19 per mile. A box flume 427 feet in length, with vertical sides, which forms a section of the ditch, is 12 feet wide and 4.13 feet deep, giving a sectional area of 49.56 square feet, which is not greater than that of the portion of the ditch constructed through earth. Its discharging capacity is 119.776 cubic feet per second, or 5,988 miners' inches, under a 4-inch pressure. The vertical fall of the water at the point of discharge is 28 feet, and the nominal horse power yielded is 379.88, of which 80 per cent., or 303.9, would be realized.

The following table shows the result of the measurements and calculations made by him:

Name of Ditch.	Carrying Capacity in Inches under 4-Inch Pressure.
Mexican.....	5,988
" Final measurement with a nearly full head of water.....	6,808
Brunswick.....	9,115
Merrimac.....	5,220
Vivian.....	7,788
Santiago.....	9,400
Franklin.....	6,455
Rock Point.....	5,908

From January 27 to January 31, 1894, he made further surveys of the Mexican ditch, and testified in relation thereto as follows: "Exceptionally favorable conditions were afforded for securing accurate data from which to compute the capacity of the Mexican ditch. On the 27th, the ditch being empty, I, in connection with H. H. Bence, selected a section of the ditch favorable for the purpose, measuring 900 feet in length, the upper end of which is 611 feet below the head gate, and made three cross sectional measurements, one at each end of the section, and one midway between these. In these measurements, starting from a permanent datum mark, the elevation was taken by means of a telescope leveling instrument and leveling rod for every foot of length of the transverse line, thus securing a very accurate contour line. On the 31st, water was turned into the ditch, filling it to within one-tenth of a foot of a mark on the flume frame near the head gate, which mark is said to have been placed there as a gauge for a full mill head when the mill was worked to its full capacity. The height of the water surface relative to the datum line established at the cross section taken while the ditch was empty was taken by means of a leveling instrument and rod, for the purpose of defining the top of the wet cross section, as was also the fall or slope of the surface in the 900-foot length of section, at intervals of 100 feet." The result of these measurements, as calculated by the use of Flynn's table based on Kutter's formula, was 136.16 cubic feet per second, or 6,808 miners' inches, 4-inch pressure.

On January 31st, immediately after the final measurements above described, a section of 200 feet, the upper end of which was 1,334 feet below the section mentioned above, and 60 feet below the upper end of the rectangular flume in which it is situated, being the second flume above Bland's house, was measured transversely at each end and midway between, and the velocity of the water was taken by means of weighted tube floats, extending from a little above the surface to a depth just clearing the bottom. The width of the flume was 12 feet at each of the sections measured. The result of the measurements

made at this place was 136.54 cubic feet per second, or 6,827 miners' inches, 4-inch pressure. On the same day of these measurements, a section measuring 215.5 feet in length, in the rectangular flume entering the Mexican Mill, was used for the same purpose as the last, and in the same manner, except that only two cross sectional measurements were taken, one at each end of the longitudinal section. The width of the flume was the same at both ends,—11.575 feet; the depth of the water at the upper end 2.64 feet, and at the lower end 2.35 feet; mean depth, 2.495 feet; width of each of the 3 sub-longitudinal sections, 3.8583 feet. Floats were passed through each subsection four times. The result of measurements at this place was a total discharge, in cubic feet per second, 121.095, or 6,054.75 inches, 4-inch pressure. The difference between the mean of the two measurements near the head of the ditch and that of the two at the mill is 757 inches. To quote from the witness: "This must be accounted for by the present large leakage from the three intervening flumes; leakage through holes in the banks made by burrowing animals, and absorption by the ground in the more than 4 miles of channel in earth, both of the last two causes of waste being considerable, owing to the ditch not having been filled to so great a depth for a long time prior to this."

There is testimony in the record to the effect that, at the time these measurements were made, there was not as full a head of water as when the mill was running to its full capacity. Mr. H. H. Bence, who assisted Capt. Haynie in making the measurements, also made several calculations as to the capacity of the ditch at several different points. He testified that, in making his calculations, he disregarded the intervening flumes, for the reason that they were rectangular in shape, and somewhat irregular in grade, while the ditch was trapezoidal in its shape. He therefore took those portions of the ditch constructed in earth and the cross section measured in this section of the ditch as the basis of its capacity, and by careful computations, based on rules and formulæ laid down in one of the earlier editions of Trautwine's Engineers' Pocket Book, obtained the following results: (1) Ditch being empty, he found the capacity of the ditch below the assumed water surface to be equal to a flow of 128.28 cubic feet per second, or 6,414 miners' inches. An addition of  $\frac{2}{10}$  of a foot to the assumed water surface first adopted would increase the mean sectional area and velocity, and would give a flow of 139.539 cubic feet per second, or 6,979 miners' inches. After the water was turned into the ditch, other measurements were made, and the calculations with reference thereto, taken from Kutter's tables, give a flow of water equal to 137.3494 cubic feet per second, or 6,967 miners' inches. At the same time, as an experiment, he tested for velocity by means of a surface float, and obtained the following result, making the flow of water equal to 130.92 cubic feet per second, or 6,546 miners' inches. This method of obtaining the mean velocity he states is somewhat uncertain, and is adopted only for the purpose of obtaining an approximation of the flow of water where circumstances and the condition of the stream preclude other methods. He also, at another point, made measurements by means of submerged tube floats, with the result of 135.962 cubic feet per second, or 6,798 inches. To quote from his testimony: "After this, we proceeded to the Mexican Mill, and, by means of a weir which had been constructed in the tail race some distance below the mill, measured the water therein, and found 121.306 cubic feet per second flowing in said tail race, being equal to 6,065.8 miners' inches, after which we measured the water flowing in the flume next above the mill [flume 5] by the same methods employed at flume 2, and found the flow of water therein 121.249 second feet, or 6,062.4 inches, showing a discrepancy of 3.4 inches only between the weir measurements and that of the flume. Finally, from all these measurements and the result obtained thereby, I come to the conclusion, and such is my opinion, viz. that the full capacity of the Mexican ditch is not less than 141 cubic feet per second, or 7,050 miners' inches; that on the 31st day of January, 1894, there was flowing in that portion of the ditch, between flumes 1 and 2, near the upper end of the ditch, 137.349 second feet of water, equal to 6,867 miners' inches."

In the year 1893 the respondents employed L. H. Taylor, a civil engineer, to measure complainant's ditches, and estimate their carrying capacity. The following tables show the result of his testimony:

Name of Ditch.	Carrying Capacity in Inches under 4-Inch Pressure.
<b>Mexican.</b>	
On direct examination.....	3,369
On cross-examination.....	4,110
On further cross-examination.....	4,640
After a second measurement.....	5,446
On further cross-examination; head of ditch.....	6,900
<b>Brunswick</b> .....	8,432
<b>Merrimac</b> .....	3,248
<b>Vivian</b> .....	4,165
<b>Santiago</b> .....	3,680
<b>Franklin</b> .....	2,382
<b>Rock Point</b>	
Ditch.....	2,635
Flume.....	7,500

The following is an extract from the records of the United States Geological Survey, showing measurements, in cubic feet per second, of the Carson river at Bland's ranch, Nev., and of the so-called "Mexican Flume," for the respective months, as follows:

	Cubic Feet per Second.		
	Carson River.	Flume.	Total.
April 9 to 30, 1890.....	1,446	119	1,565
May, 1890.....	3,360	115	3,475
June, 1890.....	3,021	122	3,143
July, 1890.....	2,037	122	2,159
August, 1890.....	19	125	144

J. W. Powell, Director.  
F. H. Newell, Topographer.

The following books, pamphlets, and other works on water rights were admitted in evidence, and marked as exhibits in this case, viz.: Irrigation Canals and Other Irrigation Works, by P. J. Flynn. Practical Treatise on Hydraulic Mining, by Bowie. United States Geological Survey, by J. W. Powell. Hydraulics; Flow of Water through Orifices over Weirs, by Hamilton Smith, Jr. Lowell Hydraulic Experiments, by Francis. Trautwine's Engineers' Pocket Book. Nevada Territory Directory. A Treatise on Hydraulics, by Merriman. James Leffel's Works, 1883, 1888, 1891. Catalogue Milling Machinery; The Risdon Iron Works. Mechanics' and Engineers' Pocket Book, by Haswell. Report of the Director of the Mint. Annual Report of the Nevada State Weather Service.

The testimony of Mr. Samuel Singleton, as to the method of diverting the water from the Carson river over the low lands in Carson valley, referred to in the opinion of the court, is as follows: "Q. Mr. Singleton, you have in connection with almost every ranch about which you testified with reference to the water they used, you have used the word 'cuts' in the bank 'when the water was high' and 'taking out cuts'? A. Yes, sir. Q. Explain more fully just what you mean by taking the water out by cuts in the bank when the water was high. A. We would dig a small ditch or cut in the bank, and let the water out. \* \* \* Q. Is it not true that the river bank was a foot higher at the river's edge than a little ways off? A. Yes, sir. \* \* \* Q. The bed of the river was deeper in those days? A. The river was deeper and narrower. Q. How high above the bottom of the river would these cuts

be where they cut into the bank of the river; how high would the bed of the river be? \* \* \* A. Sometimes it would be three feet, and sometimes five feet. Q. So that, when the water was from 3 to 5 feet deep in the river, the water would run out through the cuts that you made in the banks? A. Yes, and irrigate the grass. Q. If it did not go down low enough to quit running in the cuts, you would fill up the cuts if you wanted to cut your hay? A. Yes; to keep the water from the grass. \* \* \* Q. How was it on your place? A. \* \* \* We dug a ditch there. Q. How long a ditch was it? A. It must have been about 10 or 12 rods long. Q. It was just long enough to get the water through the high land next to the river onto the low land some little distance from the river, as you have described the conditions to exist at that time? A. Yes, sir. Q. How much land did it overflow and spread over? A. It overflowed 160 acres or more from the northwest on the land of Park now. Q. How wide did it spread out after it went through that cut, 10 or 12 rods long? A. It spread a great deal, and by taking a shovel, and assisting here and there, it spread the whole thing. \* \* \* Q. In 1852 did you not find natural meadows that were irrigated by the natural overflow of the river until the blue joint grass grew as high as your head? A. Yes, sir. Q. The first cutting of hay in the valley was from these natural meadows that had been irrigated by the natural overflow of the water when the river was high? A. Yes, the first hay that was cut. \* \* \* Q. About what year did the water commence to come down with a rush? A. After the timber was cut in the mountains. Q. About what year did that occur? A. From 1868 until to-day. \* \* \* Q. Is it not the fact that the early settlers on the west side of the valley next to the foot of the mountain, along the road, took up the land along the road, and used mountain streams for irrigation? A. Yes, sir. \* \* \* Q. Was not all their irrigation in early days either from mountain streams, and where they made cuts in the banks as you have described? A. Yes; that was between 1850 and 1860. Q. And after 1860 how was it? A. It continued that way until the timber was cut off, and the willows cut out, and the grubbing all done. Q. It continued that way until about 1868? A. Yes, until they cut the timber. \* \* \* Q. How much land was cultivated on the Mott ranch as early as 1860 and 1861? A. In 1860 and 1861 I do not think there was any cultivated on the low land; I mean plowed land. The other was grass land, if you call it cultivation by watering it. Q. Prior to 1861 there was no land plowed on the low lands on the Mott ranch? A. I do not think there was any more than ditches. There were several ditches plowed to carry water, and used to irrigate grass land when the water was up. Q. The land that was cultivated by plowing was irrigated by mountain streams? A. Yes, sir. Q. That continued to be the case down to 1862 and 1863? A. Yes, sir. Q. So that prior to 1862 and 1863 there was no land ever cultivated in any manner on the Mott ranch except by mountain streams—except by using the overflow? A. That is all. \* \* \* Q. How much of the Mott land was inclosed with a fence as early as 1861? A. I think the whole thing was pretty much inclosed in 1861 by a wire fence. \* \* \* Q. But you think that as early as 1861 the Mott ranch was inclosed two miles north and south and three miles east and west by a fence? A. Not by a wire fence. It was pretty much all inclosed by a fence. \* \* \* Q. How much rail fence was there in the valley in 1860? A. Mott had 20 acres, and I had 10 acres, and Howard had 10 acres, and Woodford about 20 acres, fenced with cedar posts and cedar rails mortised in, and some of it is there to-day. \* \* \* Q. You say that you cut some ditches yourself on the Mott ranch in 1853? A. Yes, sir. Q. How many ditches did you cut there in 1853? A. May be 20 or 30. Q. The ditches that you cut were mere cuts in the high bank right at the river to let the water out? A. Yes, cuts in the high bank. Q. These 20 or 30 cuts, that you made in 1863, were they all of the same character,—just to cut the bank to let the water out at high water? A. Yes, sir. \* \* \* Q. How much land did Mott plow all told as early as 1860? A. 20 acres, I think. Q. What did he put that in? A. Grain and vegetables. Q. Where did he get the water for that? A. From mountain streams. Q. All other land that he irrigated prior to 1860 and 1861 was by means of cuts in the banks of the river at high water, and spreading the water? A. Yes, sir. \* \* \* Q.



There was plenty of water then? A. Yes; there was plenty of water then. There was plenty of water until the seventies, when it got short. Q. And then you had to make better dams to get water when it was lower? A. Yes, sir. Q. Do you know the ditch running down across the land east of your place, called the 'Big Ditch'? \* \* \* A. Yes; I know the ditch. Q. When was that built? A. In 1860 or 1861; it was dug to drain the bottom land. \* \* \* Q. Let me call your attention to a ditch between the Big ditch and your house; between the Big ditch and the one marked Bull and Park's ditch. When was that built? \* \* \* A. It was built in 1870 or later. \* \* \* Q. Can you show me a ditch on this map from Sheridan to Peter Vansickles' that was built earlier than the year 1860? A. I don't know of any ditch to run from Vansickles' to way up there. \* \* \* Q. Show me where there is a ditch there, built as early as 1860. A. I do not know where there is any particular part of the land where there is a ditch. There are some ditches in this big slough marked Parson's ditch, running off towards my place. Q. Is there a ditch there running from Parson's ditch towards your place that was built as early as 1860? Do you know of any ditches there taken out as early as 1860? A. I cannot recollect. \* \* \* Q. Was there any land in the valley prior to 1860 irrigated by any other methods except by digging those little cuts in the high bank, and letting the water flood the land at high water? A. There might have been dams put in that I did not see. Q. Do you know of any? I am asking, within your own knowledge, if there was any irrigation of land in the valley prior to 1860, except by cutting the banks? A. I do not know, but I put in willow dams before that time. Q. All the grain land and plowed and garden and vegetable land prior to 1861 on the west fork was irrigated by means of mountain streams? A. Yes, most of it on the west side of the valley. \* \* \* Q. All the ditches spoken of as having been taken out near the Job dam were all cuts through the same high bank? A. Yes, cuts right through the bank. Q. How long would those cuts be? A. 10 or 12 rods, and some a little farther, probably. \* \* \* Q. What do you mean by saying that Hiram Mott and you took water whenever you wanted to irrigate, when the water was high? A. When I was there by the river, watching our stock, I would have a shovel, and take it out, and, when he was there, he would do it. Q. When you were watching stock, you would go around with a shovel, and make little cuts in the bank, and get water out, and let it flood the land? A. Yes, trying to make hay. \* \* \* Q. You testified that the Mott ranch had been cultivated from 1853 to the present time. How much do you wish to be understood as saying was cultivated? A. I want to be understood that the grass grew there since I have been there, and a year before I came there. Q. It was growing before you came, and you cut some of it the year you came, and it has been growing ever since? A. Yes, sir. Q. That is just what you desire to be understood as saying? A. Yes, sir. \* \* \* Q. How long was it before anything else was raised on the Mott land except natural grass? A. Way until 1860, and after; nothing but natural grass there until 1860. Q. Just the same as was growing before the white people came to the country? A. Yes, sir. Q. Is that what you mean by saying that the Mott ranch has been cultivated from 1853 down to the present time; that the natural grass which was growing there before the white people came to the country continued to grow the same as if they had not come? A. Yes, sir. Q. How was it in 1859, 1860, and 1861? A. There was plenty of water until we got to the seventies, when it began to get scarce. Q. It was in 1868 or 1870 when the farmers in the valley began to make arrangements to get water out of the river at low stage? A. It was so with me and my neighbors."

The following testimony, in relation to the time when the Virginia ditch was constructed, is referred to in the opinion of the court:

C. N. Noteware, one of respondents' witnesses, on cross-examination testified as follows: "Q. What ditches do you remember to have been built prior to 1863? A. The Virginia ditch was built before that. Q. I wish you would think it over, and see if you have not your bearings a little wrong. Several witnesses have testified that the Virginia ditch was built in 1864, and in 1864 was the time when they first put water through that ditch. A. I am very positive that that ditch was dug long before 1864. Q. The Virginia ditch? A.

Now, I say positive; all that knowledge must be taken with some allowance. It is a great many years ago, but it seems to me that I cannot be mistaken; but other witnesses, more familiar with the facts than I am, swearing it was built in 1864, might make me think I was mistaken. Q. If several witnesses were to say they commenced work on that ditch in the fall of 1863, and did a little work on it that fall, and that in the spring of 1864 a large force of men was put to work on the Virginia ditch, and completed it, and that they also dug the company ditch in 1864, would you think that you were mistaken about it? A. Yes; I think so, because the witnesses might be more conversant with the country than I was. As I stated, most of my business was driving cattle up to 1862, and I was not noticing these things, but it seems to me that I saw on the Lyttle place a ditch before 1863." He was recalled, and upon direct examination testified: "Q. I want to inquire of you more particularly concerning the ditch commonly known as and called, in Douglas county, the 'Virginia Ditch.' When do you remember first to have seen that ditch? A. I do not know when I first saw it, but, as I stated when I was examined before, my impression was that I had seen it as early as 1861; and I was somewhat taken back when I was informed by counsel during my examination that several old residents, who certainly ought to know and remember as well as I would, had testified they had not seen it until 1864; and I have thought over the matter since, to know whether I was not mistaken, and now I still think I was right when I stated I had seen that ditch as early as 1861. I want to explain now what I saw: I saw an excavation for a ditch there as early as 1861, but I have never seen any water in the ditch in my life at any time since. I saw an excavation there, I feel pretty certain. They seemed to have a number of excavations on the line. Q. What is it, if anything, which strengthens your recollection about that, using all the circumstances that you can now think of to confirm your present recollection? A. Prior to and including the summer of 1861, I was driving cattle to the Mono and Aurora Mines pretty much all \* \* \* of each season of 1858, 1859, 1860, and 1861, inclusive; and, in driving my cattle by there, I saw it. I have had no occasion to go up there since then, and I have never been in that locality since 1861. I asked what that ditch was, and the reply was, 'It was Bill Stewart's ditch;' and afterwards they said they were getting water from there. If that remark was made subsequent to 1861, and not in connection with my going there, I might be mistaken. It might have been subsequent that I learned of that ditch, but I have thought the matter over a great deal since I gave my testimony, and it does seem to me that I cannot be mistaken about it. When I saw it, it seemed to have been plowed and scraped out each way, and it might have been only a short distance; but it was a good big ditch, and my cattle used to get in there, and I don't recollect driving cattle that way at all since 1861, and I don't think I can be mistaken." On cross-examination he testified as follows: "Q. Just where was this excavation that you remember seeing on the Virginia ditch in 1861? A. It was some distance from the river, because the line of my travel would take me away from the river. It must have been as far as somewhere between where Jeffries and Banning located; between there and the Twelve Mile House is where I would cross this excavation on the line of my travel. Q. How far from the river would it be? A. I should think it would be from one-half to one mile from the river. \* \* \* Q. How large a ditch was it? A. It was a pretty large ditch,—from bank to bank it might be fifteen feet. Q. That, you said, was Bill Stewart's ditch. Do you know for what purpose Stewart was constructing the ditch? A. I only know from what was said to me. They said the Virginia Company had taken up a ranch, and that was their ditch."

J. H. Martin, called on the part of the respondents, in direct examination testified as follows: "Q. Do you know what is called in this case the 'Virginia Ditch'? A. Yes, sir. Q. When do you remember first to have seen that ditch? A. In 1861, I think in October. \* \* \* I came across where they had been digging a ditch, and there did not seem to be any end to it to cross. They had dug a section of a ditch there, and, when I got to the Twelve Mile House, I said, 'Who is digging a ditch there?' and they said there was a company in Virginia organized to build a ditch and farm the land there. I thought they went in there to make a show of possession." On cross-examination he testified as follows: "Q. Have you not heard also that that ditch was abandoned

at that time, and then taken up and finished early in the spring of 1864? Did you not hear at the Twelve Mile House right then that the ditch was abandoned? A. No; I did not hear it was abandoned, but I heard it was not completed until then, and I understood they made some demonstration of possession there. \* \* \* Q. Did you ever hear of any work being done in 1862 or in 1863 on the Virginia or company ditches? A. No; I never heard of it."

Thomas Wheeler, called on the part of the plaintiff, in rebuttal, testified as follows: "Q. Do you remember anything about the Virginia ditch? A. Yes, sir. Q. When was that ditch first laid out, and work commenced upon it? A. In 1862. Q. Do you know whether it was surveyed by a surveyor and engineer? A. I do not. Q. State how much work was done on that ditch, and at what point it was done in 1862. A. They done the work on the ranch. They started work on the corner of the Virginia ranch, and I have talked with the boys working there several times, and they bought their supplies from father. There was two of them at work there, and they represented there was a company from Virginia City owned the property, and they had taken up a ditch in and about that point to bring water from the Carson river, and that it was a large company. It was to run clear through to some point below Cradlebaugh's. They done some work in there on the line of the ditch, and dug some holes in the summer of 1862 in different places. Q. Where was the work done in 1862? A. Almost north from where Pettigrew lives, I think. Q. How was the work prosecuted? A. They dug some holes, and started a ditch with picks and shovels, and they did not plow, or anything of that sort. Q. How far away from the river would the holes which they dug in 1862 be? A. A mile and a half or two miles from the river. Q. Was the work picked up and continued in 1863? A. No, sir; the work laid over in 1863. Q. Do you know from what cause no work was done on the Virginia ditch in 1863? A. Nothing more than it was said that the company had busted up, or something of that kind. Q. When was there any further work done on that ditch? A. They went in in 1864, and dug it through from where they done this digging, in 1862. They dug it through to the river. Q. Was it a large ditch then? A. They didn't make it as large as the first start. They first started quite a canal, but they didn't make it quite so large. Everybody thought it was going to be a terrible canal. Q. How large was it as they started it north of Pettigrew's house? A. My recollection of it is that it would be six or seven feet wide on the surface. Q. And how deep? A. It would probably be a couple feet deep, and other places not so deep. Q. How large was the ditch that they built from that point to the river in 1864? A. The ditch, I suppose, would be six or seven feet wide on the surface, and it would slope in. That year they put in, I think, about ten or fifteen acres of grain, in 1864. Q. Did they irrigate from the ditch? A. Yes, sir. Q. How? A. They run it over the country, and threw it over the ground with a shovel in places. The boys didn't understand irrigation very well those days. Q. Did you see that ditch yesterday? A. Yes, sir. Q. How does it compare in size with the ditch that you saw dug there in 1864? A. It looks to be several degrees larger. Q. Is it not twice as wide and deep as it was in 1864? A. It is full twice the width, and more than twice the depth."

H. F. Dangberg testified as follows: "Q. How many Virginia ditches are there? A. There is only one ditch at the head, but it branches out at the bridge. Q. Ain't there two ditches at the schoolhouse below? A. Yes, sir. Q. Which was built first? A. The lower ditch. Q. Is that the one that was built in 1863 or 1864? A. Yes, sir. Q. Is it not true that a little work was done on the Virginia ditch in the fall of 1863, and a large force of men put on in the spring of 1864, and the ditch finished? A. Yes, sir; I think so. Q. Ain't what you think about it the truth? A. Yes, sir. Q. Who built the upper Virginia ditch? A. My brother Chris. Dangberg and myself. Q. When did you do that? A. That was done somewhere between 1875 and 1880. Q. How much water would the first Virginia ditch when first built carry? A. \* \* \* Four or five thousand inches."

David Olds, one of the respondents, testified as follows: "Q. All of that time you were somewhat familiar with the valley? A. Yes; I was supervisor of Douglas county for 1864 and 1865 and 1866. Q. You know the country in and about Gardnerville? A. Yes; I knew it then, but it was all sagebrush,

and not settled much. That was the Virginia ranch at that time. Q. Do you know the country from Gardnerville across Pettigrew's, Dangberg's, and Henry Elges' place, and the country irrigated by the Allerman ditch and the company ditches? You knew that country? A. Yes, sir. Q. About what years were those sections of country in there reclaimed and put under cultivation, and water carried on that land by a system of irrigation? A. The most of it has been done since I left there. Q. You cannot say how much had been done before you left there? A. I don't know; water was taken out of the Virginia ditch on the Virginia ranch in 1863 or in 1864. Q. Was not that land first irrigated in 1864? A. I think it was about 1864."

Charles E. Holbrook testified that the Virginia ditch was started in 1863, to the best of his recollection.

The following is the stipulation referred to in the opinion, and was signed by 12 or more of the defendants: "It is hereby stipulated and agreed by and between the complainant above named and the defendants signing this stipulation that complainant may take a decree, without costs, against the said undersigned defendants, as prayed for in its said bill of complaint on file herein, provided that the water right and water in Carson river, which complainant shall be decreed to have and use, shall be limited during the irrigating season of each year to a flow of six thousand (6,000) inches measured under a four (4) inch pressure, or any other flow or measurement which will deliver seven thousand and two hundred (7,200) cubic feet of water per minute of time, said measurement to be made at Cradlebaugh's Bridge, in Douglas county, Nevada, or as near said bridge as is practicable to measure the running water in Carson river, and provided, further, that said defendants signing this stipulation shall at all times, regardless of the amount of water in said Carson river, have the right to use the water of said river for domestic purposes, and to a reasonable use thereof for the purpose of watering stock. It is further stipulated and agreed by and between the parties signing this stipulation, the said defendants, the signers hereof may use during the irrigating season, for the purpose of irrigation upon lands now in cultivation, all of the surplus water in said Carson river over and above the said amount of six thousand (6,000) inches or seven thousand two hundred (7,200) cubic feet per minute. Said water shall be used in an economic manner, and all waste water shall be returned to the river. The complainant hereby releases, waives, and abandons all claims and causes of action for damages resulting, up to date of filing hereof, from any of the acts and injuries complained of in the complainant's bill of complaint herein, as against the defendants who shall agree to and sign this stipulation. But nothing in this stipulation contained shall be taken or construed as being a waiver or release by complainant of its action, or right of action, against any of the defendants not signing this stipulation. It is further stipulated and agreed by and between the complainant and the defendants signing this stipulation that in order to give the said defendants time and opportunity to store the water of Carson river at its head waters, in the nonirrigating season, so as to increase the supply during periods of scarcity, the said defendants, the signers hereof, and none others, may use the waters of Carson river during the irrigating season of A. D. 1890 and 1891 up to the 15th day of July in each of said years, for the purpose of irrigating their lands now under cultivation, but on none other, in order to bring their crops to maturity, even if, by so doing, they encroach upon the right of complainant to the flow of 6,000 inches as aforesaid; but said privilege shall be exercised in an economic manner, and all waste water shall be returned to the river, and said privilege of encroaching upon said flow of 6,000 inches shall not be exercised beyond the year A. D. 1891, and shall not extend to parties not signing this stipulation and agreement. Said flow and measurement of 6,000 inches, measured under a four (4) inch pressure or 7,200 cubic feet per minute of time, shall not be deemed or held to include any water which shall be hereafter stored by said complainant, or purchased by complainant from the state of Nevada or the county of Douglas or the United States or from any other person, party, association, or corporation storing water, but shall be deemed and construed to be 6,000 inches under a four (4) inch pressure, or 7,200 cubic feet per minute of the natural flow of Carson river."

The title to a portion of the lands in Carson valley is by patents. The following abstract shows the amount of land patented by respondent H. F. Dangberg, and the dates when the patents thereto were obtained:

Date of Patent.	No. of Acres.	Date of Patent.	No. of Acres.
Dec. 10, 1864. ....	120	Sept. 4, 1874. ....	120
Dec. 20, 1864. ....	160	April 23, 1874. ....	40
Nov. 15, 1865. ....	160	Jan. 25, 1875. ....	120
Nov. 15, 1865. ....	160	March 7, 1876. ....	160
April 1, 1865. ....	160	July 25, 1876. ....	160
April 1, 1865. ....	160	April, 1877. ....	160
Sept. 1, 1869. ....	160	Nov., 1883. ....	160
June 26, 1869. ....	80		
June 28, 1869. ....	320	Total. ....	2,720
Sept. 1, 1869. ....	320		

Trenmor Coffin and W. S. Wood, for complainant.

S. Summerfield, for respondent H. H. Springmeyer.

Robert M. Clarke, W. E. F. Deal, and D. W. Virgin, for other respondents.

HAWLEY, District Judge (after stating the facts as above). This is a suit in equity to obtain a decree against the respondents for the alleged wrongful diversion of the water of the Carson river, to complainant's injury and damage. The Carson river is a natural water course, having its source or head in the state of California, and running through the Carson valley, in Douglas county, Nev., to the "sink of the Carson," in Churchill county, where its water sinks and disappears. The river has two branches or forks, designated as the "East Fork" and the "West Fork," and there are many tributaries, branches, and sloughs which connect therewith, through which the water flows every month in the year. The headwaters of both of the main branches rise in California, flow into Carson valley, and unite at Boyd's Bridge, and thence flow in a single channel to the sink, a distance of over 100 miles. Above the main junction there are branches and sloughs from the East Fork, which flow into the West Fork.

Complainant claims the right to sufficient water of the Carson river to run its mills (1) upon the ground that it is a lower riparian proprietor upon the river; (2) upon the ground that it is a prior appropriator of sufficient water of the river to propel the machinery of its mills; and (3) as against several of the respondents by reason of the decrees of this court and of the state court decreeing to it and its grantors a sufficient quantity of water for such purposes, and perpetually enjoining such respondents and their grantors from the use of such water, to complainant's injury and damage. The respondents admit the diversion of the water, and claim the right to divert all the water of the river (1) by reason of their being riparian owners along the upper course of the river above complainant's mills; (2) by reason of their being prior appropriators of the amounts of water respectively claimed by them; and (3) by prescriptive use, to complainant's injury, of the respective amounts of water claimed by them for more than five years prior to the bringing of this suit.

The testimony as to the use of the water by the respective parties covers a period of time of over 30 years, during which there has been more or less litigation concerning the rights of the parties. It includes the locations and titles of each of the seven mills of which complainant is the owner or part owner, the size and capacity of its ditches, and the amounts of water necessary for it to use, so as to enable it to properly and successfully run its mills. It also embraces the respective titles to the land of the various respondents, the time when their land was first taken up, when the water was first used for purposes of irrigation, and the amount of water appropriated and required for the beneficial use of irrigating their lands. The testimony includes a history of the whole country from the headwaters of the Carson river to its sink. There is an unusual amount of conflict in the testimony, especially as to the amount of water flowing in the river at various points at different seasons of the year, of the capacity of the different ditches, the amounts of water used by the respective parties when first used, and upon nearly every other material fact in the case. A general idea of the extent of this conflict in the evidence is made manifest by the fact that abstracts made therefrom, and set forth or referred to in the briefs of counsel, for the convenience of the court, cover about 1,000 pages of typewritten matter. From this statement it is apparent that the court, having due regard to the compass of its opinion, and the limits of its own time and patience in preparing it, cannot discuss at length the questions arising from such conflict, and will be compelled, in many instances, to simply state its conclusions upon the facts, and devote most of its time and space to a review of the many intricate, novel, and interesting legal principles, including nearly every question of law pertinent to water rights, which are involved in the decision of this case.

Before proceeding with the discussion of the case upon its merits, there are certain preliminary questions that have been presented and are urged with much force by the respondents' counsel, touching the right of the complainant to maintain this suit on account of the misjoinder or nonjoinder of certain parties, which will be first disposed of.

It is said to be the constant aim of courts of equity to do complete justice, and to settle the rights of all persons interested in the subject-matter of the suit, in order that litigation may not be conducted by halves, and that the same persons may not be harassed by a multiplicity of suits in reference to the same subject-matter. Conceding this to be the aim of all courts of equity, and that their rules of procedure are molded to assist in the accomplishment of this end, it would naturally be expected that fixed and definite rules could be found regulating the conduct of suits by persons having a union of interests, and prescribing that those persons should unite in the prosecution of a common claim. But, instead of discovering such invariable rules, the courts are compelled to concur in the language of Judge Story, in which he reminds his readers of the impossibility of stating any rules which shall be of universal application to the joinder of parties in equity. Mr. Justice Story said:

"The truth is that the general rule in relation to parties does not seem to be founded on any positive and uniform principle; and therefore it does not admit of being expounded by the application of any universal theorem, as a test. It is a rule founded partly in artificial reasoning, partly in considerations of convenience, partly in the solicitude of the courts of equity to suppress multifarious litigation, and partly in the dictate of natural justice, that the rights of persons ought not to be affected in any suit, without giving them an opportunity to defend them. Whether, therefore, the common formulary be adopted, that all persons materially interested in the suit, or in the subject of the suit, ought to be made parties, or that all persons materially interested in the object of the suit ought to be made parties, we express but a general truth in the application of the doctrine, which is useful and valuable, indeed, as a practical guide, but is still open to exceptions and qualifications and limitations, the nature and extent and application of which are not, and cannot independently of judicial decision be, always clearly defined." 1 Story, Eq. Pl. § 76c.

1. It is contended that complainant ought not to be permitted to maintain this suit without making its co-tenants parties thereto. This contention cannot be sustained. It does not affect the jurisdiction of the court, but addresses itself solely to the policy of the court. *Elmendorf v. Taylor*, 10 Wheat. 152, 166. It is not shown either by the pleadings or the proofs herein that any injury will result to respondents by the failure of complainant to make its co-owners in the mills parties to this suit. Complainant's interest is several. There is but a unity of possession. Its estate is capable of being injured, and it is entitled to have it protected from irreparable injury, without regard to the action of its co-tenants. The co-tenant is not an indispensable party to the determination of its rights. *The Debris Case*, 16 Fed. 25, 34; *Railroad Co. v. Ward*, 2 Black, 485; *Hewitt v. Story*, 12 C. C. A. 250, 64 Fed. 524; *Himes v. Johnson*, 61 Cal. 259; *Water Co. v. Perdew*, 65 Cal. 447, 452, 4 Pac. 426.

2. It is claimed that the Comstock Mill & Mining Company, the owner of the Eureka Mill, on the Carson river, ought to have been made a party complainant or respondent, and that all of the farmers diverting water from the Carson river below the Rock Point Mill, and the farmers above the Rock Point Mill and below the Merrimac Mill, and the farmers in Carson valley taking water from the tributaries of the Carson river, should have been made parties respondent, and that this suit cannot be maintained without the joinder of all such parties. This suit is not brought to determine the amount of water which each respondent is entitled to divert and use for the purposes of irrigation. It is a suit instituted for the purpose of determining complainant's rights to a specific quantity of the waters of the Carson river, and to obtain a decree as against all parties who are asserting any right to such waters, to its injury and damage. This being the nature of the suit, complainant is only required to bring such parties before the court as interfere with its rights. The Comstock Mill & Mining Company does not appear to claim any right to the water of the river adverse to complainant. It could not properly have been made respondent, and the attention of the court has not been called to any principle of law which would authorize or compel it to be made a party complainant in order to prevent its commencing any suit against any party who might hereafter interfere with any of its rights. No relief is sought or claimed against any of the farmers on the river below the mills, or be-

tween the mills, or as against the parties using water on the small tributaries for irrigation between complainant's mills and the state line. Where no relief is sought against persons who are not connected in interest with the subject-matter of the suit, they should not be made parties to the litigation.

3. It is argued that inasmuch as the respondents who are made parties to the suit do not claim the water of the river jointly, or by any common right, they cannot be jointly sued, and the complainant is not therefore entitled to the remedy it seeks to obtain in this suit. It is true that the respondents deny that they have entered into any combination to divert any of the waters of the river to complainant's injury or damage, or that they jointly or in common divert or use said water, and allege that they claim individual, distinct, and separate rights independent of each other; but the pleadings and the proofs, without any conflict, distinctly show that the results of respondents' acts are such as to make their individual diversion of the water injurious to complainant's rights, if the complainant is entitled to any prior rights to the water. Their claims are of the same common character, in that they are adverse to complainant. They are therefore all properly united as respondents, because they all divert water from a common source, the Carson river, above the mills, and claim the right to divert it as against the complainant. These conflicting rights, whatever they may be, can be determined by one suit. Complainant might not be able to maintain its suit against them singly, for it may be that no one of the respondents acting individually has deprived complainant of all the water to which it is entitled. Complainant is only entitled, if at all, to a certain amount of the water of the river, and it is by the action of all the respondents that it has been deprived of the water to which it claims to be entitled. Each respondent claims the right to divert a given quantity of water. The aggregate thus claimed so reduces the volume of the water in the river as to deprive complainant of the amount to which it is entitled. To this extent, even if there is no such unity or concert of action or common design in the use of the water to injure complainant, there is certainly such a result in the use of the water by the respondents as authorizes complainant to maintain this suit, upon the ground that the action of all the respondents has produced and brought about the injury of which it complains. Every one who contributes to such injury is properly made a party respondent.

As was said by the court in *Saint v. Guerrerio*, 17 Colo. 448, 453, 30 Pac. 335, 337:

"Interference with the prior right of a party to the use of water for irrigation is unlike most private injury for which relief may be had by injunction. Priority of right to the use of water from a natural stream is a right peculiar to its nature. A party entitled to such priority, unless he can show that he is entitled to all the water of the natural stream, cannot, in the nature of things, identify certain specific water as belonging to himself while the same is running in the natural channel. Being entitled only to a certain quantity of the water, less than the whole, it is only after a proper diversion of such quantity into his own separate ditch or lateral that the prior appropriator can be said to have title, in kind, to the specific water thus diverted. \* \* \* Keeping this principle in view, it follows that if plaintiff had, by priority of appropriation,



actually acquired the better right to the use of the water of the natural stream than either or all of the several defendants, he was entitled to have such priority protected against their acts, whether joint or several, and for that purpose was entitled, if necessary, to join all as defendants in one action. Plaintiff did not claim a prior right to the use of all the water in the natural stream, and the amount diverted by any single defendant might not interfere with plaintiff's use; hence he might not be able to maintain an action against any one of the defendants separately for diverting the water. So, plaintiff might not be able to show that any two or more of the defendants acted jointly in diverting the water; nevertheless, he might be able to show that the result of their several diversions in the aggregate was to deprive him of its use altogether. The joint result of their several acts would, under such circumstances, justify their joinder as defendants."

The following additional authorities sustain the right of complainant to maintain this suit against the respondents: *Blaisdell v. Stephens*, 14 Nev. 17; *Hillman v. Newington*, 57 Cal. 56, 63; *People v. Gold Run Ditch & Min. Co.*, 66 Cal. 138, 4 Pac. 1152; *Miller v. Highland Ditch Co.*, 87 Cal. 430, 25 Pac. 550; *Foreman v. Boyle*, 88 Cal. 290, 26 Pac. 94; *The Debris Case*, 16 Fed. 25; *Woodruff v. Mining Co.*, 8 Sawy. 628, 16 Fed. 25; *Id.*, 27 Fed. 795, and authorities there cited.

4. It is next claimed that the farmers residing in California, who are not within the jurisdiction of this court, and who are diverting the waters from the East and West Forks of the Carson river, in said state, are indispensable parties to this suit. This proposition is untenable. If the parties were within the district of Nevada, where the suit is brought, it might be the duty of the court to compel complainant to bring them into court; but it does not necessarily follow that this suit cannot be maintained without them. They are proper, and perhaps necessary, parties, but they are not indispensable parties. The rights of the complainant and of the respondents before the court can be determined without them, and they will not in any manner be affected by the decree in this suit. This court must deal with the situation of the parties as it finds them, and proceed to determine the rights of the persons within its jurisdiction who have been properly brought before it, where their rights can be determined without bringing in other parties who would oust the court of its jurisdiction.

Equity rule 47 was evidently adopted to bridge over the difficulties that might arise in all cases of this character. It reads as follows:

"In all cases where it shall appear to the court that persons who might otherwise be deemed necessary or proper parties to the suit cannot be made parties by reason of their being out of the jurisdiction of the court, or incapable otherwise of being made parties, or because their joinder would oust the jurisdiction of the court as to the parties before the court, the courts may, in their discretion, proceed in the cause without making such persons parties; and in such cases the decree shall be without prejudice to the rights of the absent parties."

In *Payne v. Hook*, 7 Wall. 425, 431, the court said:

"It is undoubtedly true that all persons materially interested in the subject-matter of the suit should be made parties to it; but this rule, like all general rules, being founded in convenience, will yield whenever it is necessary that it should yield in order to accomplish the ends of justice. It will yield, if the court is able to proceed to a decree, and do justice to the parties before it,

without injury to absent persons equally interested in the litigation, but who cannot conveniently be made parties to the suit. Coop. Eq. Pl. 35. The necessity for the relaxation of the rule is more especially apparent in the courts of the United States where oftentimes the enforcement of the rule would oust them of their jurisdiction, and deprive parties entitled to the interposition of a court of equity of any remedy whatever."

If a case in equity can be completely decided as between the litigant parties, the fact that there are other persons residing in another state who might have been made parties if they could have been reached by process should not prevent a decree as to all parties who are within the jurisdiction of the court. *Joy v. Wirtz*, 1 Wash. C. C. 517, Fed. Cas. No. 7,554; *Abbot v. Rubber Co.*, 4 Blatchf. 489, Fed. Cas. No. 9; *Harrison v. Urann*, 1 Story, 64, Fed. Cas. No. 6,146; *Elmendorf v. Taylor*, 10 Wheat. 152, 168; *Mallow v. Hinde*, 12 Wheat. 193, 197; *Vattier v. Hinde*, 7 Pet. 252, 262; *Shields v. Barrow*, 17 How. 130, 139; *Kennedy v. Gibson*, 8 Wall. 498; *Williams v. Bankhead*, 19 Wall. 563, 571; *Hotel Co. v. Wade*, 97 U. S. 13, 21; *Marco v. Hicklin*, 6 C. C. A. 10, 56 Fed. 549, 553; *Story*, Eq. Pl. §§ 78, 79.

5. Have the respondents acquired any rights to the use of the water of the river as against complainant by prescription? The discussion of this question will, for the first time, bring to light a glimmering of the fact, which, sooner or later, will be made manifest and clear, that the entire controversy as to the right to the use of the water between the respective parties is really confined to a period of about three months in the year, known as the "summer months" or "dry season." In the answer of respondents it is alleged "that continuously, for more than five consecutive years before the commencement of this suit, under claim of right and title thereto, each of the defendants have severally, openly, peaceably, uninterruptedly, and with the knowledge of the complainant, and adversely to the complainant and to all the world, and to the injury of complainant, taken, appropriated, and used for domestic purposes, and for watering their stock, and for the irrigation of their said land and the crops thereon, a portion of the water of said Carson river, and as much as was necessary or required for said purposes." This averment is broad enough to cover the entire time. But the specific contention of counsel in summing up on this point is that respondents "have at all times claimed and used the water adversely to complainant until the middle of July, and for more than five consecutive years before suit, and their claim or right to have such use has been acquiesced in by complainant."

From the mass of testimony introduced upon this point, the court is of opinion that it is clearly shown that complainant never at any time acquiesced in the use of the water by the respondents when it became scarce, or was needed at its mills. Complainant, every year for more than five years prior to the commencement of this suit, employed agents to visit the farmers in Carson valley, with instructions to prevent them from using the water; and such agents did interfere with and interrupt respondents' use every year when the water became reduced in quantity at the complainant's mill, without regard to the month or the day of the month. The truth is that

there were no two seasons exactly alike. Ordinarily, the water begins to diminish in quantity between the 1st and 15th of July. This being the fact, there are several witnesses who state that they have no recollection of making any claim to the water before the middle of July; others fix the date before that time; and all agree that they interrupted respondents' use of the water for irrigating purposes when the water commenced to decrease in quantity. The agents would first notify the respondents that complainant needed the water, and request them to cease using it, then protest against their use of the water from the river, and, if unsuccessful in accomplishing the desired results by peaceful methods, they would cut out or open respondents' dams, tear away their head gates, and fill up their ditches. The respondents were usually as active, persistent, and energetic in making repairs, so as to get the water, as the agents were in trying to prevent their using it. In several instances some of the respondents requested the use of the water for a few days, and all reasonable requests in this regard were granted.

The averment in the answer, if sustained by the proofs, was sufficient to establish a prescriptive right in the respondents' use of the water. But there is no evidence to sustain the averment. The mere fact that respondents were never interrupted in the use of the water until the middle of July in each year, if sustained by the evidence, would not give them a prescriptive right, unless it was also shown that complainant was, by their acts, deprived of sufficient water to run its mills. An adverse use of water for the statutory period must be open, notorious, peaceable, continuous, and under claim or color of right; for, if any act is done by other parties claiming the water that operates as an interruption, however slight, it prevents the acquisition of any adverse right. *Mining Co. v. Dangberg*, 2 Sawy. 450, Fed. Cas. No. 14,370; *The Mining Debris Case*, 9 Sawy. 441, 513, 18 Fed. 753; *Winter v. Winter*, 8 Nev. 129, 135; *Huston v. Bybee*, 17 Or. 140, 20 Pac. 51; *San Jose v. Trimble*, 41 Cal. 536, 542; *Lovell v. Frost*, 44 Cal. 471; *Hayes v. Martin*, 45 Cal. 559; *Cave v. Crafts*, 53 Cal. 135, 138; *Ball v. Kehl*, 95 Cal. 606, 30 Pac. 780. The burden of proving an adverse uninterrupted use of water, with the knowledge and acquiescence of the party having a prior right, is cast on the party claiming it. *American Co. v. Bradford*, 27 Cal. 360; *Gould, Waters*, § 341, and authorities there cited. Any person may obtain exclusive rights to water flowing in a stream or river by grant or prescription as against either riparian owners on the stream or the prior appropriation of the water by other parties. But the right acquired by prescription is only commensurate with the right enjoyed. The extent of the enjoyment measures the right. A mere scrambling possession of the water, or the obtaining of it by force or fraud, gives no prescriptive right; nor can this right be acquired if, during the time in which such right is claimed to have accrued, there has been an abundant supply of water in the stream or river for all other claimants.

In order to enable respondents to maintain a prescriptive right to the flowing water in the Carson river as against complainant, there must have been an uninterrupted enjoyment by them, under claim of

right, for the period of five years. There must have been an actual occupation by the diversion and use of the water, to the knowledge and acquiescence of the complainant, such as to occasion damage and give it a right of action. There must have been such a use of the water, and such damage, as would raise a presumption that complainant would not have submitted to it unless the respondents had acquired the right to so use it. *Dick v. Bird*, 14 Nev. 161; *Dick v. Caldwell*, Id. 167; *Boynton v. Longley*, 19 Nev. 69, 76, 6 Pac. 437; *Water Co. v. Crary*, 25 Cal. 504; *Grigsby v. Water Co.*, 40 Cal. 396, 406; *Anaheim Water Co. v. Semi-Tropic Water Co.*, 64 Cal. 185, 30 Pac. 623; *Water Co. v. Hancock*, 85 Cal. 219, 24 Pac. 645; *Ditch Co. v. Heilbron*, 86 Cal. 1, 12, 26 Pac. 523; *Black's Pom. Water Rights*, § 132; *Kin. Irr.* §§ 293, 294, 297.

In the application of these principles to the facts of the case under consideration, it clearly appears that respondents have not acquired any right to the use of the water of the Carson river by prescription, as against complainant.

6. We are now brought to a consideration of the interesting and important question as to what rights the respective parties have to the use of the water flowing in the river. Are their rights to be determined by the rules and principles applicable to riparian proprietorship, or be governed solely by the laws, rules, and decisions of the courts of Nevada, and of other states in the arid regions on the Pacific coast, touching the doctrines of appropriation of water to beneficial uses and purposes? Should the court follow the suggestion of counsel that some of the parties can claim riparian rights, and others claim the right to divert the water by prior appropriation, and others claim both rights? The difficulty encountered at the threshold of this discussion arises from the character, nature, and extent of the prior decrees entered in this court in *Mining Co. v. Dangberg*, 2 Sawy. 451, Fed. Cas. No. 14,370, and *Mining Co. v. Ferris*, 2 Sawy. 176, Fed. Cas. No. 14,371, in this court and in the state courts. These decrees were based upon the riparian rights of the respective parties. The fact is that, at the time such decrees were entered, the rule of riparian rights was held to be applicable to Nevada. *Vansickle v. Haines*, 7 Nev. 249. Since the rendition of the decrees, that case has been overruled, and the principles of prior appropriation accepted, as applicable to the existing conditions of the soil and climate of this state. *Jones v. Adams*, 19 Nev. 78, 6 Pac. 442; *Reduction Works v. Stevenson*, 20 Nev. 269, 21 Pac. 317. This change is the natural outgrowth of the conditions existing in this state. The climate is dry. The soil is arid. The land is unproductive, without irrigation. When water can be used thereon, it becomes capable of successful cultivation. There are but few streams of water. The benefits accruing to land along the banks of these streams by the mere flow of water in the channel is very slight. The bottom lands that can be irrigated by a diversion of the water, so that it can be turned back into the stream, are of limited extent. A large proportion of the area of land suitable for cultivation would have to remain in its wild and unproductive state, covered only by the natural growth of sagebrush and greasewood, unless the right to

appropriate and divert the water of the streams away from the channel for the purpose of irrigating such lands is recognized and secured. The same conditions exist with reference to the necessity of the use of the water for mining, milling, mechanical, manufacturing, municipal, and other beneficial purposes. These conditions and the growing wants and necessities of the people imperatively demanded that such a change should be made. Riparian rights are founded upon the ancient doctrine of the common law. If the law is a progressive science, courts should keep pace with the progress and advancement of the age, and constantly bear in mind the wants and necessities of the people, and the peculiar conditions and surroundings of the country in which they live. In this connection it has been said to be one of the excellencies of the common law that it admits of perpetual improvement, by accommodating itself to the circumstances of every age, and applies to all changes in the modes and habits of society, and that in this respect it will never be outgrown by any refinements, and never out of fashion, while the ideality of human nature exists. *State v. McClear*, 11 Nev. 66.

7. It may be that the results would be substantially the same under the law of riparian proprietorship as under the law of prior appropriation. The difference would, perhaps, be more in the form of the decree than in the amount of water to which the respective parties are entitled. From any standpoint that may be taken, it is evident that the former decrees could not be successfully enforced. If this were not true, there would not have been any necessity for this suit. The former decrees, which are pleaded and relied upon by complainant as sustaining its superior rights to the water of the river, were based exclusively upon riparian rights; and if, as argued by complainant's counsel, the decrees make the matter in issue *res judicata* so far as the original parties to those suits and all persons claiming under them are concerned, there would be an end of the present controversy as to such parties. The decrees in question did not give to complainant any fixed or definite quantity of water. They did not determine the amount of water which was necessary to enable complainant to propel its machinery at its mills. Under the rules of the common law, the riparian proprietors would all have the right to a reasonable use of the water of the river running through their respective lands for the purpose of irrigation. It is declared in all of the authorities upon this subject that it is impossible to lay down any precise rule which will be applicable to all cases. The question must be determined in each case with reference to the size of the river, the velocity of the water, the character of the soil, the number of proprietors, the amount of water needed to irrigate the lands per acre, and a variety of other circumstances and conditions surrounding each particular case; the true test in all cases being whether the use is of such character as to materially affect the equally beneficial use of the water of the stream by the other proprietors.

In *Mining Co. v. Ferris*, 2 Sawy. 176, 195, Fed. Cas. No. 14,371, the respondents claimed that in a hot and arid climate like Nevada the use of water for irrigation was a natural want; that the upper pro-

prietors on the stream might consume all the water for the purpose of irrigating their land, and that such use would be reasonable. The court, in considering this question, said:

"To lay down the arbitrary rule contended for by the defendant, and say that one proprietor on the stream has so unlimited a right to the use of the water for irrigation, seems to us an unnecessary destruction of the rights of other proprietors on the stream who have an equal need and an equal right."

But the right to use water for the purpose of irrigation was expressly recognized. The court said:

"Irrigation must be held in this climate to be a proper mode of using water by a riparian proprietor, the lawful extent of the use depending upon the circumstances of each case. With reference to these circumstances, the use must be reasonable, and the right must be exercised so as to do the least possible injury to others. There must be no unreasonable detention or consumption of the water."

When it is said that such use must be made of the water as not to affect the material rights of other proprietors, it is not meant that there cannot be any diminution or decrease of the flow of water; for, if this should be the rule, then no one could have any valuable use of the water for irrigation, which must necessarily, in order to be beneficial, be so used as to absorb more or less of the water diverted for this purpose. The truth is that under the principles of the common law in relation to riparian rights, if applicable to our circumstances and conditions, there must be allowed to all, of that which is common, a reasonable use. But, if prior appropriation is to prevail, then different rules must be applied. Under the principles of prior appropriation, the law is well settled that the right to water flowing in the public streams may be acquired by an actual appropriation of the water for a beneficial use; that, if it is used for irrigation, the appropriator is only entitled to the amount of water that is necessary to irrigate his land, by making a reasonable use of the water; that the object had in view at the time of the appropriation and diversion of the water is to be considered in connection with the extent and right of appropriation; that, if the capacity of the flume, ditch, canal, or other aqueduct, by means of which the water is conducted, is of greater capacity than is necessary to irrigate the lands of the appropriator, he will be restricted to the quantity of water needed for the purposes of irrigation, for watering his stock, and for domestic use; that the same rule applies to an appropriation made for any other beneficial use or purpose; that no person can, by virtue of his appropriation, acquire a right to any more water than is necessary for the purpose of his appropriation; that, if the water is used for the purpose of irrigating lands owned by the appropriator, the right is not confined to the amount of water used at the time the appropriation is made; that the appropriator is entitled, not only to his needs and necessities at that time, but to such other and further amount of water, within the capacity of his ditch, as would be required for the future improvement and extended cultivation of his lands, if the right is otherwise kept up; that the intention of the appropriator, his object and purpose in making the appropriation, his acts and conduct in regard thereto, the quantity and character of land owned by

him, his necessities, ability, and surroundings, must be considered by the courts, in connection with the extent of his actual appropriation and use, in determining and defining his rights; that the mere act of commencing the construction of a ditch with the avowed intention of appropriating a given quantity of water from a stream gives no right to the water unless this purpose and intention are carried out by the reasonable, diligent, and effectual prosecution of the work to the final completion of the ditch, and diversion of the water to some beneficial use; that the rights acquired by the appropriator must be exercised with reference to the general condition of the country and the necessities of the community, and measured in its extent by the actual needs of the particular purpose for which the appropriation is made, and not for the purpose of obtaining a monopoly of the water, so as to prevent its use for a beneficial purpose by other persons; that the diversion of the water ripens into a valid appropriation only where it is utilized by the appropriator for a beneficial use; that the surplus or waste water of a stream may be appropriated, subject to the rights of prior appropriators, and such an appropriator is entitled to use all such waters; that, in controversies between prior and subsequent appropriators of water, the question generally is whether the use and enjoyment of the water for the purposes to which the water is applied by the prior appropriator have been in any manner impaired by the acts of the subsequent appropriator.

These general principles are of universal application throughout the states and territories of the Pacific coast. They have, in one form or another, been declared, upheld, and maintained by a uniform current of decisions in this state. *Lobdell v. Simpson*, 2 Nev. 274; *Mining Co. v. Carpenter*, 4 Nev. 534; *Proctor v. Jennings*, 6 Nev. 83; *Barnes v. Sabron*, 10 Nev. 218; *Simpson v. Williams*, 18 Nev. 432, 4 Pac. 1213. The same rules prevail in California: *Kelly v. Water Co.*, 6 Cal. 106; *Ditch Co. v. Vaughn*, 11 Cal. 143; *Kimball v. Gearhart*, 12 Cal. 28; *Ortman v. Dixon*, 13 Cal. 34; *Kidd v. Laird*, 15 Cal. 161; *Weaver v. Lake Co.*, 15 Cal. 274; *McKinney v. Smith*, 21 Cal. 374; *Hill v. Smith*, 27 Cal. 476; *Davis v. Gale*, 32 Cal. 26; *Water Co. v. Powell*, 34 Cal. 109; *Nevada Co. v. Kidd*, 37 Cal. 283; *Osgood v. Water Co.*, 56 Cal. 571; *Mitchell v. Mining Co.*, 75 Cal. 482, 17 Pac. 246; *Ramelli v. Irish*, 96 Cal. 214, 31 Pac. 41; *Barrows v. Fox*, 98 Cal. 63, 32 Pac. 811. In Colorado: *Coffin v. Ditch Co.*, 6 Colo. 443; *Sieber v. Frink*, 7 Colo. 149, 2 Pac. 901; *Wheeler v. Irrigation Co.*, 10 Colo. 583, 17 Pac. 487; *Hammond v. Rose*, 11 Colo. 524, 19 Pac. 466; *Reservoir Co. v. Southworth*, 13 Colo. 111, 21 Pac. 1028; *Platte Water Co. v. Northern Colorado Irrigation Co.* (Colo. Sup.) 21 Pac. 711; *Strickler v. City of Colorado Springs*, 16 Colo. 62, 26 Pac. 313; *Combs v. Ditch Co.*, 17 Colo. 146, 28 Pac. 966; *Ft Morgan Land & Canal Co. v. South Platte Ditch Co.*, 18 Colo. 1, 30 Pac. 1033. In Oregon: *Kaler v. Campbell*, 13 Or. 596, 11 Pac. 301; *Simmons v. Winters*, 21 Or. 35, 27 Pac. 7; *Speake v. Hamilton*, 21 Or. 3, 26 Pac. 855; *Hindman v. Rizer*, 21 Or. 112, 27 Pac. 13. In Utah: *Munroe v. Ivie*, 2 Utah, 535; *Irrigating Co. v. Moyle*, 4 Utah, 327, 9 Pac. 867; *Salina Creek Irr. Co. v. Salina Stock Co.*, 7 Utah, 456, 27 Pac.

578. In Montana: *Woolman v. Garringer*, 1 Mont. 535. In Idaho: *Conant v. Jones*, 32 Pac. 250. See, also, *Atchison v. Peterson*, 20 Wall. 507; *Basey v. Gallagher*, Id. 670; *Broder v. Water Co.*, 101 U. S. 276; *Hewitt v. Story*, 12 C. C. A. 250, 64 Fed. 516; *Krall v. U. S.*, 24 C. C. A. 543, 79 Fed. 241; *Gould, Waters*, § 228 et seq.; *Kin. Irr.* § 150 et seq.; *Black's Pom. Water Rights*, § 15 et seq.

8. To these general principles, which are of universal application, it will only be necessary to notice a few others as we proceed, that have a direct bearing upon the special facts of this particular case. The character of this suit, as before stated, is not such as to require the court to determine the amount of water to which each of the respondents is entitled for the proper irrigation of his land. Their rights, as against each other in this respect, are in no wise involved in this litigation. But, in order to obtain a correct understanding of the question of the alleged wrongful waste of the water, it is necessary to give at least a general outline of the claims made by the respondents concerning the quantity of water to which they are respectively entitled, and the manner in which it has been used by them.

The testimony shows that the aggregate amount of land owned by the respondents, in round numbers, is in the neighborhood of 15,000 acres; that the aggregate amount of water claimed by them is 51,200 inches, making an average of about  $3\frac{1}{2}$  inches of water to the acre. There is no uniformity among the respondents in this particular. The lowest claim made is 1 inch to the acre, by Chris. Larsen; the highest,  $7\frac{1}{2}$  inches to the acre, by H. F. Dangberg, one of the largest landowners in the valley.

Upon the cross-examination of L. H. Taylor, a witness introduced by the respondents, he testified, in answer to questions upon this subject, as follows:

"Q. About how much water does it take, on an average, to irrigate an acre of land in Nevada, during the irrigating season, if properly handled, and handled with reason and economy and proper regard for the rights of others? A. I will state in a general way that it is my opinion, with a good distributing system, and the use of economy in applying the water, that ultimately you can count on a duty of about 150 acres to each cubic foot per second, or a third of an inch to the acre. There will be places that will require more, and others that will require less, depending on the soil, climate, character of crops, etc. \* \* \* Q. So far as you have had opportunity to examine this subject in Carson valley, are you able to say that a cubic foot of water per second in that valley will irrigate 150 acres? A. It is my opinion that it would and will ultimately do so. Q. Would it do so now with a proper system of ditches, well regulated, and no water wasted? A. I think it would, but, with the system of irrigation they have there now, they could not do it."

T. B. Rickey, a witness on behalf of respondents, testified as follows:

"Q. How much land in that country will 1,500 inches of water irrigate? \* \* \* A. If I owned all the water and all the land, I could irrigate 3,000 acres of land with 1,000 inches of water; but if I owned one piece here, and another man owned a piece there, the water is wasted and used up. Q. Assuming that two branches of the Virginia ditch are large enough to carry 8,000 inches, and that 1,000 or 1,500 inches are put out through those ditches upon the lands belonging to Chris. and H. F. Dangberg, using the water as they can use it with their experience, how much land could they irrigate? A. I think a quarter of an inch to the acre is abundant."



It thus appears that their system of irrigation results in a great waste of the water. So far as the testimony shows, there are only three of the respondents (H. H. Springmeyer, C. C. Henningsen, and C. M. Henningsen) who have provided any adequate means for returning the water to the river. An examination of the testimony also shows that a much greater amount of water has been habitually diverted on the East Fork of the Carson river, at the upper end of the valley, through what is known as the Allerman, Buckeye, Virginia, and Ezell ditches, than is required to irrigate the lands supplied by water from these ditches. These ditches have been so constructed as to carry the water away from the Carson river, and the Martin slough and Buckeye creek, through which the water formerly ran, have been dammed and bulkheaded, so that the waste water, instead of flowing down the creek to the river, is turned away across a sandy and gravelly plain west of what is known as "Desert Station," and, if any portion of this water ever reaches the river, it is through a slough near Cradlebaugh's bridge, at a point from 12 to 15 miles from where it was diverted from the river. Substantially the same conditions prevail on the West Fork and at several other points in Carson valley.

The thought is here suggested from the reading of the testimony in the record upon these points that if a system of economy in the use of the water had been adopted, and more care taken that no water should have been allowed to run to waste, the occasion for the present litigation would probably have never arisen. The time is near at hand when greater attention must be given to these matters, and greater care and caution be exercised, to prevent parties from loss and damage which are or may be occasioned to other parties having equal right to the waters of the river. An excessive diversion of water for any purpose cannot be regarded as a diversion to a beneficial use. Water in this state is too scarce, needful, and precious for irrigation and other purposes, to admit of waste. No person, whether an appropriator or riparian proprietor, should be allowed to "be extravagantly prodigal in dealing with this peculiar bounty of nature." *Combs v. Ditch Co.*, 17 Colo. 146, 154, 28 Pac. 966, 968. The maxim of the law which he is bound to respect, while availing himself of his right, is, "*Sic utere tuo ut alienum non laedas.*" *Tyler v. Wilkinson*, 4 Mason, 397, Fed. Cas. No. 14,312; *Ferrea v. Knipe*, 28 Cal. 340, 344; *Gibson v. Puchta*, 33 Cal. 310; *Shotwell v. Dodge*, 8 Wash. 337, 341, 36 Pac. 254. Every year the area of land for which water is needed is increasing, and the supply is constantly diminishing.

The following quotation from *Kinney on Irrigation* (section 30) is directly applicable to the facts of this case:

"It has been the policy of legislatures and courts, as far as possible, to suppress all wastefulness or wasteful methods in the use of waters. In the early days a prior appropriation was esteemed to cover all water in sight, whether it was needed or not. But the principle of 'beneficial use,' as the population increased, soon put an end to that conception. More stringent regulations may still be made in places, which will benefit not only those who have at present water rights in a certain stream, but also those desiring to divert water from the same. There are many appropriators who still demand the

amount of water claimed by them at first, although that amount is many times more than is actually needed by them for the purpose to which they apply it. Having no knowledge whatever of the proper use of water as an aid to agriculture when they first made the appropriation, and there being at that time an entire absence of any written authority on the subject from which they could learn, and water then being plentiful, it followed, as a matter of course, that settlers adopted very wasteful methods in the use of it. Many of them still keep up those methods, notwithstanding the fact, demonstrated by practical experience, that by so doing they are raising smaller and poorer crops than they could raise by using the water more sparingly. In many places it has been shown that from a given stream five or six times as much land could be irrigated as had been thought possible in early days. But, even with the present various enactments for the prevention of these wasteful methods, the natural flow of streams is becoming daily more and more inadequate to meet the demand; and finally it has become apparent that, if the progress of the irrigation development is not to be seriously checked, more stringent measures will have to be enacted, or other sources of supply must be sought."

See, also, sections 165 and 166; Black's Pom. Water Rights, § 142; Peregoy v. McKissick, 79 Cal. 572, 21 Pac. 967; Barrows v. Fox, 98 Cal. 63, 32 Pac. 811.

9. An earnest argument is made on behalf of the respondents to the effect that the agricultural interests of Carson valley are of paramount importance to those of the mill owners on the Carson river; that the necessaries of life are produced by the farmers, and cannot be successfully brought forth without the use of water for the irrigation of their crops. But of what general use, independent of the wants and necessities of themselves and their families, would the products of their farms be, unless the other industries which furnish a market for the crops were equally protected in their rights? The money necessary to be obtained in order to enable the farmers to sell their crops with profit must be obtained from other sources,—from other avenues of industrial and business pursuits. The prospector and capitalist, laborer and miner, searching for the precious metals that lie imbedded in the earth in the mineral regions of the state, have certain rights that need protection, as well as other classes. When these discoveries are made, the metalliferous ores cannot be at all times successfully reduced without the aid of expensive machinery, the building of mills to be propelled by water power, etc. Water for this purpose is as much a want or necessity of the community as it is for the purpose of irrigating the land. The mining industry of this state has always been considered of as great importance as the agricultural interests. The right to the water of a stream for any beneficial use should always be protected and encouraged. The only exception that has ever been made arises solely from necessity, and that is to give to every person, in whatever business he may be engaged, the absolute right to a sufficient supply of the water for household and domestic purposes, watering his stock, and raising vegetables sufficient to supply the wants of himself and family. In Gould, Waters, § 205, the author, in relation to this exception, says:

"Each riparian proprietor has a right to the ordinary use of the water flowing past his land, for the purpose of supplying his natural wants, including the use of the water for the domestic purposes of his home or farm, such as drinking, washing, or cooking, and for his stock. For these natural uses,

by the weight of authority, he may, if necessary, consume all the water of the stream. This right is his only, and is strictly confined to riparian land. He has also the right to use it for any other purpose, as for irrigation or manufactures; but this right to the extraordinary use of the water is inferior to the right to its ordinary use, and, if the water of the stream is barely sufficient to answer the natural wants of the different proprietors, none of them can use the water for such extraordinary purposes as irrigation or manufactures."

See also, Black's Pom. Water Rights, § 140.

Without dwelling at any length upon the arguments that have been made upon this subject as to the extent of the rights of individuals in this regard (as they are not, in my opinion, necessarily involved in this case), we confine the discussion to the general doctrine advanced, as to the superiority of rights acquired for the purpose of irrigating arable lands as against rights acquired for mining or milling purposes. Upon this point, keeping in touch with the principles which have from time to time been announced in the state and national courts of this district, it is enough to say that there is no general distinction to be made. The general rights of each stand upon the same plane. Both are entitled to the equal and due protection of the law. Both must be protected, and both governed by the general principles of law pertaining to water rights which have been clearly established and defined. The rule upon this subject is correctly stated in Gould, Waters, § 233, as follows:

"Whether the appropriation is for mining, as originally it was solely, or for mills, for irrigation, or for agricultural, horticultural, domestic, or municipal purposes, the rights thereby acquired now stand upon the same footing, and an appropriation or use of the water for one of these purposes is not justifiable when it interferes with a prior appropriation or location for another purpose."

10. A point is now reached where it becomes necessary to digress, and take up other questions, less interesting, but of equal importance, in order to ascertain the facts as to the time when the rights of the respective parties were first acquired, and the amount of water used by them. One can naturally understand that lapse of memory comes with lapse of time, and that any man, however conscientious or honest, may be mistaken as to events that transpired 40 or more years ago; and the truth of such matter, as to the time of any given transaction, can often only be solved by comparing the testimony of the witnesses with known and uncontradicted facts as to the date of other events which all concede occurred at or about the same time. One can also readily understand the uncertainty, and sometimes, if not always, the unreliability, of the testimony of witnesses who attempt to give with any degree of precision the amount of land under irrigation, or the exact amount of water flowing in a river, stream, cut, canal, or ditch, by merely looking at it. But the court is not able to fully comprehend the cause of the conflict in the testimony of witnesses who have been accustomed to measure and determine with accuracy the grade of a ditch or flume, their exact size and dimensions, and the amount of water that will flow therein to the full extent of their capacity, when they have within their reach and at their command tables prepared upon this subject, which have for many years been accepted and acknowledged as giving a true and cor-

rect standard by which the truth can be approximately, at least, ascertained. Absolute exactness may not always be reached. The character of the soil through which a ditch is constructed, and other conditions not mentioned in such tables, may have to be taken into consideration. As was said in *Combs v. Ditch Co.*, 17 Colo. 147, 154, 28 Pac. 966, 968:

"It may not be practicable to attain mathematical exactness in measuring the flow of water, but a reasonable approximation to substantial accuracy should be aimed at in determining controversies relating to water supply."

If parties, in litigating their rights, are actuated solely by a desire to get at the truth, they generally do, and always should, have their witnesses on the ground at the same time and place, so that the measurements and calculations could then be made by each in the presence of the other. Then, if it were claimed by either that the conditions were not favorable or proper, the other party could suggest other places where the measurements would be nearer an average as to the capacity of the flume or ditch, and both parties would have the opportunity of discovering what means were used by the other in making such measurements. The duty devolved upon the court, of determining the truth where the testimony is conflicting, is always unpleasant, and oftentimes difficult; and especially is this true in a case like the present, where all of the testimony was taken before an examiner, and the court is deprived of the opportunity of observing the character of the witnesses, their degree of intelligence, their manner, demeanor, and bearing on the witness stand, their interest, their prejudices, if any, and all the peculiar circumstances surrounding the giving of their testimony, as well as other matters which always give more or less value and weight. In this case the question is presented as to which of the witnesses, on behalf of complainant or respondents,—apparently of equal credit,—had the better opportunity to ascertain, or which was most likely, on account of his interest, position, circumstances, or surroundings, to remember, the facts. It does not necessarily follow that, because there is a conflict in the testimony, one or the other of the witnesses have testified falsely, and that the court must take the whole statement of one, and reject the entire testimony of the other. It is the duty of the court, in weighing such testimony, to ascertain whether or not it can be harmonized, upon any given state of facts, theories, or conditions, before any part thereof should be rejected. Keeping these rules constantly in mind, the court is compelled to take the record as it finds it, deprived of the opportunities it would have had if the testimony had been given in court, and determine therefrom, as best it can, by the use of the scales of justice, and all other judicial means within reach, what the facts are as established by the weight of the evidence.

The first settlements were made in the valley in the "early fifties," when the country was a part of the territory of Utah and subject to its laws. The settlements were made by persons who might be denominated as "squatters" on the public land of the United States, without any title thereto save such as the custom of the locality recognized, or in some few instances such as might be acquired under the

various provisions of the laws of Utah. They raised cattle, that roamed at large, and in many places they cut the natural grasses which grew at that time in great abundance all over the river bottom. The early emigrants that "crossed the plains" traveled along the Carson river from its "sink" up the cañon, and across the valley to the mountains, on their way to the gold excitement then prevailing in the new state of California. At Genoa, now the county seat of Douglas county, there was what was then called a "Mormon station,"—a log cabin situate on the land now owned by S. A. Kinsey, one of the respondents herein,—where the emigrants always stopped to rest and refresh themselves before ascending the rough and rugged road which wound its way over the steep declivities of the rocky mountain sides, and often remained for several days to allow their cattle and horses to roam at large, or picket them out to graze upon the natural grasses which then grew of sufficient height to almost hide the stock from view, and was as free and open to all comers as the air that wafted its gentle breeze through the valley from the mountains, the tops of which were covered by the snow that had fallen during the winter season. The writer of this opinion was one of the sojourners who made that trip in the year 1852, and the reading of the record in this case brings to his mind vivid recollections of the joy and hope, courage and confidence, inspired in the breast of every pilgrim, of the bright future which he then thought awaited him when he reached the golden regions of the "Eldorado of the West." There were at that time a few cabins,—very few,—at remote distances apart, in the valley. The testimony in this case shows that the early settlers that came into the valley prior to 1860 or 1862, with but few exceptions, which will be hereafter noticed, did not cultivate their lands, in the sense that the term "cultivation" is generally understood. They built cabins or put up tents in which they lived, and owned stock that ranged at will. Some of them had a garden spot, or small tract of land, from 1 to 20 acres, near their houses, where they raised such vegetables as were necessary for their own domestic use, and cut the natural grass growing on their own range. The water during this period continued to flow into various sloughs, and spread over all the land at high water. There were, as a general rule, no specific appropriations made of the water. No dams were built, no ditches constructed, or other means used by them for the purpose of diverting the water from the main channel or forks of the river, except as hereinafter stated. They made no efforts to acquire any title to the land occupied by them. Some of them only located in the valley for the purpose of selling or trading their stock to the emigrants whose teams, cattle or horses, were worn out, or considered to be too jaded or exhausted to stand the hard trip of crossing the mountains. Some of them remained but a short period, and voluntarily left and abandoned the land, free to the occupancy of the next comer who concluded to settle thereon. Others traded their rights, whatever they were, for a horse or wagon, or anything of value, no matter how insignificant it might be. No conveyances were made. One party would leave; the other party would come upon the land, and stay until he got ready to move elsewhere. A

brief review of the testimony as to the manner in which these settlers made use of the water in the valley prior to 1861 will shed considerable light upon the history of the times, and tend to explain some of the contentions made by the respective parties. With knowledge of the conclusions hereinafter reached, as to all cases where the respondents have not connected themselves by title with the settlers, it is unnecessary to attempt to make any estimate of the amount of land that was irrigated prior to 1861. It would indeed be a difficult task to accomplish, especially in the light of the fact that nearly all of the testimony of the witnesses for respondents is given upon the theory that all the land, any portion of which was covered by the overflow of water at times of high freshets in the river, was irrigated land. To illustrate: C. E. Holbrook testified as follows:

"Q. In your testimony, do you call everything irrigated that naturally overflows at high water? A. Yes, sir; grass would not grow without the overflow. Q. When you testified \* \* \* as to the amount of land irrigated, you counted all the land that was overflowed at high water as irrigated land? A. Yes; I mean by the overflow and otherwise that the land was irrigated so as to raise crops. Q. That is what you mean by counting the land that was naturally overflowed at high water, as well as the land that was irrigated by means of ditches; you estimated that there were so many acres of land irrigated on the different ranches that you have named and described? A. Yes, sir; all the land that was overflowed I considered irrigated, because the grass would not grow without it."

The testimony of D. R. Jones, upon which great reliance is placed, and from which copious extracts were made in the brief of respondents' counsel, is substantially based upon the same theory, and guessed at, to the best of his present recollection, as to the amount of land irrigated, and the quantity of water used. His testimony as to the appropriation made by Mr. Wheeler in 1860 is as follows:

"Q. How much did he farm? A. I should think 200 acres. Q. How much did he farm in 1860? A. He did not farm all of it then. Q. How much do you think he farmed then? A. Probably half of it. \* \* \* Q. How much water did he take out in 1860, and irrigate his land with? A. There was a ditch there in 1860, and there was a large stream, of three or four hundred inches,—400 or 500 inches."

The son of Mr. Wheeler, upon the same point, testified as follows:

"Q. When did your father go to the East Fork? A. In 1859. Q. What time in that year did he come? A. In the fall. Q. Did he locate a place and build a house that year? A. Yes, sir. Q. Did he keep a station on the Aurora road at that time? A. Yes, sir. Q. What was that station called? A. The '12-Mile House.' Q. When did you first go there? A. It was in September, about the 15th, in 1860. Q. When you got to your father's place, \* \* \* what did you find there? A. He had a small ditch, and had in about six or seven acres of land that he put in in 1860. \* \* \* Q. What did he put in the 6 or 7 acres that he cultivated in 1860? A. Grain."

Again, Mr. Jones testified as follows:

"Q. What do you mean by 'cultivation'? You say all this land described was cultivated since 1865, etc. What do you mean? A. I mean cutting hay on it, raising grain and vegetables, etc. Q. Did they cut hay on all the land that you have talked about? A. On portions of it. Q. Do you mean by 'cultivation' that if a man fenced a large tract of land, and fed stock on it, that he cultivated the land? A. Yes; it is making use of the land."

The entire testimony of this witness is of the same general character. It covers about 250 typewritten pages.

The same theory is applied to the ditches that existed prior to 1861. In respondents' brief it is claimed that the testimony shows that:

"Before 1860 there were perhaps 50 main ditches, many of them with capacity to carry every drop of water flowing in both forks of the river between July 1 and September 11, 1889. Of Fred Dangberg's ditches alone, the Island ditch would carry 1,500 inches of water; the Mast ditch, 1,200; the Slough ditch would carry 1,500 to 2,000 inches. \* \* \* Of the ditches in existence prior to 1860, the following may be mentioned: Singleton and others constructed a ditch in 1858, 4 feet wide, 15 inches deep, a mile or a mile and a half long."

It is true that Singleton upon his direct examination testified as stated by counsel, but upon his cross-examination it will be discovered what he meant:

"Q. You testified about taking out a ditch, and carrying it on the banks of a slough one and a half miles. Do you mean that the water ran that far, or that you dug a ditch that long? A. I didn't take out any ditch that long. It must have been the water that went that far. Q. If you testified that you took out a ditch along the banks of a slough one and a half miles long, it was wrong, and you only meant that the water went that far? A. Yes; that was wrong. Q. What you meant was that you made a cut through that high bank of the river, and that the water ran through that cut one and a half miles after it got through the cut? A. Yes; that is what I meant. Q. The water would run over the low land and spread out? A. Yes; that is where the mistake is."

From a somewhat extended examination of all the testimony in this case, it may fairly be stated that the respondents, during the years mentioned, only irrigated their lands by the natural overflow of the river, or by making cuts through the high banks of the river to let the water out when it was not bank full, and several small ditches, taking water from these cuts, and from the sloughs and other low places, so as to lead the water off to other portions of the land. From the flood of testimony upon this point, the cross-examination of Samuel Singleton, a witness introduced on behalf of the respondents, who has no interest in the present litigation, is set out at some length in the statement of facts. It is similar in character to that of the great mass of testimony relating to this point. It would not accomplish any useful purpose to pursue this matter further, because, as before intimated, the law is well settled that the respondents cannot avail themselves of the rights of these early settlers, with whom they have in no manner connected themselves by title. In *Lobdell v. Hall*, 3 Nev. 507, 522, where the defendants acquired the possession of a dam or ditch for the diversion of water from an Indian by mere verbal sale, Judge Lewis said:

"Section 55, Laws 1861, p. 18, declares that 'no estate or interest in lands other than for leases for a term not exceeding one year, or any trust or power over or concerning lands, or in any manner relating thereto, shall hereafter be created, granted, assigned, surrendered or declared, unless by act or operation of law, or by deed or conveyance in writing, subscribed by the party creating, granting, surrendering or declaring the same, or by his lawful agent thereunto authorized in writing.' This is substantially the Utah law, which prevailed in the territory of Nevada at the time of the transaction in question. That the right to the enjoyment of the dam, and to have the water flow through the ditch in question, is an interest in land, is fully supported by the following authorities: \* \* \* The defendants do not pretend to claim as lessees; hence, there being no deed or conveyance in writing, as required by the statute, they acquired nothing from the Indian."

In *Chiatovich v. Davis*, 17 Nev. 133, 136, 28 Pac. 239, 240, the court, in considering this question, said:

"The plaintiff testified that early in the year 1876 he appropriated all of the waters of the creek. Before that time these waters had been used to irrigate plaintiff's land, but, as he has not in any wise connected himself in interest with those who first cultivated the land and appropriated the water, his own appropriation in 1876 must be treated as the inception of his right."

To the same effect, see *Salina Creek Irr. Co. v. Salina Stock Co.*, 7 Utah, 456, 27 Pac. 578; *Smith v. O'Hara*, 43 Cal. 371; *Burnham v. Freeman*, 11 Colo. 601, 606, 19 Pac. 761; *Gould, Waters*, § 234; *Black's Pom. Water Rights*, § 60; *Kin. Irr.* § 253.

With reference to the exceptions heretofore referred to, it will only be necessary to notice one. Respondents H. F. Dangberg, D. R. Jones, A. P. Squires, and Benjamin Palmer, and perhaps a few others, prior to 1860, resided upon a portion of the lands they now occupy. Palmer's land is not on the river. The others' are. Dangberg located upon his land in 1857, upon the part now known as his "home ranch." The facts concerning his right to the water are certainly as strong, and in many instances stronger, than any of the other respondents. With reference to his early acquisition of lands, the record shows that on July 30, 1857, one P. A. Jackman executed a bill of sale in favor of Charles E. Holbrook, Benjamin Mast, and H. F. Dangberg, for 320 acres of land, known as lot 1 in block 4, for the sum of \$30; that on October 30, 1858, Thomas Anderson and others conveyed by bill of sale to Dangberg and Mast 280 acres for \$100; that on May 7, 1860, Dangberg and Henry Luhman located a piece of land under the laws of the territory of Utah (number of acres not given, but, from description, judged to be in the neighborhood of 320); that on May 20, 1862, A. Dangberg conveyed to H. F. Dangberg, by bill of sale, 320 acres for \$3,000; that on July 7, 1863, James Dove and others conveyed to Dangberg, by bill of sale, 160 acres, for \$1,000. H. F. Dangberg testified as follows:

"Q. When did you first settle in Douglas county, where you now reside? A. In the year 1857. Q. Have you resided there ever since? A. Yes, sir. \* \* \* Q. Did you assist the water in any way to spread over your land in those early times? A. Yes, sir. Q. How? A. By damming the sloughs and depressions, and by cutting the banks, and by digging ditches and leading the water over the land. Q. Did you make any cuts in the banks of the river to let the water out when the water would fall, and did you put obstructions in the river to assist the water in rising, and getting it on your land? A. Not the first year, but I did prior to 1861. I done all that prior to 1861. Q. How many acres of your land that you claim now was flooded prior to 1861? A. \* \* \* The land I owned at that time, my home ranch, \* \* \* was all flooded prior to 1861, with the exception of 15 or 20 acres around about the schoolhouse,—where the schoolhouse is now. I could not get the water on that at that time. \* \* \* Q. How much land was in your home ranch at that time? A. Very near the same as now. Q. State about the number of acres. A. \* \* \* About 1,500 acres. \* \* \* Q. What did you do to aid the distribution of the water over your land? A. I dammed the low places and cut the high places in the banks of the river, and let the water out, and I made ditches in 1859. I took water out in two places by ditches in 1858; one place in particular."

The Coral ditch, constructed in 1858, the Island ditch and the Mast ditch, constructed in 1859, referred to by respondents' counsel as having a carrying capacity of between three and four thousand



inches of water, are all situated upon the lands then owned by Dangberg and others, and now owned by Dangberg. The Coral ditch is also known as the "Slough Ditch," and did not convey the water from the river at all, but ran from a slough in the valley, so as to spread the water out over other land. The testimony clearly shows that these three ditches were so constructed that the water therefrom could not have irrigated over 640 acres of land, or thereabouts. The record shows that the lands acquired by Dangberg by possessory or other titles prior to 1864 did not exceed 960 acres. On August 31, 1864, the respondent H. F. Dangberg, in the district court of Ormsby county, Nev., filed a verified answer in the suit of H. F. Rice et al. (Merrimac Mill Co.) v. Dangberg, in which he alleged, among other things, that:

"On the — day of —, 1857, he, this defendant, his associates, and those through and with whom he claims title, were the owners of, and as such owners were in the possession of, a tract of agricultural, grazing, and meadow land, situate on both banks of the East Fork of said river, about 20 miles above the plaintiff's said mill in Douglas county, in this territory, containing about 600 acres."

He further alleged that he—

"Now is, and ever since the — day of March, 1860, has been, the owner in his own right, and in the possession, of so much and such part of said tract of land as is now known and described by the government survey as the northeast quarter of section 36 in township 13 north, of range 19 east, containing 160 acres; also, the northwest quarter of same section."

He then claimed a sufficient amount of the water of the river to irrigate the lands mentioned in his answer. In the present case the amount of land claimed is 6,900 acres, and it is alleged in the answer that the amount of water required for the purpose of irrigating his land is 21,000 inches, under a 4-inch pressure.

Conceding to all of the respondents who have, in any manner recognized by law, connected themselves with the early settlers by any title to the land, or to the use of the water of Carson river for irrigating the same, it still follows that, if such use of the water was prior in date to the appropriations made by complainant's grantors, it would not materially interfere with the rights subsequently acquired by complainant. The respondents, having appropriated a portion of the water of the river, and diverted it by cuts in the high banks and by ditches, as before stated, only acquired the right to appropriate and use said portions of the water to the extent necessary to irrigate the amount of land they then owned. Giving to such rights the broadest scope to which any judicial sanction has ever been extended, it would not impair the rights of the complainant, who subsequently acquired a right to the then surplus water of the river in its bed or banks to an extent that would not interfere with such rights as respondents had previously acquired. When the right of the complainant attached and became fixed, the respondents could not in any manner encroach upon or interfere with it by afterwards extending and enlarging their own rights beyond their first appropriation, by the acquisition of additional land, and the construction of ditches or other means to convey additional quantities of water away from said river to any portion of their subsequently acquired lands. No rule of law is better settled, oftener applied, more rigidly enforced, or

based upon stronger principles of equity, justice, and right, in regard to the beneficial use of water, and the rights acquired by a priority of appropriation. The right of the first appropriator is fixed by his appropriation, and when others locate upon the stream, or appropriate the water, he cannot enlarge his original appropriation, or make any change in the channel, to their injury. Each subsequent locator or appropriator is entitled to have the water flow in the same manner as when he located, and may insist that the prior appropriators shall be confined to what was actually appropriated, or necessary for the purposes for which they intended to use the water. In other words, a person appropriating a water right on a stream already partly appropriated acquires a right to the surplus or residuum he appropriates; and those who acquired prior rights, whether above or below him, on the stream, can in no way change or extend their use of the water to his prejudice, but are limited to the rights enjoyed by them when he secured his. *Lobdell v. Simpson*, 2 Nev. 274; *Proctor v. Jennings*, 6 Nev. 83; *Barnes v. Sabron*, 10 Nev. 217, 244; *Ditch Co. v. Vaughn*, 11 Cal. 143, 153; *Ortman v. Dixon*, 13 Cal. 34, 38; *McKinney v. Smith*, 21 Cal. 374; *Water Co. v. Powell*, 34 Cal. 109, 118; *Edgar v. Stevenson*, 70 Cal. 286, 290, 11 Pac. 704; *Byrne v. Crafts*, 73 Cal. 641, 15 Pac. 300; *Mitchell v. Mining Co.*, 75 Cal. 464, 483, 17 Pac. 246; *Mining Co. v. Hayes*, 6 Mont. 31, 9 Pac. 581; *Rominger v. Squires*, 9 Colo. 327, 12 Pac. 213; *Salina Creek Irr. Co. v. Salina Stock Co.*, 7 Utah, 456, 27 Pac. 578; *Gould, Waters*, § 231.

Under the law of riparian proprietorship, an upper riparian proprietor is entitled to make a reasonable use of a portion of the water of a river to irrigate his riparian land, but he does not have any right to take the water away from the river to irrigate other lands, that are not riparian. *Kin. Irr.* § 284; *Gould v. Stafford*, 77 Cal. 66, 18 Pac. 879. During the years from 1860 to 1864 the raising of hay on the natural meadow lands was the principal and most profitable business carried on by the farmers in the valley. Some of the witnesses testified that during those years they sold hay to the mill men and teamsters for from \$75 to \$100 per ton, and that they sold hay to parties directly and indirectly connected with the mills as early as 1861 and 1862. It is the diversion of the water from the river to the outside, high, sagebrush lands, since 1864, in connection with the wasteful use of the water hereinbefore referred to, that has caused the shortage of water which interferes with complainant's rights. The quantity of water to irrigate the sagebrush lands is greater than would be required to irrigate the lands in the river bottom, or low lands throughout the valley. Prior to 1864 there were experiments made in the irrigation of small quantities of sagebrush land; but annually since 1864 additional quantities of such land have been taken up, and additional amounts of water appropriated for the irrigation thereof. The Virginia and Klauber ditches were among the first appropriations made for the purpose of diverting the water away from the river at low stages. The Klauber ditch was located and constructed in 1864. This fact is gleaned after a careful comparison of all the conflicting evidence in regard thereto, and a reference to the testimony affords a clear illustration of the uncertain

and unsafe recollection of many of the early settlers, whose honesty of purpose is not questioned, but whose testimony as to dates is often "away off" and "wide from the mark." It verifies the truth of what has already been said as to the unreliability of the testimony of witnesses as to the dates of events that occurred so many years ago, and for which due allowance should always be made, without any reflection upon the character of witnesses. It also conveys a slight idea of the labor involved, and time necessarily taken up by the court, to arrive at the truth, when there is a conflict of testimony. Charles E. Holbrook, a witness on behalf of the respondents, testified with reference to this ditch as follows:

"Q. Who first settled the Klauber ranch? A. It was first settled by brothers named Greenleaf in 1857. \* \* \* Q. Was there any ditch constructed on that land in 1858? A. Not that I know of. \* \* \* Q. What kind of a ditch was there in 1859? A. It was a large ditch in 1859. It must have been 3½ or 4 feet in width, and 2½ feet in depth. Q. Has that ditch been enlarged since then? A. No, sir; I don't think so."

Henry Eppstein, who was one of the owners, and had charge of the Klauber ranch from 1860 to 1867, and Henry Vansickle, who lived near it since 1855, and who owned it for many years, both testified that the Klauber ditch was built about 1864. Several other witnesses testified to the same effect. During the time the testimony was being taken the original contract for the construction of the Klauber ditch was discovered, and introduced in evidence. This contract was made and entered into January 11, 1864, and the ditch was to be excavated of the following dimensions, viz.:

"2 feet deep, 2½ feet wide at the bottom, and 3½ feet wide at the top, and to be 417 rods in length; \* \* \* the party of the second part also contracting and agreeing that they will commence said work within three (3) days after this date hereof, and fully complete and finish the whole of the same by or before the first day of April next."

With reference to the irrigation of sagebrush lands, Henry Eppstein testified as follows:

"Q. When was irrigation first commenced or carried on by means of diverting water from the main stream on the Klauber ranch, and the adjoining ranch of Fred Dangberg, or any of the ranches in the valley along the Carson river, by means of water diverted from the Carson river? A. As near as I can recollect at the present time, we built dams on the river, on what we called the 'Middle Fork,' as early as, perhaps, 1861 or 1862. It was for the purpose, however, of regulating the water, in order that we should not have too much water in one place, and not enough in another. It was done for the purpose of irrigating some of the high places on the lower land, where we had a natural growth of grass, and we regulated the water, also, to keep it from the lower ponds and lower places. We did this by putting dams in the river, and by cutting the banks lower down the river, to turn the water back in the channel. The banks of the river are always a little higher than the land adjoining, but for the purpose of cultivating new land, which we termed 'sagebrush land,' that was not done until later on. We did not endeavor to irrigate sagebrush land until later on. Q. How much later on? A. As near as I can recollect, the value of the sagebrush land was not known, and there was a difference of opinion amongst ranchers as to whether anything could be raised on sagebrush land or not, and there were experiments made on a small scale in 1861, '2, '3, to cultivate sagebrush land. Q. On how large a scale were those experiments made? Would you say on two or three acres, or on a hundred acres? A. Oh, only a few acres. And it was shown that the land could be made productive, and then there was more work done,

but that was done later. Q. When was more work done to show that sagebrush land could be made productive? A. Not earlier than 1864, and to a limited extent. Q. To what extent, about, in acres? A. On small tracts of 10 or 15 acres at a time, because labor was very high and hard to get, and, as it was only a matter of experiment, they could test it with a few acres as well as with large tracts of land. Q. As early as 1862, '3, '4, how many people do you know of in the Carson valley trying these experiments to see whether sagebrush land would produce or not? A. I think the most extensive work done in that direction was done by Dangberg, \* \* \* and there was some people above him, too. \* \* \* Q. Do you think of Frevert? A. Yes; and Peter Lyttle and others, and Madison; but they made their improvements after that. Q. Do you say that Dangberg made his improvements later? A. No; Frevert. Q. About how much later? A. I do not think they started before the latter part of 1864, or early in 1865, in the cultivation of sagebrush land. Q. Would you say that Frevert, Dangberg, and yourself, for Klauber, made any experiments to cultivate sagebrush land earlier than 1862 or 1863? A. I do not think we made any experiments as early as 1862. We did not make such experiments on sagebrush land earlier than 1863, and then only on a few acres. Q. In 1863, how extensive were the experiments made,—about how many acres of sagebrush land were cultivated in the aggregate in the valley, or by each one? A. \* \* \* I should judge, between 250 and 300 acres on the Klauber, Frevert, and Dangberg ranches, altogether. \* \* \* Q. Was there any other land anywhere in the valley, except the natural grass land and meadow land, cultivated prior to 1864, than the two or three hundred acres you have mentioned? A. Not to any extent. I know there was some improvements made as low down on the river as Cradlebaugh's ranch, and they talked about digging ditches. That was all done on a small scale."

The date when the Virginia ditch was constructed cannot be as definitely ascertained as the Klauber ditch, owing to the fact that there is no written contract as to the time of its commencement. It is claimed by the respondents to have been built in 1861, while the complainant contends it was not built until the fall of 1863, or spring of 1864. The testimony, which is quoted in the statement of facts, leaves the question in doubt, and it can only be approximately determined. It is too vague, uncertain, and unsatisfactory to base any rights upon it prior to the fall of 1863, which is long subsequent in date to the appropriation made by the complainant. All ditches constructed subsequent to the time when complainant acquired its rights are subject thereto, and need not be further noticed.

11. With reference to the time when the complainant's rights were first acquired, the record shows that the Vivian Mill was built in the winter of 1859-60, was washed away in 1861, and rebuilt in 1862; that the Rock Point Mill was built in the fall of 1860, or early in 1861, and was completed and put in operation in the fall of 1861, or early in 1862; that the Merrimac Mill was constructed in the summer or fall of 1860, and the ditch completed in August, 1861; that this ditch was about 10 feet on the bottom, 12 feet on top, and 4 feet deep, with the usual slope; that it took nearly all the water power in the ditch to run the mill with all its pans; that the Brunswick Mill was completed in 1864; that the other mills were built in 1861. The first notice of the mill site and water privilege for the Mexican Mill reads as follows:

"We, the undersigned, claim this mill site and water privilege, with the banks and sufficient land to form a pond that may be so formed by the back-water caused in building a dam 20 feet in height across said river [Carson

river], and appurtenances thereunto belonging, for the purpose of driving machinery, and milling purposes.

"March 20, 1860.

C. P. Patterson.  
Wm. H. Mead."

"Situate at eastern end of the cañon on Carson river; the mouth of said cañon being opposite in an easterly direction from Penrod's house, and mouth of where Clear creek empties into Carson river.

"Filed for record May 5, 1860. Carson County Records, U. T. Now in office of the secretary of state of Nevada."

The second notice reads as follows:

"River Claim.

"The undersigned claim the waters of Carson river at a point  $4\frac{1}{2}$  miles above Dutch Nick's, or a sufficient amount of the waters of said river to fill a ditch 8 feet wide on the bottom, 14 feet wide at the top, and 3 feet deep. Said ditch will be built and the waters taken out on the north side of the river, and said water used and returned into said river at or near Dutch Nick's (Empire).

"Carson City, May 1st, 1861.

J. H. Atchinson & Co.

"Filed for record May 1st, 1861."

The mill was built in 1861, was destroyed by fire the same year, and immediately rebuilt. Work was commenced on the Mexican ditch in the fall of 1860, or spring of 1861, and fully completed in 1862. W. Cook, who owns land through which the Mexican ditch runs, testified that "from the summer of 1860, until the ditch was completed, in 1862, the work was prosecuted without interruption until it was finished." From the time of the completion of the several mills and ditches, up to the time of the commencement of this suit, they have, with the exception of temporary suspensions by floods in the river, occasional scarcity of ore, and lack of sufficient water in the summer or fall months, and other causes, been continuously in operation; and the complainant and its grantors have made a beneficial use of the water of the river, to the full extent of the carrying capacity of the ditches, races, etc. The water to propel the machinery for the various mills, after use, flows back into the river, and is used in the ditches and races of the other mills lower down on the river. It will thus be seen that complainant's rights to the water for the Mexican Mill were acquired as early as March, 1860, some others prior to 1861, and for all except the Brunswick prior to 1862. In determining the question of the time when a right to water by appropriation commences, the law does not restrict the appropriator to the date of his use of the water, but, applying the doctrine of relation, fixes it as of the time when he begins his dam or ditch or flume, or other appliance by means of which the appropriation is effected, provided the enterprise is prosecuted with reasonable diligence. *Mining Co. v. Carpenter*, 4 Nev. 534, 544; *Irwin v. Strait*, 18 Nev. 436, 4 Pac. 1215; *Kimball v. Gearhart*, 12 Cal. 28; *Canal Co. v. Kidd*, 37 Cal. 283, 311; *Osgood v. Mining Co.*, 56 Cal. 571, 578; *Sieber v. Frink*, 7 Colo. 149, 154, 2 Pac. 901; *Woolman v. Garringer*, 1 Mont. 535; *Kin. Irr.* §§ 160, 161; *Black's Pom. Water Rights*, § 55.

The averment in the complaint concerning the Mexican ditch, viz. "that said ditch will carry 8,640 inches of water flowing on the grade thereof, to wit, 1 foot to the mile," is not sustained by the evidence. The testimony in relation to this ditch covers a wide range, and is in many respects unsatisfactory, owing principally to the fact that the witnesses measured the ditch at different times and places, and

under different conditions and surroundings. The quantity of water appropriated is generally to be measured by the capacity of the ditch or flume at its smallest point; that is, at the point where the least water can be carried through it. *Barnes v. Sabron*, 10 Nev. 217, 244. In other words, the capacity of a ditch, making due allowance for evaporation, seepage, etc., is the amount of water that it will carry from the point of diversion to the point of use. *Water Co. v. Standart*, 97 Cal. 477, 32 Pac. 532; *Black's Pom. Water Rights*, § 86 et seq. The true test of the extent of an appropriator's rights in and to the waters of a stream, in all cases, is the actual amount that is applied, without waste, to some beneficial use within a reasonable time after he has given notice of his intention to appropriate the water. These general principles are to be kept in view in weighing the testimony as to the capacity of any of the complainant's ditches. Some of the testimony in relation thereto is set out in the statement of facts, but there are other matters proper to be noticed in connection therewith. As therein stated, the testimony of all the civil engineers is to the effect that 50 inches of water, under a 4-inch pressure, equal 1 cubic foot per second. From the record it appears that H. H. Bence, a civil engineer and surveyor, was employed by Mr. Newlands in 1889 to survey certain reservoir sites, and make estimates on the holding capacity of such reservoirs, and, in connection therewith, to ascertain the amount of water used at the Mexican Mill, without reference to this litigation. He testified that he calculated the measurements, which were approximately accurate, by the formulæ in Trautwine's former editions, and found the amount of water flowing in the flume at the mill to be 133.66 cubic feet per second, or 6,683 miners' inches, under a 4-inch pressure. Mr. Taylor, the chief witness on behalf of respondents, was asked on his cross-examination if he could estimate the quantity of water that would pass through the turbine wheel at the Mexican Mill with 28 feet of water in the penstock, when the guides of the wheel were fully opened, and the wheel working to its full capacity, making 130 revolutions to a minute. He replied that there were formulæ given in different works from which such calculation could be made. He was requested by complainant at different times to make such calculation, but declined to do so on the ground that he had not been furnished with sufficient data from which to make the calculation. The following offer was made by counsel for complainant:

"I now offer to provide a carriage to counsel and Mr. Taylor, and take them to the Mexican ditch and mill, where Mr. Taylor can make the measurements for himself, and know that they are accurate."

Counsel for respondents said:

"I consent that Mr. Taylor may go any time to make such measurements as he desires."

Counsel for complainant:

"I now offer to place the entire Mexican mill, ditch, and wheel at the disposal of defendants' engineers and counsel, so far as its inspection and survey of the same may be concerned."

For some unexplained reason, neither Mr. Taylor nor respondents' counsel ever availed themselves of this offer, which was certainly fair

upon its face, and must be accepted as having been made in good faith.

Eugene May, by occupation and profession a practical mechanic and millwright, who had been engaged at the Mexican Mill for 23 years, and is the foreman of the same, gave a full description of the Leffel double turbine 56-inch wheel used at the mill, with all the mechanism and machinery connected therewith, and verified the tables of Mr. Leffel as being correct. On this point he testified as follows:

"I would rather take his tables, if I were planning a mill or wheel or a penstock, in preference to consulting a civil engineer, to develop a certain amount of power with a given amount of water and fall. I consider his works reliable."

Mr. Taylor was recalled for further cross-examination. Hypothetical questions were propounded to him, based upon the testimony of Mr. May, given thereafter, as to the facts, and the tables of Leffel as to the calculations. Among other portions of his testimony upon this point is the following:

"Q. Examine plaintiff's Exhibit No. 20, on page 37, and the table where Leffel gives the amount of water that will pass through a 56-inch turbine wheel measured in the tail race after it has left the wheel, with 28-foot pressure in the penstock, and reduce to cubic feet per second, and inches, under a 4-inch pressure, the table giving the quantity of water and cubic feet per minute. A. That gives 129.15 cubic feet per second, or 6,457½ miners' inches, measured under a 4-inch pressure. Apparently he takes the actual discharge as being 60 per cent. of the theoretical discharge, taking the 60 per cent. as the coefficient for velocity and contraction combined. I figured that here a few moments ago, and used 60 per cent. as the only coefficient for discharge occasioned by contraction in passing through the tubes and friction, and by the retarding effect of the revolution of the wheel, and I got a discharge, instead of 129 cubic feet per second, 133 cubic feet per second. [That would be 6,650 inches, miners' measure.] Q. You figured that more water would pass through the wheel than Leffel does? A. Yes, sir; using a coefficient that he uses, it gives a difference of 4 cubic feet per second; using a coefficient that you state he uses, the difference is less than 3 per cent."

I am of opinion that in a case like this, where a certain state of facts has been testified to on behalf of the complainant, and the respondents are given a fair opportunity and afforded every facility, and requested, to visit the spot and ascertain the truth or falsity of such testimony, and they decline to go, and offer no excuse for their failure so to do, they ought to be estopped from denying the truth of the testimony. Everything is clear that can be made clear, and the court has the right to assume that respondents would have shown the testimony to be false, by actual measurements made by a reliable witness, if it could have been done. Taking the measurements of the water in the flume at the mill as above stated, we have as a result a self-evident, convincing fact, which needs not the evidence of any civil engineer, or a comparison of the scientific tables from standard works, that when a given quantity of water, flowing from the head through the ditch, is found at the lower end where it is discharged into the penstock of the mill, it is conclusive evidence that the ditch, throughout its entire length, must have had at the time the measurements were made a carrying capacity equal to the amount of water found at the place of delivery. This being true, it would be but an

idle ceremony, and waste of time, to discuss the question as to the conflict in the evidence as to the measurements made in other portions or sections of the ditch or flumes. It is, however, proper to state that after a full, careful, lengthy, and exhaustive review of all the testimony concerning the carrying capacity of the Mexican ditch, the testimony of Capt. Haynie—a portion of which is embodied in the statement of facts—is found to be substantially correct.

Just as soon as one fact is disposed of, another question is presented, upon which there is another conflict, that must be likewise solved by the court. It is zealously, earnestly, and confidently asserted by respondents' counsel that the Mexican ditch, since its construction, has been repeatedly enlarged, and that complainant is not entitled to have its rights established herein by the present carrying capacity of the ditch. Every page of the testimony is suggestive of matters that ought to be discussed, and the temptations to quote from the record become greater as we proceed; but, if the end is ever to be reached, the admonition of the court as to the necessity of only giving conclusions must be adhered to. An outline of the general testimony upon this point will alone be given. Great reliance is placed upon the testimony of G. R. Dobbs, who had charge of the workmen engaged in cleaning out and repairing the ditch and flumes in the year 1862, after a heavy flood which occurred either in January or February of that year. This flood washed away one side of the dam at the head of the ditch, and some portions of the ditch and flumes. The dam was rebuilt, and the ditch thoroughly repaired. Most of the flumes along the line of the ditch had to be replaced, but the testimony does not show that all of them were. A number of men were employed for two or three months before the entire work was fully completed. The opinion of Mr. Dobbs is to the effect that the result of this work was to materially enlarge the capacity of the ditch, because the sediment in the flume was thrown upon the lower bank, increasing its height, and in some places the sides of the ditch were widened. But he never measured the ditch before or after the repairs were made, and, at best, his testimony is only guesswork, from memory. The same witness testified that the ditch was again repaired in 1865, and at that time there was some blasting of rock on the upper side of the ditch, above Cook's ranch. At that point there were big rocks that had fallen into the ditch, and caused eddies in the water, that broke the ditch; and these rocks and other overhanging rocks were blasted out, and thrown upon the lower side of the ditch, and from this fact it is claimed the ditch was again enlarged. The truth is, in order to obtain the supply of water to the extent of the capacity of the ditch, it is necessary to clean it out every two or three years, or oftener, and for this reason it is argued that the ditch has been constantly enlarged. The testimony on behalf of the complainant is to the effect that the repairs never increased the amount of water flowing through the ditch; that the banks, projecting points at curves, and the sides of the ditch that were cut away, were only done for the purpose of making the flow more regular; when the ditch was first constructed, the grade was not even, and when the repairs were made there were some places



where the bottom of the ditch was made a few inches lower in order to make the grade more even and regular; that the flumes on the line of the ditch were never enlarged, and some remained as originally constructed. In Black's Pom. Water Rights, § 87, the author, in discussing the question as to the true capacity of a ditch, said:

"The ditch might be so imperfectly constructed, with irregular and improper grades, and with incomplete excavation, that it could not actually carry so large an amount of water as its general plan and size rendered it capable of carrying, and as its proprietor had intended to appropriate. Under these circumstances, unless the use of the ditch had continued so long a time as to show an intention of the appropriator to adopt it in its existing imperfect condition, the proprietor would be entitled to perfect his ditch by removing obstructions, improving the grades, and the like, so that it could actually carry the amount of water indicated by its general size and character, and originally intended to be appropriated; and the increase in the actual flow of water thus caused would not be an invasion of the rights of subsequent appropriators, although their rights accrued before the improvements were made."

The weight of the testimony is, when thoroughly examined in its entirety, to the effect that the carrying capacity of the ditch, as it now stands, is no greater than when originally built. The Mexican Mill, after the flood in 1862, was enlarged from 12 to 44 stamps, but it is not shown that any greater amount of water was needed to run the mill after it was enlarged than the amount appropriated by the capacity of its ditch when first constructed. Complainant, under these circumstances, was entitled to enlarge its mill within a reasonable time so as to use the whole amount of water to the capacity of its ditch, upon the same principle that an agriculturist who diverts a given quantity of water to irrigate his lands is not confined to the amount of land irrigated by him the first or second year after his appropriation. The object had in view at the time of his diversion of the water must always be considered in connection with the actual extent of his appropriation. *Barnes v. Sabron*, 10 Nev. 217, 244, and other authorities cited in applying the doctrine of relation. The working capacity of some of complainant's mills, especially of the Mexican, has been materially increased, not by any increase of water, but by cutting down the tail races and increasing the vertical fall of water on the wheels, discarding the old-fashioned wooden overshot and breast wheels, and substituting the latest improved turbine wheels and other machinery. The complainant, as well as the respondents, should be required to make an economic as well as a reasonable use of the water. If the capacity of the ditch is shown to be greater than is necessary to enable complainant to make such an economic and reasonable use, then it should be confined to the amount necessary for such use, although it is less than the capacity of its ditches. This principle applies to the mills as well as to the agricultural lands. The weight of the testimony clearly shows that the Mexican ditch has a carrying capacity of 130 cubic feet per second, equal to 6,500 inches of water, under a 4-inch pressure. It is, of course, a matter of common knowledge that persons build their ditches with a view to the quantity of water needed. Slight testimony is therefore usually sufficient to show that the full capacity of the ditch was used. *Faulkner v. Rondoni* (Cal.) 37 Pac. 883. But,

in considering all the facts, the court is not convinced that the amount actually required by an economic use to propel the machinery at the Mexican Mill exceeds 120 cubic feet of water per second, which is equal to 6,000 inches, miners' measure, under a 4-inch pressure, which amount is hereby declared to be necessary and reasonable for the purpose of enabling the complainant to successfully run its mills by water power. The rights of the complainant are not confined to the Mexican Mill or to the Mexican ditch. These properties have been selected for illustration and discussion because the greater portion of the testimony, and of the arguments of counsel, relates thereto. This is perhaps owing to the fact that these properties are situate highest up on the river. But complainant's rights to each of the seven mills, and of the ditches and races conveying water thereto, must not be overlooked. The principles involved herein apply to all, and, if either have a prior or better right to the water of the river than respondents, then, to the extent of such right, it is entitled to a decree. The rights of the Merrimac Mill were acquired prior to 1862. In the suit of Mining Co. v. Dangberg, A. N. and S. R. Elsworth testified that the Merrimac ditch was 14 feet on top, 10 feet on bottom, and 4 feet deep, with a fall of  $\frac{1}{8}$  inch to the rod. Their testimony in that case was introduced in evidence in this. H. H. Bence testified in this case that a ditch of that size and dimensions, assuming the ditch to be in fair condition, would carry 6,562.8 miners' inches. In making this calculation, the witness used Kutter's tables, found in Trautwine. It will thus be seen that the Merrimac Mill was entitled to the same amount of water as the Mexican; but it is claimed that the Merrimac Mill was abandoned in 1888 or 1889, prior to the commencement of this suit, and that the complainant is not entitled to recover for any rights it had in connection with that mill prior to that time. The testimony fails to show that the property has been abandoned. It does show that it is in a state of "innocuous desuetude." The mill was partially dismantled prior to the commencement of this suit. The ditch and turbine wheel were used occasionally until some time in 1893, when the dam was washed out, and the ditch placed in a bad condition. The arrastres were cleaned up and torn out; the machinery of the mill removed. The complainant, at the time the testimony was taken, admitted that it would not rebuild until the questions concerning the water rights in this suit were settled and determined. Such nonuse of the mill and water power, not having continued for five years, cannot affect the complainant's rights to recover in this action, if it is otherwise entitled so to do. It would be entitled to recover on the Merrimac title alone, although no actual damage to that property has been shown. In Barnes v. Sabron, 10 Nev. 217, 247, the court said:

"The rule of law is that in cases for the diversion of water, where there is a clear violation of a right, and equitable relief is prayed for, it is not necessary to show actual damage. Every violation of a right imports damage. And this principle is applied whenever the act done is of such a nature as that, by its repetition or continuance, it may become the foundation of an adverse right."

See authorities there cited; Mining Co. v. Dangberg, 2 Sawy. 450, 454, Fed. Cas. No. 14,370; Hatch v. Dwight, 17 Mass. 289; Webb

v. Manufacturing Co., 3 Sumn. 189, Fed. Cas. No. 17,322, and authorities there cited; Kin. Irr. § 329.

Under the rules of riparian proprietorship, the right to the use of the water in its natural flow is not a mere easement or appurtenance, but is inseparably annexed to the soil itself. It does not depend upon appropriation, or presumed grant from long acquiescence on the part of the other riparian proprietors above and below, but exists, *jure naturæ*, as parcel of the land. It is not suspended or destroyed by mere nonuser, although it may be extinguished by the long-continued, adverse enjoyment of others. It is not affected by the use to which the water has been or may be applied. Use does not necessarily create the right, and disuse cannot destroy or suspend it. Kin. Irr. § 59; Gould, Waters, § 204; *Lux v. Haggin*, 69 Cal. 255, 10 Pac. 674. The right to water acquired by prior appropriation is not dependent upon the place where the water is used. A party having obtained the prior right to the use of a given quantity of water, is not restricted in such right to the use or place to which it was first applied. It is well settled that a person entitled to a given quantity of the water of a stream may take the same at any point on the stream, and may change the point of diversion at pleasure, and may also change the character of its use, if the rights of others be not affected thereby. *Hobart v. Wicks*, 15 Nev. 418; *Kidd v. Laird*, 15 Cal. 162, 180; *Davis v. Gale*, 32 Cal. 26; *Junkans v. Bergin*, 67 Cal. 267, 7 Pac. 684; *Ramelli v. Irish*, 96 Cal. 214, 31 Pac. 41; *Coffin v. Ditch Co.*, 6 Colo. 444; *Sieber v. Frink*, 7 Colo. 148, 2 Pac. 901; *Strickler v. City of Colorado Springs*, 16 Colo. 62, 68, 26 Pac. 313; *Woolman v. Garringer*, 1 Mont. 535; Kin. Irr. §§ 233, 248; *Black's Pom. Water Rights*, § 69; Gould, Waters, § 237. If there was any loss of complainant's rights at the Merrimac, it might be necessary to examine the rights of the complainant in the other mills lower down on the river. They are all involved in this litigation. From a cursory examination of the testimony in relation thereto, the court is satisfied that the same results would be produced, and, as it is of opinion that complainant has lost none of its rights at the Mexican or Merrimac, it declines to enter into any of the details as to the other mills.

From this lengthy review of the facts, and enunciation of the legal principles applicable thereto, it follows that complainant is entitled to a decree against the respondents for a wrongful diversion of the water of the Carson river to its injury and damage, whether the right of riparian ownership or prior appropriation is to be applied. This result has been reached without any special discussion relative to the prior decrees in this court or in the state court, but these decrees cannot be ignored. Their effect must be determined before the court can order any decree to be entered herein. The records in the former suits brought by the complainant or its grantors against some of the same parties for the same purpose, and the decrees obtained therein, were admissible in this case as against all of the respondents who were parties in the former suits. It is claimed by respondents' counsel that the former decrees should not be treated as *res judicata*, for the reason that the issue joined in the former

suits touching appropriation was never decided; that complainant has reopened the proofs, and compelled respondents to again litigate their rights as appropriators; that since the former suits the rule of appropriation has become the law of this state; that many of the respondents' rights in this suit, and the rights of the complainant as to all its mills, except the Merrimac, are different, and were in no manner involved. Why should the respondents, who were by the former decrees adjudged to be riparian proprietors, now desire to destroy the binding force of those decrees? They certainly have as great, if not greater, rights thereunder as any rights acquired by prior appropriation would give them. Their contention in this respect was evidently based upon the erroneous theory that they were entitled to all the rights of the early settlers in the valley, without having connected themselves with such rights by any title to the land occupied by such settlers, because it is only upon that theory that they could possibly be benefited by any decision declaring the decrees to be of no binding force. It is true, as stated by counsel, that "the court is at liberty to take the facts, and apply the law as it understands it to be, and render its decision according to the rights of the parties and principles of justice." It is also true that there are certain settled principles of law and equity that this court, having due regard to the rights of both parties, as well as of its own duty, is compelled to obey. To what extent, if any, are the former decrees binding on this court? The general principle that a judgment of a court of competent jurisdiction, between the same parties and upon the same issues, is, as a plea, a bar, or, as evidence, conclusive, is too well settled to require discussion. Such a judgment is not only conclusive of the right which it establishes, but of the facts which it directly decides. Whenever a cause has been once fairly tried and finally decided by a competent tribunal, the same questions, as between the same parties, ought not to be tried over again. They should be considered as forever settled. This rule is necessary for the repose of society. It is in the interest of the public that there should be an end of litigation. It is easy to understand the beneficial results which flow from a strict observance of this principle, and to realize the injury which might arise by any relaxation of the rule. In a proper case for its application, courts of justice ought not to permit the rule to be called in question by any supposed hardship which might exist in any particular case, but should inflexibly adhere to it, regardless of consequences. *McLeod v. Lee*, 17 Nev. 110, 112, 28 Pac. 124. The decrees in the former suits, being final and unreversed, are *res judicata* of the subject-matter of the suits as then decided, between the parties thereto and their successors in interest. This is true whether the courts based their opinions and decrees upon a correct or an erroneous view, either of the law or of the facts. They are not conclusive as to matters which might have been decided therein, but only as to such matters as were in fact decided, within the issues raised by the pleadings. *Russell v. Place*, 94 U. S. 606; *Last Chance Min. Co. v. Tyler Min. Co.*, 157 U. S. 683, 687, 15 Sup. Ct. 733, and authorities there cited; 1 *Freem. Judgm.* § 249, and authorities there cited; *McDonald v. Mining Co.*,

15 Cal. 145; *Kidd v. Laird*, Id. 162, 182. In the prior suit of Mining Co. v. Dangberg, the court decided that the complainant was entitled to a decree against all the respondents in that suit except E. Lyttle—“Perpetually restraining them from diverting the waters of Carson river, upon their lands or elsewhere, so as to prevent the same from flowing freely to the lands and mill of plaintiff, to the extent necessary for the lawful uses and purposes of plaintiff in carrying on upon its said premises the business of reducing metalliferous ores, or other lawful business in which it may now or hereafter be engaged.”

Similar decrees were entered in the other suits referred to in the statement of facts. It is claimed that under these decrees—rendered upon the riparian rights of the parties—the complainant is confined in its rights to the locus in quo of the Merrimac Mill at the time the decrees were rendered, and that, inasmuch as no water was used at that point when this suit was commenced, the former decrees ought not to be considered as *res judicata*. The decrees in question are not susceptible of such a narrow or limited construction. It will be noticed that it was not confined solely to the business of “reducing metalliferous ores,” but the right to engage in any “other lawful business” is expressly mentioned. It was because its lands and mill were on the bank of the river that it became entitled to the decrees under riparian rights, and not because of the particular spot on which the mill was erected. The Merrimac Mill could have been torn down, and complainant could have built a flour mill on the opposite side of the river, or used the water power at the Mexican higher up, or at any other of its mills lower down, on the river, if it owned the land, without any loss of its original rights obtained under the prior decrees. The material parts of the decrees are found in that portion which enjoined and restrained respondents from any diversion of the water of the river to the extent necessary to enable complainant to conduct its business. To that extent the respondents were required to allow sufficient water to flow freely down the Carson river to enable complainant to run its mill by water power. In *Ditch Co. v. Heilbron*, 86 Cal. 1, 18, 26 Pac. 523, the point was made by appellant that the plaintiff was estopped by matter of record from claiming or diverting any of the waters of Cole slough, or interfering with the free flow thereof. This point was sustained by the court. Substituting Carson river for Cole slough, its application to this case is apparent. It appeared that in a prior suit, entitled “*Heilbron et al. v. Last Chance Water-Ditch Co.*,” where the waters of Cole slough were involved, judgment was duly given and made, forever enjoining the Last Chance Water-Ditch Company, the defendant therein—

“From digging out, enlarging, or lowering the channel of Kings river at and immediately below the head of Cole slough, and from erecting or maintaining any dam or other obstruction in or across the channel of said Cole slough at or near its head, and from doing any act or thing which shall interfere with, or in any manner prevent, the free flow of water into or down the channel of said Cole slough.”

The court, after making this quotation, said:

“This judgment has become final. Respondent insists that this judgment does not work an estoppel in this case, for the reason, as it claims, that the

trespasses then complained of and enjoined were those, and those only, at the head of Cole slough. We do not so read either the complaint or the judgment in that case. The locus in quo was a mere incident of the cause of action or the relief sought. The substantive wrong complained of was the prevention of the water from flowing into and down the channel of Cole slough, and into the head of the ditch of plaintiffs in that case. The judgment restrained, not only the acts at the place complained of, but any act which would have the effect of preventing the water from flowing into or down the channel of said Cole slough. The injunction therefore ran, not alone as to the head, but as to the entire length, of Cole slough, and in doing so it did not exceed the relief warranted by the allegations and the prayer of the complaint. The effect of the judgment in the present case is to restrain and enjoin these defendants [the plaintiffs in the former case] from interfering with such trespasses of the plaintiff herein [defendant in the former case] as are committed in violation of the former injunction, and are intended to, and do, defeat its purpose. In other words, the effect of this judgment is to enable the plaintiff to deprive the defendants of the fruits of the former judgment rendered in their favor, and still remaining in full force. The right to have the water flow, according to the course of nature, through the channels of Cole slough, from end to end, not only might have been, but, as we read it, was, within the purview of that former action, both in respect to matters of claim and defense, and was there adjudicated and determined. That determination is *res judicata* as between these parties."

What decree is complainant entitled to? If its rights were to be based solely on prior appropriation, it would be entitled to a decree as against all of the respondents who are subsequent in time to the appropriation made by it in the spring of 1860. It has not enlarged its rights since then. The same water is used over and over again, but there is no increase in quantity. All of the respondents who stand in the same situation as H. F. Dangberg and others heretofore mentioned, who connected themselves in interest with the early settlers prior to the time of the acquisition of complainant's rights, would be entitled to a decree of priority for the amount of water necessary to irrigate all the lands owned by them prior to the spring of 1860, when complainant's rights attached, but complainant would be entitled to a decree against them as to the water appropriated by them on their subsequently acquired lands. If riparian proprietorship is to prevail, then all of the respondents who are owners of riparian lands would be entitled to a reasonable use of the water in common with the complainant as a riparian proprietor. Their rights as to such lands are the same now as then. They were heard, settled, and determined in the former suits, and are binding upon them and all parties privy thereto, unless the changed conditions are such as will justify the court in departing therefrom, so as to make a new decree applicable to the present, existing situations and surroundings. The quantity of water flowing in the Carson river is dependent, not only on the amount of snow which falls upon the mountains and in the cañons from which the river draws its supply, but also upon the time of the year when it falls, and further upon the amount of rain that comes in the spring or summer season of the year. The truth is that in some years, in every month thereof, there is more than water enough to meet and supply all the demands of the farmers and of the mill owners, and that in seasons of extra drought, for a few months in such years, there is scarcely enough for either. The real controversy between the respective parties is con-

fined to a period of time ranging from July 1st to November 1st of each year, during which there is always liable to be an insufficient quantity of water flowing in the river to enable the parties to make a reasonable use thereof both for irrigating and for milling purposes at the same time. The difficulty in arriving at a proper decree is apparent. The power of regulating or controlling the amount of rain or snow is beyond the jurisdiction of courts. No decree can be framed, which is based either upon riparian rights or of appropriation, or of both, which overlooks the uncertainty of the season, or the necessities of the various litigants, so as to meet the demands of justice and of right. It would be unjust and inequitable to compel the farmers in the valley to allow the water to run down to the mills when the quantity of water was wholly insufficient, to enable the complainant to run its mills with water power. There must be a beneficial use before any protection can be invoked. No provisions should be contained in the decree which would result in depriving one party of the use of the water when the other party could make no beneficial use of it. This would amount to a destruction, instead of a protection, of the rights of the parties. In the appropriation of water, there cannot be any "dog in the manger" business by either party; to interfere with the rights of others, when no beneficial use of the water is or can be made by the party causing such interference. The same rules govern riparian rights. No riparian proprietor can dam up or withhold the use of the water of a river simply because the river is on his land, or so use it as to prevent its flowing down the channel to others having an equal right thereto, and entitled to an equal and beneficial use thereof, when such use could be made of the water except for such wrongful acts. A practical view ought to be taken of all the conditions, surroundings, and situations. The rights of all parties must be protected by the decree. The difficulty of enforcing it without the necessity of bringing independent suits should be avoided, if possible. Certainty in its terms, positiveness in its requirements, justice in its conclusions, will materially aid in the accomplishment of such a purpose. No theory is complete or practically efficient which does not recognize two distinct sources and objects of the equity jurisdiction, namely, the primary rights, estates, and interests which equity jurisprudence creates and protects, and remedies which it confers. Complainant would be compelled to resort to numerous actions in order to obtain complete redress, or be subject to numerous actions by its adversary party, unless the court of equity interferes and decides the whole matter, and gives final relief by one decree. "The fundamental principle of equity in relation to judgments is that the court shall determine and adjust the rights and liabilities concerning or connected with the subject-matter of all the parties to the suit, and shall grant the particular remedy appropriate in amount and nature to each of those entitled to any relief, and against each of those who are liable, and finally shall so frame its decree as to bar all future claims of any party before it which may arise from the subject-matter, and which are within the scope of the present adjudication." 1 Pom. Eq. Jur. § 115. These requirements of the law could readily

be complied with by this court in a suit brought for the purpose of establishing the rights of all the parties, unhampered by any former decrees. But the character of this suit, and the effect to be given to the former decrees, render it exceedingly difficult to accomplish this desired end. Reference has been made to the fact that the former decrees were difficult of enforcement. A mere repetition thereof would substantially leave the parties as we found them at the time of the commencement of this suit. If the decrees are strictly adhered to, this result would follow, with but the single exception that in this suit the court has fixed the quantity of water necessary to constitute an economic and reasonable use thereof to enable complainant to run its mills by water power. Naturally it might, and probably will, at first blush, be supposed that the court ought to take another step in the same direction, and positively fix the amount of water that would be required to make an economic and reasonable use of the water per acre for the purpose of irrigating respondents' lands; but unfortunately the character of this suit, as stated in the outset and repeated at the close of this opinion, is not such as authorizes this court to determine this important question. The former decrees in this court settled but one question, viz. the respective parties thereto were riparian proprietors, and as such were equally entitled to make a beneficial use of the water. Nothing else was determined. The court declined to pass upon any other question. The result was that, when the parties were brought before it for a violation of the decrees, the court was virtually powerless to enforce it. The decrees established the rights of the parties, but the remedy given was inadequate. The court, in its opinion, said:

"When we come to consider the terms of the decree, we find it impossible, however desirable such certainty may be, to measure out to the defendants a specific quantity of water, in cubic inches, flowing under a given pressure, as reasonable, or to designate a certain number of acres of land which a defendant may at all times reasonably irrigate, and restrict him to that quantity of water or number of acres."

This court must follow its former decrees, in so far as they were based on riparian proprietorship. It clearly appears from the testimony that the complainant, at the time of, and since, the commencement of this suit, has not been able to continuously run its mills,—all or any of them,—on account of the scarcity of ore. It has no other use for, and makes no other claim to, the water of the river, except for the purpose of propelling the machinery at its mills by water power for the reduction of metalliferous ores. On the other hand, the testimony shows that respondents, who are equally entitled, as riparian owners, to a reasonable use of the water, have, during a small portion of the dry season, been unable to use the same for irrigating purposes without practically using all the water, or at least leaving an insufficient quantity to flow down to complainant's mills. The respondents cannot be compelled to supply any given quantity of water which the elements fail to furnish. It is easy enough for the courts to say that each riparian proprietor is only entitled to use, for the purpose of irrigating his own land, that portion of the water of the stream which is in excess over the amount



thereof to which all the other proprietors are equally entitled for the purpose of making a like beneficial use of the water. This rule is sound enough and just enough, if there is water enough to go round. But what is to be done when there is no excess? If the legislature of the state fails to act, are the courts compelled to simply declare the rule, and let the parties act under their own interpretation of it? In all cases where the flow of water is varying, where the amount at certain seasons of the year falls far short of furnishing a constant, or any, excess over and above the needs of a portion of the proprietors, the rule above stated furnishes only an imperfect, impracticable, and unsafe guide. In fact, it amounts to nothing, and cannot be enforced without it is supplemented or aided by some positive legislation, or by the agreements and stipulations and good faith of the parties, or by the courts ingrafting into it an additional element for the purpose of meeting the emergencies of the different cases as they arise. A court of equity ought to have power by its decree to reach the ends of justice. In many cases where similar facts existed, the courts, in the application of riparian rules, have solved the difficulty by decreeing that, inasmuch as both parties require the full flow of the stream at certain periods of time in order to make a reasonable use of the water, their rights could be declared, preserved, and made beneficial by decreeing to the respective parties the use of the full flow of the stream during different periods of time. Why should not such a rule be followed in the present case? A decree of this character would certainly have a tendency to promote peace, protect the rights of all parties, prevent further and unnecessary litigation, and substantially reach the ends of justice, without any material injury to either of the respective parties. The endless complications that have arisen in this case, the exigencies and necessities of the parties, as well as the number of parties involved, justify this court in adopting this rule. It only remains to fix the time. This, in the nature of things, must be, to some extent, arbitrary. In view of all the facts, my conclusion is that the complainant is entitled to a decree against all of the respondents, perpetually enjoining them, and each of them, from diverting the waters of the Carson river upon their lands, or elsewhere, so as to prevent complainant from having the full and free flow of 6,000 inches of water, miners' measure, under a 4-inch pressure, for use at its mills, except from July 1st to October 1st of each year, and should be enjoined from making any other than an economic, beneficial, and reasonable use of the water, without waste, from July 1st to October 1st of each year, and be required to return the surplus of the water, after such use, back into the river, whenever the complainant can make a beneficial use of such surplus. Subject to these rights of the complainant, the respondents are entitled to a decree allowing them at all times to make an economic, beneficial, and reasonable use of the water, without any waste, and, from July 1st to October 1st, to the extent of taking all the water in the river, when, and only when, all of it is absolutely required, owing to the scarcity of water in the river, to enable them to make such use of the water in irrigating their riparian lands without waste. The decree against unnecessary and

unreasonable waste should be made strong, clear, and positive. The respondents are also entitled to a decree allowing them, and each of them, at all times, to take and use a sufficient quantity of water from the river for their household and domestic purposes, and for watering their stock. Decrees will, of course, be entered in accordance with the respective stipulations as to all parties who signed the same. In the light of these conclusions, the decree should further provide that each of the respective parties herein should pay his own costs. These suggestions as to the form, taken in connection with the views expressed in this opinion, are deemed to be sufficiently explicit to enable counsel to prepare a decree covering all points entitled to be embodied therein. Let a decree be entered in accordance therewith.

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NEWMAN et al. v. UNITED STATES.

(Circuit Court, W. D. Virginia. February 10, 1897.)

1. **CONTRACTS WITH GOVERNMENT—ROAD CONSTRUCTION—ESTIMATES AND MEASUREMENTS OF ENGINEER.**

Where contractors engaged in road building for the United States have agreed by the terms of their contract that the engineer in charge shall determine the classification of the excavations, the grading of the ground, the depth and foundation of the culverts, and that he shall have general supervision, with power to accept or reject any portion of the work, such contractors are conclusively bound by the engineer's estimates, and cannot recover beyond what he has allowed them, in the absence of fraud, or of such gross mistake as would imply bad faith on his part.

2. **SAME—ESTOPPEL—RECEIPT IN FULL.**

Where contractors with the government, after the completion of their work, have received the balance due them according to the accounts of the engineer in charge, and have given a receipt in full without protest or objection, such receipt precludes them from a further recovery in a suit against the government under the act of March 3, 1887.

W. E. Craig, for plaintiffs.  
A. J. Montague, U. S. Atty.

PAUL, District Judge. This is a petition filed by the plaintiffs against the United States under the provisions of the act of congress passed March 3, 1887, entitled "An act to provide for the bringing of suits against the government of the United States" (24 Stat. 505). The petitioners claim that the government owes them the sum of \$7,846.61, as an unpaid balance on a contract made on the 29th day of December, 1890, between the United States and the petitioners for the construction of a road from the city of Staunton, Va., to the National Cemetery, near that city. The contract made for said road was authorized by an act of congress passed April 9, 1890, appropriating \$11,000 for that purpose.

The petition alleges:

"That, as provided in their said contract, they entered upon the building of the said roadway according to the plans and specifications set forth in the contract, they furnishing the material, labor, and all other things necessary for the carrying out of their said contract; that the United States furnished a