STATE OF NEVADA

BIENNIAL REPORT

OF THE

STATE ENGINEER

For the Period
July 1, 1936, to June 30, 1938

ALFRED MERRITT SMITH
State Engineer of Nevada

CARSON CITY, NEVADA
State Printing Office  Joe Farnsworth, Superintendent  1938
this office to personal callers at the office, and in many instances unbiased advice is given on request.

Law suits involving the Humboldt River adjudication and that of the Humboldt-Leavock Irrigation Light and Power Company, commonly known as the Pitt-Taylor reservoir, have been a trying factor to this office. All possible efforts are made to see that no injustice is done and our policy has been to avoid legal entanglements.

Much has also been done by the State Engineer's office in the way of clearing the records of applications and permits which have for many years lain dormant in the files, thus paving the way for new appropriations.

Important articles, maps, plans, reports and other data relative to water and concerning this State have been received and indexed for our reference, and for the use of the general public, Federal and State agencies. This collection and indexed data have proven very valuable in many cases. During this biennium eighty-seven of such articles, reports, maps, etc., have been filed, and up to date seven hundred and eighty-four of them have been indexed.

Since the inception by the State Engineer early in 1927 of the policy of range protection, in that the users of the public domain are notified when new applications are filed to appropriate water within the limits of the range claimed by them, as shown by their range map indexed in this office, three hundred and thirty-nine of such range maps have been submitted and indexed under serial numbers since December 6, 1927. The boundaries of the range claimed as shown by the submitted maps have been placed on the State range map, which map gives a clear picture of the utilization of the stockmen of the public domain for grazing purposes. The submission of range maps by a majority of the stockmen of this State has about approached the limit. During this biennium only one range map has been submitted and accepted, on September 1, 1936. However, the stockmen are still showing their interest in this work, as many inquiries are made relative to their range maps, and they are extensively and constantly used by this office for assistance in acting on pending applications.

Our attention and time has been given both in the field and in the office toward the improvement of channels, diversion and headgates on the Little Humboldt River stream system. Maps and plans have been made and prepared from field investigations covering the actual conditions on the ground of the many obstacles which tend to retard and obstruct the flow and tend to make distribution inefficient. Under these plans actual construction of headgates has been completed on several diversions, as described elsewhere in this report.

Assistance both in the office and in the field has been given water commissioners in their perplexing problems relative to the distribution of water.
CHAPTER II
Office Engineering and Miscellaneous Office Work

In the two years covered by this report much has been done toward disposing of the current routine office duties, such as examining all new applications and checking and filing maps submitted in support thereof. With respect to this work, the aim of this office has been to eliminate all errors before filing and publishing the notices of proposed appropriations. All proofs of commencement of work and completion of work, and proofs of application of water to beneficial use, together with the maps in support thereof, are carefully examined for errors before filing. Proofs of appropriation of water and supporting maps covering vested water rights or rights initiated prior to March 1, 1905, are also given careful study before filing as a part of our routine office work in order to expedite the work of preparing data for adjudication proceedings.

Issuance of certificates of appropriation of water under both permits and decreed rights under statutory adjudication has occupied considerable time. In connection with this work it must be borne in mind that the certificate of appropriation of water is the final step in a perfected water right and, therefore, it is of vital importance that no errors exist, and for this reason they are examined at least three times before they are sent to the County Recorder in the county where the appropriation exists for recording.

Budgets covering the costs of water distribution prepared and submitted to the County Clerks are a part of our annual work. Many deeds affecting the transfer of water rights of record are carefully examined in order to ascertain that there is no missing link in the chain of title from the owner of record to the new owner. In other words, the succession of title to the water right of record must be strictly adhered to so as to keep in close contact with the new owners, especially in cases of rights covering pending applications and permits where the situation of the holder of such application and permit is required to keep it in good standing and also for the purpose of enlisting the interest of the holder of such application and permit.

As a result of the many new Federal and State agencies functioning under the New Deal toward the conservation of water and land utilization, and toward gathering much additional information, a great demand is constantly made upon the office of the State Engineer for information relative to existing and pending water rights, proposed irrigation developments, power and other information relative to this State and, therefore, much time is devoted to their assistance. Many answers to inquiries are made to capitalize Federal agencies relative to water, power, and resources of the State. Some of the data submitted requires much careful searching of the records and the compilation of the requested data. Undivided attention is the policy of...
the statutory procedure; issuing permits and certificates under applications to appropriate; the filing of various proofs required by law to file; the handling of much correspondence relating to water problems, and many additional sundry duties.

The duties of the State Engineer have gradually expanded to embrace many activities not originally contemplated when the office was created. He is a member of seven different State Commissions, which requires much extra work and time. For instance, his work as secretary of the Colorado River Commission has necessitated during the past biennium four trips to Washington, D.C., and the spending of more than three months there, several trips to Los Angeles, a trip to Santa Fe, New Mexico, and a trip to Phoenix, Arizona, in an effort to better Nevada’s position in relation to the charge to the State for Boulder Dam power; the power withdrawal features, and obtaining the alternate privilege of the State receiving set annual payments from the Government instead of compensation under the original Act wherein the annual payments to the State in lieu of taxes were to be based on surplus earnings from the sale of power. A short resume of the work of the Colorado River Commission will be found in Chap. 12.

During the past biennium improvements have been continued towards modernizing the State Engineer’s office. The floors, with the exception of the large filing room, have been covered with battleship linoleum. Modern desks and filing cabinets have been installed, replacing the old antiquated furnishings. This, together with the remodeling of the rooms during 1935 and 1936, has greatly improved the utility and appearance of the office.

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BIENNIAL REPORT OF STATE ENGINEER, 1936-1938

CHAPTER I
Introductory and General

The office of the State Engineer was created by an Act of the twenty-first session of the State Legislature, and approved by Governor John Sparks on February 16, 1935. The State Engineer is appointed by the Governor for a term of four years from and after his appointment, or until his successor shall have been appointed. The law requires that he shall have had training in hydraulic and general engineering, and such practical skill and experience as shall fit him for the position.

The office of the State Engineer is, as required by law, located at the State Capital, and at the present time occupies the second floor of the Heroes Memorial Building above the Nevada State Highway offices.

The office of the State Engineer was created primarily for the purpose of providing a statutory method for the determination and regulation of existing water rights. In 1905 the Legislature provided a statutory method by which future water rights could be acquired and perfected by application to the State Engineer for permission to appropriate and apply water to beneficial use. In the Biennial Report of the State Engineer for the period of 1934-1936, under chapters 4 and 5, and also in the pamphlet containing the water laws of this State compiled by this office in 1937, will be found brief summaries of the statutory procedure of appropriating water and adjudication of old water rights that became vested prior to 1905.

The history of the development of our present water law is very interesting and dates back to the year 1866. It is frequently necessary to explain the reason why certain laws were enacted, and why the repeal of other laws was considered necessary. We have prepared a chronological résumé of all the laws affecting water resources enacted by successive Nevada Legislatures since 1866, which is given in Chapter 6.

This Biennial Report is prepared by the State Engineer for the years 1936-1938, to give an accounting to the Governor, the State Legislature and the taxpayers of his stewardship of the department; to benefit the water users or any persons interested in water rights by presenting in a condensed and concise form all data that have been recorded in connection with water rights during the two-year period; to familiarize water users and the public with the various duties and activities of the State Engineer’s office; and to perpetuate for future reference and historical use a résumé of numerous activities of the department that may not be permanently recorded in any other manner.

The general work of the office includes the filing of applications to appropriate water, the field investigations of these applications and the holding of hearings where the issues are somewhat involved; the adjudication of the water rights on the stream systems of the State; the distribution of water on streams that have been adjudicated under
LETTER OF TRANSMITTAL

STATE OF NEVADA
OFFICE OF STATE ENGINEER,
CARSON CITY, JULY 21, 1938.

To His Excellency, Honorable Richard Kirman, Sr., Governor of
Nevada, Carson City, Nevada.

Sir: In compliance with the provisions of section 14, chapter 140,
Nevada Statutes 1913, and section 1, chapter 171, Nevada Statutes
1931, I have the honor to transmit herewith the Biennial Report of
the State Engineer for the period ending June 30, 1938.

Respectfully submitted,
ALFRED MERRITT SMITH,
State Engineer.
Harley A. Harnan, Chairman, Public Service Commission.
Alfred Meritt Smith, State Engineer.

The 1923 Legislature created the "State Range Commission" for the purpose of determining the principles, laws or policies that should apply to the grazing use of the natural range forage resources of publicly-owned lands within Nevada. A resume of the report by this Commission is given in the 1931-1932 Biennial Report of the State Engineer.

The 1937 Legislature appropriated the sum of $200 to carry on this work. No hearings were held during this biennium, and no expenditures were made from this fund.
The work of this Commission is published by the Chairman in a biennial report. During the past biennium many hearings have been held in various parts of the State on matters concerning the rate schedules of public utilities, rail and motor vehicle carriers, complaints as to public service, and requests for certificates of convenience and necessity for the operation of public utilities.

The Board is composed of the following members:
Richard Kirkman, Sr., Governor of Nevada, Carson City.
Ray G. Staley, Surveyor-General, Carson City.
Gray Mashburn, Attorney-General, Carson City.
Alfred Merrill Smith, State Engineer, Carson City.

This Board was created by the provisions of section 2, chapter 59, Nevada Statutes of 1901 (Nevada Compiled Laws 1929, section 8231), for the purpose of administering and operating that Legislature in carrying hydrographic work, irrigation studies and stream measurements in cooperation with the United States Geological Survey and the United States Agriculture, in association with the Nevada Agricultural Experiment Station. The State appropriation was contingent upon an equal amount of money being appropriated by the Government. The State Printing Office was authorized to publish additional copies of the Government reports. The Board was also authorized to have printed copies of or extracts from any United States report on irrigation or related matters which, in the opinion of the Board, would be of value to the people of Nevada. The activities of the Board of Irrigation were continued by the last Legislature through an appropriation of $4,500 for cooperative work with the United States Geological Survey, Water Resources Branch, and the State Engineer (section 19, chapter 216, 1937 Nevada Statutes). A report on the work prepared by Mr. A. H. Purton of the Water Resources Branch of the United States Geological Survey is printed on pages 106. This work, which has been continuously carried on since 1916, is continually adding to the valuable information regarding Nevada’s water resources and supply.

The State Irrigation District Bond Commission was created by an Act of the Legislature approved February 26, 1921, being sections 8237-8238 Nevada Compiled Laws 1929. The Commission consists of the following members:
Richard Kirkman, Sr., Governor of Nevada.
D. G. Larkue, Bank Examiner.
Alfred Merrill Smith, State Engineer.

It is the duty of the Commission to pass upon the eligibility of bonds of irrigation districts as legal investments within Nevada. A resume of the work of this Commission is set forth in chapter 12.

The State Range Commission consists of the following members:
Richard Kirkman, Sr., Governor of Nevada.

Acknowledgment

In submitting this report covering the second two years of work of my associates and myself in the department of the State Engineer, I wish especially to praise the splendid and unstinted service to the department and the State rendered by the staff. The preparation of this biennial report has proceeded at odd times—at intervals not too crowded with steadily increasing duties in the office. Each employee has submitted an outline of work performed in his own field. The work of all employees has had to be increased in order to take care of a greater volume of business, as may be shown by a comparison of this report with those of preceding years. The personnel and number of employees remains the same as it was two years ago.

Expenses have, by the care and vigilance of all, been kept within the State appropriation made for the department by the Legislature. Special recognition is accorded Hugh A. Shamberger, Deputy State Engineer, who arranged and assembled the report, and wrote various parts thereof; and to H. G. Roop, Assistant State Engineer, who checked the matter appearing herein, and who wrote the able chapter on the problems of water distribution and the complex litigation which has had its origin in the conflicting interests of two rival reservoir companies in the Lovelock District of the Humboldt River.

Acknowledgment and sincere thanks are extended to the following persons for the contribution of valuable data appearing under the given titles:

Crau Venstrom, “Range Control Laws of Nevada.”
Edwin Marshall, “Flood Control in the Mono Valley Area.”
V. H. Bernhard, “CCC Activities in the Walker River District.”
F. M. Spencer, “The Truckee Storage Project.”
H. P. Bozman, “Snow Surveys.”
C. S. Hale, Construction Engineer, for photographs and data on the Truckee-Sturges Projects.
S. R. Marean, Superintendent Humboldt River Project, for important miscellaneous data.

I wish here to repeat the statements made in my report of two years ago which was that the success and efficiency of the department are in no small measure due to the help of State officers in other departments. Those officials, with whom we are in daily contact, and whose work is often related to our own, have, by full cooperation and helpful advice, greatly lightened and expedited our own tasks. Governor Richard Kirkman, Attorney-General Gray Mashburn, and his able assistants Wm. F. Mathews and W. Howard Gray, have been, each of them, of so much assistance to me and my staff in dealing with many
difficult problems and situations that it is entirely beyond my ability to give them proper credit, and thanks for what they have done.
I extend my thanks and appreciation to many county officers throughout our wide State. They were called upon many times in connection with our work. On every occasion they have rendered willing aid and the best of cooperation.

ALFRED MERRITT SMITH,
State Engineer.

has proceeded since the inception of this office in 1909 to the present time:
1. Stream systems adjudicated, 1909 to date
   24
2. Acres under adjudicated streams
   383,828
3. Vested water users under adjudicated streams
   608
4. Adjudicated stream systems supervised by this office during the past biennium
   7
5. Adjudicated stream systems not supervised by this office during the past biennium
   18
6. Streams in process of adjudication
   26
7. Adjudications completed during past biennium
   2
8. Stream systems on which decrees have been entered by civil suit not under supervision of this office
   11
9. Stream systems adjudicated by United States District Court
   3
10. Stream systems under process of adjudication by United States District Court
   2

STATUS OF WATER APPLICATIONS AND PROOFS OF APPROPRIATION
1. Water applications filed, 1909 to June 30, 1938
   10,294
2. Water applications acted upon, 1903 to June 30, 1938
   2,982
3. Water applications on which no action has been taken
   1,051
4. Water applications acted on, July 1, 1929, to June 30, 1938
   217
5. Water applications filed, July 1, 1936, to June 30, 1938
   261
6. Proofs of commencement of work filed, July 1, 1936, to June 30, 1938
   170
7. Proofs of completion of work filed, July 1, 1936, to June 30, 1938
   114
8. Proofs of beneficial use filed, July 1, 1936, to June 30, 1938
   147
9. Protests filed against the granting of applications, July 1, 1936, to June 30, 1938
   61
10. Certificates of appropriation issued under permitted water rights, July 1, 1936, to June 30, 1938
   140
11. Proofs of appropriation filed, 1903 to June 30, 1938
   2,292
12. Proofs of appropriation filed, July 1, 1936, to June 30, 1938
   6

COOPERATIVE WORK
The State Engineer also carries on cooperative work in the compilation of stream gaging and stream runoff observations through the medium of two State appropriations. The cooperating agencies are:
The Nevada Cooperative Snow Surveys.
The activities of the State Engineer in each of the fields are briefly related under their proper headings elsewhere.

PUBLIC SERVICE COMMISSION
The Nevada Public Service Commission is composed of the following members:
Harley A. Harmon, Chairman, Carson City.
Hoyt R. Martin, Reno.
Alfred Merritt Smith, Carson City.
Lee S. Scott, Secretary, Carson City.
To reduce kilowatt-hours (kw.-hrs.) per year to continuous kilowatts
divide by 8,760 (365 days \( \times \) 24 hrs.).
To reduce kilowatt-hours per year to continuous horsepower, divide
by 6,334.96 (6.746 \( \times \) 24 \( \times \) 365).
Power is defined as the time rate of doing work. A kilowatt and a
horsepower are both units of power. Power multiplied by time gives
energy or work.
Thus 1 kw. of power acting for 1 hour of time yields the units of
energy called 1 kw.-hour. Likewise 1 hp. of power acting for 1 hour
of time yields 1 hp.-hour of energy.
Power should not be confused with energy.

**MAP SCALERS**

<table>
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<th>Kilometers</th>
<th>Miles</th>
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<tr>
<td>1:1,000,000</td>
<td>0.00636 = 15.78282</td>
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<tr>
<td>1:200,000</td>
<td>0.03267 = 7.95411</td>
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<tr>
<td>1:250,000</td>
<td>0.02534 = 3.95770</td>
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<td>0.05000 = 2.00000</td>
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<td>1:63,360</td>
<td>1.00000 = 1.00000</td>
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<td>1:62,500</td>
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<td>1.48680 = .71523</td>
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<td>1:31,660</td>
<td>2.00000 = .50000</td>
</tr>
<tr>
<td>1:24,000</td>
<td>2.64000 = .37879</td>
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**SUMMARY OF THE WORK OF THE STATE ENGINEER**

**STATE COMMISSIONS AND BOARDS**
The State Engineer upon taking office automatically becomes a mem-
ber of the following Commissions:
1. The Nevada Public Service Commission.
2. The Nevada State Board of Irrigation.
3. The Nevada State Irrigation District Bond Commission.
4. The Bureau of Industry, Agriculture and Irrigation.
5. The State Range Commission.

By gubernatorial appointment the present State Engineer is also
a member of the following:
6. The Colorado River Commission of Nevada.
7. The Nevada State Planning Board.
8. Regional Vice President National Association of State Aviation
Officials—Utah, Arizona, California, Nevada.

**RECLAMATION ORGANIZATIONS**
1. The Association of Western State Engineers (seventeen western
States).

**STATUS OF ADJUDICATION OF STREAM SYSTEMS**
The work of adjudicating the waters of the Nevada stream systems

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**STATE ENGINEERS SINCE CREATION OF OFFICE**

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<th>Name</th>
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<tr>
<td>A. E. Chandler</td>
<td>May 29, 1903, to May 1, 1905</td>
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<td>Henry Run Singh</td>
<td>May 1, 1905, to May 1, 1907</td>
</tr>
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<td>Frank R. Nicholas</td>
<td>May 1, 1907, to March 3, 1910</td>
</tr>
<tr>
<td>Ralph D. Botkin</td>
<td>March 8, 1910, to March 21, 1911</td>
</tr>
<tr>
<td>W. M. Krassweg</td>
<td>March 23, 1911, to May 15, 1917</td>
</tr>
<tr>
<td>J. G. Schugham</td>
<td>May 16, 1917, to January 10, 1918</td>
</tr>
<tr>
<td>Seymour Case</td>
<td>January 25, 1918, to March 28, 1919</td>
</tr>
<tr>
<td>J. G. Schugham</td>
<td>March 28, 1919, to October 7, 1922</td>
</tr>
<tr>
<td>Robert A. Allen</td>
<td>October 7, 1922, to March 28, 1927</td>
</tr>
<tr>
<td>Fred. W. Malone</td>
<td>March 29, 1927, to May 28, 1935</td>
</tr>
<tr>
<td>Alfred Merriam Smith</td>
<td>May 28, 1935—</td>
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1 gallon per minute = 8.34 pounds of water per minute.
= 500.4 pounds of water per hour.
= 0.25 tons of water per hour.
= 12,010 pounds of water per 24 hours.
= 6 tons of water per 24 hours.

1 second-foot of water = 7.48 gallons per second.
= 524.4 pounds of water per second.
= 1485.82 gallons per minute.
= 8,743.2 pounds of water per minute.
= 1.97 tons of water per minute.
= 26,980 gallons per hour.
= 124,956 pounds of water per hour.
= 112.3 tons of water per hour.
= 646,315 gallons per 24 hours.
= 5,398,267 pounds of water per 24 hours.
= 2,695 tons of water per 24 hours.

To convert tons of water to:
Miner's inches, continuous flow for 24 hours, divide by 67.37.
Gallons per minute, continuous flow for 24 hours, divide by 8.
Cubic feet per second, continuous flow for 24 hours, divide by 2,685.

**POWER**

1 cubic foot of water = 62.5 pounds.
1 horsepower = 550 foot-pounds per second.
1 horsepower = 33,000 foot-pounds per minute.
1 horsepower = 746 watts or 0.746 kilowatts (kw).
1 horsepower = 1 second-foot of water falling 8.8 feet (100% efficiency).

Horsepower developed at water wheel at 89% efficiency =

\[
\text{Horsepower} = \frac{\text{g.p.m.} \times E}{4,000 \times E}
\]

when g.p.m. = gallons pumped per minute.

\( h \) = total head in feet against which pump must work. This includes total material lift, plus frictional and other losses.

\( E \) = Efficiency of pump (expressed as a decimal fraction).

Theoretical horsepower developed by potential water source =

\[
10 \times h \times \text{c.f.s.}
\]

when \( h \) = head in feet; \( \text{c.f.s.} \) = second feet of water discharge.

A kilowatt-hour is the quantity of energy resulting from the utilization of 1 kilowatt of power for one hour of time.

Electrical energy yearly in kilowatt-hours =

\[
\text{horsepower} \times 0.746 \times 24 \times 365 = \text{horsepower} \times 6,534.96
\]
One second-foot of water is the quantity that will fill a space of one cubic foot in one second of time—

- 40 miner's inches
- 74.905 gallons per second
- 448.82 gallons per minute
- 1.893 acre feet per day
- 464,313.2 gallons per day

One miner's inch of water is the approximate flow through an orifice with an area of one square inch under a head of 44 inches—

- 0.005 \( \frac{1}{144} \) cubic foot or 0.156+ gallons per second
- 11.22 gallons per minute
- 673.26 gallons per hour
- 1 acre inch in 40 hours and 30 minutes
- 1 acre foot in 484 hours (approximately 20 days), or 0.0016 acre feet (approximately \( \frac{1}{6000} \) per day)
- 16,156.4 gallons in 24 hours

Million gallons per day—
- 1,547 cubic feet per second (e.g.)
- 694.4 gallons per minute
- 61.89 miner's inches
- 1 acre foot in 7 hours and 40 minutes, or 3.07 acre feet per day

One gallon per minute—
- 0.00290 \( \frac{1}{3600} \) cubic foot per second
- 8.6919 (approximately \( \frac{1}{144} \)) statutory miner's inch
- 1 acre foot in 282.1 days or 0.0042 acre foot per day

One miner's inch flowing 150 days (5 months of 30 days each) will cover an acre of land 7.4 feet deep.

One second-foot of water flowing 150 days equals 297.45 acre feet, or enough water to cover 100 acres of land 2.91 feet deep.

One cubic foot—
- 1,728 cubic inches
- 7.48 gallons of water, weighing approximately 62.5 pounds

One gallon—
- 231 cubic inches
- 0.13366 cubic foot, weighing approximately 8.34 pounds

To find water pressure in pounds per square inch, multiply height of head or column of water measured in feet by 0.434.

Pounds pressure per square inch multiplied by 2.31 gives head of water in feet.

**WATER TABLES FOR MIXING, MILLING, METAL-SURGICAL OPERATIONS**

1 miner's inch of water—62.29 gallons per hour
- 5,614.5 pounds of water per hour
- 2.81 tons of water per hour
- 134.748 pounds of water per 24 hours
- 67.37 tons of water per 24 hours
LAWRENCE MATHews, Water Commissioner, March 25, 1938, to July 1, 1938. Entire District.

F. E. Backus, Water Commissioner, July 1, 1938. Entire District.


Otis Stock, Water Commissioner. Entire District. (July 6 to September 3, November 10 to December 10.)

*Deceased December 7, 1937.

BIRD CREEK

The Nevada Consolidated Copper Company, a private utility and industrial company, also owns this power plant, which is located in the SE1/4 of Sect. 31, T. 19 N., R. 35 E. Water is diverted from Bird Creek at a point in the SW1/4 of Sect. 33, T. 19 N., R. 35 E., and is conveyed to the power plant, which has an installed capacity of 200 kw. The right to appropriate this water is held under Permit No. 24642 of a priority of October 22, 1912.

LOGANDALE

The Logandale plant, which is owned by the Logandale Light & Power Company, a private utility, is located in Clark County near Logandale in the SE1/4 of Sect. 21, T. 15 S., R. 67 E. Water is obtained from the Muddy River to a point in the NE1/4 of Sect. 21, T. 15 S., R. 67 E. The plant has an installed capacity of 20 kw.

BOULDER DAM

Boulder Dam is located on the Colorado River on the State line between Arizona and Nevada, in Clark County. In Nevada the plant is located in the SE1/4 of Sect. 29, T. 22 S., R. 65 E., M.D.B. & M., and in Arizona in the SW1/4 of Sect. 3, T. 30 N., R. 23 W., G. & S. R. M. The plant is owned by the U. S. Bureau of Reclamation and has an installed capacity of 325,000 horsepower.

MEASUREMENT OF WATER AND USEFUL EQUIVALENTS

Measuring water usually means measuring the amount of water that passes a given point in a given time. The present-day unit of measurement is cubic feet per second (c.f.s.). Prior to recent times the unit of measurement in most western States was the miner's inch. The miner's inch is the quantity of water flowing in a certain time through an orifice of one inch square under a specified head. In Nevada the miner's inch has a head of about 60 inches. Both the dimensions and head vary in different States and it is therefore an arbitrary unit. The amount of water represented by a miner's inch in Nevada is 0.025 c.f.s. or 11.22 gallons per minute. Forty miner's inches are equivalent to a statutory cubic foot per second. The same unit is statutory in northern California, Arizona and Montana. The Utah statutory inch is the flow of water through an orifice with an area of one square inch with a head of four inches, approximately 0.54 cubic feet per second. This unit is the statutory miner's inch in Idaho, New Mexico, Oregon, Washington, and southern California. Being so ambiguous the unit of measurement is not satisfactory and has been practically replaced by the cubic foot per second unit.

Water and Water Power Equivalents

WATER

One acre foot of water is the quantity that will cover an area of one acre one foot deep—

\[ \text{one cubic foot per second of water flowing continuously for 12 hours and six minutes.} \]

\[ 43,560 \text{ cubic feet.} \]

\[ 325,851 \text{ gallons.} \]
BIENNIAL REPORT OF STATE ENGINEER, 1936-1938

CHAPTER I
Introductory and General

The office of the State Engineer was created by an Act of the twenty-first session of the State Legislature, and approved by Governor John Sparks on February 16, 1903. The State Engineer is appointed by the Governor for a term of four years from and after his appointment, or until his successor shall have been appointed. The law requires that he shall have had training in hydraulic and general engineering, and such practical skill and experience as shall fit him for the position. The office of the State Engineer is, as required by law, located at the State Capital, and at the present time occupies the second floor of the Heroes Memorial Building above the Nevada State Highway office.

The office of the State Engineer was created primarily for the purpose of providing a statutory method for the determination and regulation of existing water rights. In 1905 the Legislature provided a statutory method by which future water rights could be acquired and perfected by application to the State Engineer for permission to appropriate and apply water to beneficial use. In the Biennial Report of the State Engineer for the period of 1924-1926, under chapters 4 and 5, and also in the pamphlet containing the water laws of this State compiled by this office in 1937, will be found brief summaries of the statutory procedure of appropriating water and adjudication of old water rights that became vested prior to 1905.

The history of the development of our present water law is very interesting and dates back to the year 1866. It is frequently necessary to explain the reason why certain laws were enacted, and why the repeal of other laws was considered necessary. We have prepared a chronological résumé of all the laws affecting water resources enacted by successive Nevada Legislatures since 1866, which is given in Chapter 6.

This Biennial Report is prepared by the State Engineer for the years 1936-1938, to give an accounting to the Governor, the State Legislature and the taxpayers of his stewardship of the department; to benefit the water users or any person interested in water rights by presenting in a condensed and concise form all data that have been recorded in connection with water rights during the two-year period; to familiarize water users and the public with the various duties and activities of the State Engineer's office; and to perpetuate for future reference and historical use a résumé of numerous activities of the department that may not be permanently recorded in any other manner.

The general work of the office includes the filing of applications to appropriate water, the field investigations of these applications and the holding of hearings where the issues are somewhat involved; the adjudication of the water rights on the stream systems of the State; the distribution of water on streams that have been adjudicated under
COLORADO RIVER COMMISSION REPORT, January 1, 1927, to September 1, 1928.
Senate Document No. 186, 70th Congress, 2nd Session, 1929.
Cipollaleti Water Discharge Tables.
Colorado River Compact.
Humboldt River Distribution, 1930.
Nevada Drainage District Act.
Nevada Improvement District Act.
Nevada Irrigation District Act.
Public Domain Administration.
Regulations for Production of Maps.
Stock Watering Act.
Synopses of Water Law, No. 7.
Water Laws of Nevada.
Humboldt River Distribution Report, 1925-1924.

TOPOGRAPHIC INFORMATION
INFORMATION CONCERNING CERTAIN LAKES IN NEVADA

<table>
<thead>
<tr>
<th>Name of Lake</th>
<th>Approx. Width in Feet</th>
<th>Approx. Length in Feet</th>
<th>Greatest Depth in Feet</th>
<th>County</th>
<th>Elevation above Mean Sea Level in Feet</th>
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<tr>
<td>Lake Tahoe</td>
<td>185</td>
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<td>18</td>
<td>150</td>
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<td>Etc.</td>
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<tr>
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<td>19</td>
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<td>White Oak Lake</td>
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<td>1</td>
<td>1</td>
<td>Washoe</td>
<td>1,770.00</td>
</tr>
</tbody>
</table>

General Remarks
Carson Lake and Carson Sink are subject to great fluctuation in area, dependent upon the receipt of water from Walker Lake.

Walker Lake—Resembling as it does on the Naval Amnesty Depot Hydrographic Map of October 11, 1924, the Walker Lake covering a distance of 4,900 feet seaward from the west shore and 30,000 feet from seaward from the northeastern shore, show a depth of 80 feet below the water surface of 387.5 feet. No other data is available at this time as to its maximum depth. The water surface of Walker Lake is gradually falling, as much of the water from Walker River, the main source of supply, is being stored for irrigation in September 1924 the elevation was 4,528.0 feet above sea level.

*Supply exhausted.
*Precipitation dry.
*Includes portion in California.
*Includes water stored in Walker Reservoir.
*Includes water stored in Walker Reservoir but not available until after mid-season in Lake County.

LOMAILLIE
The Lamoille plant owned by the Elko Lamoille Power Company is located on Lamoille Creek in Elko County, being in the NR4 of Sec. 10, T. 19 N., R. 26 E. The plant is a private utility of 415 horsepower installed capacity. Water rights were obtained under Permit No. 9919 issued to change the point of diversion of water under Permit No. 2390, of June 6, 1911, priority. The plant also operates under a Department of Agriculture permit.

FLESHIK
The water used to operate this plant is diverted from the Trask River in California, being in the SR4 Sec. 6, T. 18 N., R. 18 E. and the plant is located near Verdi in the SR4 of Sec. 30, T. 19 N., R. 18 E., being in Washoe County. The plant is a private utility, being owned by the Sierra Pacific Power Company, and has an installed capacity of 3,000 horsepower. The water right is a vested right of priority of February 16, 1904.

VENDI
This plant is located near Verdi on the Truckee River, being in the SR4 of Sec. 6, T. 19 N., R. 18 E. The water is diverted from the river at a point in the SR4 of Sec. 19, T. 18 N., R. 18 E. The plant is a private utility, being owned by the Sierra Pacific Power Company, and has an installed capacity of 2,200 horsepower. The water right is held under Permit No. 1787 which was issued to change the point of diversion under Permit No. 1475, and has a priority of October 21, 1905.

WASHOE
This plant is located on the Truckee River near Verdi, and being in the SR4 Sec. 14, T. 19 N., R. 18 E. The point of diversion is in the NR4 of Sec. 16, T. 19 N., R. 18 E. The plant is owned by the Sierra Pacific Power Company, being a private utility, and has an installed capacity of 5,400 horsepower. The water right is held under vested rights with a priority of October 27, 1905.
REPORT OF STATE ENGINEER

WILLOW CREEK RESERVOIR
Section 29, T. 39 N., R. 48 E., M. D. B. & M.; 900 acres; 18,064 acre-feet; irrigation; Elkins Ranching Co.; 63 feet; 905 feet; rock fill; 1924; $32,000; Willow Creek.

METROPOLIS RESERVOIR
Sec. 24, T. 39 N., R. 62 E., M. D. B. & M.; 1,900 acres; 30,000 acre-feet; irrigation; Metropolis Land Co.; height, length and type not known; completed 1912; Bishop Creek.

TOPAZ LAKE
Sec. 25, T. 10 N., R. 22 E., M. D. B. & M.; area not known; 50,000 acre-feet; irrigation; Walker River Irrigation District; natural lake fed by a 3 mile canal and tapped by a tunnel; completed 1912; $425,000; West Walker Creek.

LAWYER DAM
Fifteen miles west of Fallon; 10,340 acres; 294,400 acre-feet; irrigation and power; Truckee-Carson Irrigation District; 134 feet; 1,400 feet; earth fill; 1915; 876 feet; 1,592 feet; concrete arch graving; 1936; $70,600,000; Colorado River.

BOULDER DAM AND MAD DOG RESERVOIR
Boulder Canyon in Clark County; 148,500 acres; 30,500,000 acre-feet; irrigation, power and flood control; Department of Interior, Bureau of Reclamation; 727 feet; 1,392 feet; concrete arch graving; 1936; $69,000,000; Colorado River.

NEVADA RESERVOIR
Sec. 18, T. 30 N., R. 33 E.; 9,090 acres; 179,000 acre-feet; fish capacity not available due to controversy with the nearby Pitt-Taylor Reservoir. Present available area 4,000 acres and capacity 80,000 acre-feet; irrigation; Pershing County Water Conservation District; 80 feet high; 800 feet long; earth fill; completed 1936; 866,000; Humboldt River.

DERBY DAM
NEVASH Reservoir in T. 30 N., R. 23 E.; no storage, diversion to Laboratory reservoir through Truckee-Carson canal; capacity of canal 800 c.f.s.; irrigation; Truckee-Carson Irrigation District; 22 feet high; 171 feet long; concrete; 1905; $114,398; Truckee River.

WEBER DAM
Near Susan, Nevada; area not known; 15,000 acre-feet; irrigation; U. S. Indian Service; 45 feet high; 900 feet long; earth fill; 1934; $150,000; Walker River.

GARDNER RANCH COMPANY LOWER RESERVOIR
NR NE1, Sec. 3, T. 8 S., R. 61 E.; Lahontan Cut off. Lincoln County, Nevada; 371 acres; 3,580 acre-feet; irrigation, Gardner Ranch Company; tributary to Lahontan Cut off.

LITTLE WASHOE LAKE
Washoe County; area not known; 5,000 acre-feet; irrigation; Washoe Lake and Galena Creek Ditch Co.; Washoe Lake.
ELEVATIONS AND LOCATIONS OF MOUNTAIN PEAKS—Continued.

<table>
<thead>
<tr>
<th>Peak</th>
<th>Elevation</th>
<th>County</th>
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</thead>
<tbody>
<tr>
<td>Star</td>
<td>9,328</td>
<td>Humboldt</td>
</tr>
<tr>
<td>Slide</td>
<td>9,043</td>
<td>Pershing</td>
</tr>
<tr>
<td>Stove</td>
<td>9,609</td>
<td>Lyon</td>
</tr>
<tr>
<td>Sheep Mountain</td>
<td>7,371</td>
<td>Elko</td>
</tr>
<tr>
<td>Sheep Mountain</td>
<td>6,660</td>
<td>Elko</td>
</tr>
<tr>
<td>Squaw</td>
<td>9,187</td>
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</tr>
<tr>
<td>Mount</td>
<td>8,147</td>
<td>Elko</td>
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<tr>
<td>Sawtooth</td>
<td>8,376</td>
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<td>Davie</td>
<td>8,004</td>
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<tr>
<td>Castle</td>
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</tr>
<tr>
<td>Great Basin</td>
<td>10,069</td>
<td>Eureka</td>
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<tr>
<td>Bristlecone</td>
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<td>Eureka</td>
</tr>
<tr>
<td>Juniper</td>
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<tr>
<td>Green Valley</td>
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<td>Desert Creek</td>
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<tr>
<td>Bonanza</td>
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<tr>
<td>Jettie</td>
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<tr>
<td>Slide</td>
<td>8,840</td>
<td>Eureka</td>
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</table>

LAND AREAS OF COUNTRIES IN THE STATE OF NEVADA
(From Survey-General's Report, 1932)

<table>
<thead>
<tr>
<th>Country</th>
<th>Total acres</th>
<th>Land area</th>
<th>Water area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Churchill</td>
<td>1,050,421</td>
<td>963,650</td>
<td>102,760</td>
</tr>
<tr>
<td>Clark</td>
<td>1,024,460</td>
<td>943,150</td>
<td>100,070</td>
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<tr>
<td>Douglas</td>
<td>1,183,460</td>
<td>1,103,500</td>
<td>98,960</td>
</tr>
<tr>
<td>Esmeralda</td>
<td>1,412,960</td>
<td>1,325,200</td>
<td>85,760</td>
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<tr>
<td>Eureka</td>
<td>1,859,560</td>
<td>1,650,320</td>
<td>215,240</td>
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<tr>
<td>Humboldt</td>
<td>1,340,860</td>
<td>1,185,400</td>
<td>132,320</td>
</tr>
<tr>
<td>Lyon</td>
<td>1,085,160</td>
<td>1,027,160</td>
<td>31,800</td>
</tr>
<tr>
<td>Mineral</td>
<td>1,005,360</td>
<td>926,170</td>
<td>21,900</td>
</tr>
<tr>
<td>Nye</td>
<td>792,160</td>
<td>726,360</td>
<td>58,600</td>
</tr>
<tr>
<td>Pershing</td>
<td>1,100,660</td>
<td>1,020,060</td>
<td>84,600</td>
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<tr>
<td>Reno</td>
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<tr>
<td>Washoe</td>
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<td>1,025,460</td>
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<td>White Pine</td>
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<td>Total</td>
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<td>13,295,760</td>
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SEgregation in Acres as to Ownership of Lands (Approximate)

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<tr>
<th>Ownership</th>
<th>Acres</th>
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<td>Privately owned land</td>
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<td>Railroad land</td>
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<td>Total privately owned land</td>
<td>6,283,565</td>
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<tr>
<td>National Forests</td>
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<tr>
<td>Unappropriated public domain</td>
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<tr>
<td>Indian reservations</td>
<td>41,023,767</td>
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<tr>
<td>Miscellaneous Federal lands</td>
<td>47,550,947</td>
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<tr>
<td>Total Federal lands</td>
<td>53,527,099</td>
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<tr>
<td>Total grant lands</td>
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<tr>
<td>Miscellaneous State lands</td>
<td>31,041,834</td>
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<tr>
<td>Total State lands</td>
<td>42,036,809</td>
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<tr>
<td>Total publickly owned lands</td>
<td>127,067</td>
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<tr>
<td>Total for State</td>
<td>42,163,876</td>
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MAJOR DAMS AND RESERVOIRS IN NEVADA

FOLLOWING IS A CONDANCED STATEMENT GIVING SALIENT DATA IN CONNECTION WITH THE MAJOR DAMS AND RESERVOIRS IN THIS STATE, IN ORDER OF:

1. Name.
2. Location.
3. Area of reservoir in acres.
5. Use.
6. Ownership.
7. Height of dam.
8. Length of dam.
9. Type of construction.
10. Date of completion.
12. Source of water supply.

**BIG FIVE RESERVOIR**

Eight miles south of Lovelock; 531 acres; 4,800 acre-feet; irrigation; Lovelock Land & Development Company; Humboldt River.

**PITI-TAYLO RESERVOIR**

Two miles north of Humboldt; No. 1, 2,220 acres; No. 2, 2,554 acres; No. 3, 23,200 acre-feet; No. 3, 29,270 acre-feet; irrigation; Humboldt-Lovelock Irrigation Light & Power Company; No. 1, 22 feet; No. 2, 35 feet (length not known); south fill; 1914; $258,182; Humboldt River.
TABLE OF IRRIGATED LANDS IN ACRES IN NEVADA
BY YEARS TO 1890

<table>
<thead>
<tr>
<th>Priority</th>
<th>Acres</th>
<th>Cumulative Total</th>
<th>Priority</th>
<th>Acres</th>
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<td>104</td>
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</table>

MAJOR DAMS AND RESERVOIRS IN NEVADA

Following is a condensed statement giving salient data in connection with the major dams and reservoirs in this State, in order of:

1. Name
2. Location
3. Area of reservoir in acres.
5. Use
6. Ownership
7. Height of dam.
8. Length of dam.
9. Type of construction.
10. Date of completion.
12. Source of water supply.

BIG FIVE RESERVOIR

Eight miles south of Lovelock; 331 acres; 4,800 acre-feet; irrigation; Lovelock Land & Development Company; Humboldt River.

PIT/TAYLOR RESERVOIR

Two miles north of Humboldt; No. 1, 2,220 acres; No. 2, 2,544 acres; No. 3, 20,200 acre-feet; irrigation; Humboldt-Lovelock Irrigation Light & Power Company; No. 1, 22 feet; No. 2, 35 feet (length not known); south fill; 1914; $286,182; Humboldt River.
WILLOW CREEK RESERVOIR
Section 29, T. 39 N., R. 48 E., M. D. B. & M.; 900 acres; 1,804 acre-feet; irrigation; Ellingson Ranching Co.; 63 feet; 905 feet; rock fill; 1924; $32,000; Willow Creek.

METROPOLIS RESERVOIR
Sec. 24, T. 39 N., R. 62 E., M. D. B. & M.; 1,900 acres; 30,000 acre-feet; irrigation; Metropolis Land Co.; height, length and type not known; completed 1912; Bishop Creek.

TOPE LAKE
Sec. 28, T. 10 N., R. 22 E., M. D. B. & M.; area not known; 50,000 acre-feet; irrigation; Walker River Irrigation District; natural lake fed by a 3 mile canal and tapped by a tunnel; completed 1922; $424,500; West Walker Creek.

LAWTON DAM
Fifteen miles west of Fallon; 10,920 acres; 294,480 acre-feet; irrigation and power; Truckee-Carson Irrigation District; 124 feet; 1,400 feet; earth fill; 1915; $1,952,000; Carson and Truckee Rivers.

BOULDER DAM AND ROAD RESERVOIR
Boulder Canyon in Clark County; 146,500 acres; 30,500,000 acre-feet; irrigation, power and flood control; Department of Interior, Bureau of Reclamation; 727 feet; 1,592 feet; concrete arch gravity; 1936; $70,600,000; Colorado River.

BEY PAM DAM
NE 1/4 Sec. 18, T. 30 N., R. 33 E.; 9,900 acres; 179,000 acre-feet; this capacity not available due to controversy with the nearby Pitt-Taylor Reservoir. Present available area 1,400 acres and capacity 30,000 acre-feet; irrigation; Pershing County Water Conservation District; 80 feet high; 800 feet long; earth fill; completed 1936; $698,000; Humboldt River.

DERBY DAM
NE 1/4 SW 1/4 Sec. 19, T. 29 N., R. 23 E.; no storage, diverts water to Lahontan reservoir through Truckee-Carson canal; capacity of canal, 800 c.f.s.; irrigation; Truckee-Carson Irrigation District; 22 feet high; 171 feet long; concrete; 1905; $114,398; Truckee River.

WEBER DAM
Near Over, Nevada; area not known; 15,000 acre-feet; irrigation; U. S. Indian Service; 45 feet high; 900 feet long; earth fill; 1934; $150,000; Walker River.

GARDNER RANCH COMPANY LOWER RESERVOIR
NR (NE 1/4, Sec. 8, T. 8 S., R. 61 E.); Pahranagat Lake; Lincoln County, Nevada; 371 acres; 3,580 acre-feet; irrigation, Gardner Ranch Company; tributary to Pahranagat Lake.

LITTLE WASHOE LAKE
Washoe County; area not known; 5,000 acre-feet; irrigation; Washoe Lake and Galena Creek Ditch Co.; Washoe Lake.
**REPORT OF STATE ENGINEER**

**MISCELLANEOUS PUBLICATIONS**


Senate Document No. 186, 72nd Congress, 2nd Session, 1932.

Cleppotaet Weir Discharge Tables.

Colorado River Compact.

Humboldt River Distribution, 1930.

Nevada Drainage District Act.

Nevada Improvement District Act.

Nevada Irrigation District Act.

Public Domain Administration.

Regulations for Production Maps.

Stock Watering Act.

Synopsis of Water Laws, No. 7.

Water Laws of Nevada.

Humboldt River Distribution Report, 1927-1931.


**TOPOGRAPHIC INFORMATION**

**INFORMATION CONCERNING CERTAIN LAKES IN NEVADA**

<table>
<thead>
<tr>
<th>Name of Lake</th>
<th>Approx. Acres with 50 ft.</th>
<th>Approx. Acres with 100 ft.</th>
<th>Greatest Depth of Water</th>
<th>Elevation above Mean Sea Level</th>
<th>County</th>
<th>Elevation above Datum</th>
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<tr>
<td>Lake Tahoe</td>
<td>29</td>
<td>13</td>
<td>193</td>
<td>4,344.10</td>
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<td>19</td>
<td>12</td>
<td>18</td>
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<td>Carson Sink</td>
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<td>12</td>
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<td>4,414.40</td>
<td>Churchill</td>
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<td>White Pine</td>
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<tr>
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<td>14</td>
<td>4,130.00</td>
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<td>18</td>
<td>14</td>
<td>4,130.00</td>
<td>Pershing</td>
<td>6,123.00</td>
</tr>
</tbody>
</table>

**General Remarks**

Carson Lake and Carson Sink are subject to great fluctuation in area, depending upon the rainfall in the last 1,000 years.

Walker Lake—Normally as shown by the Navel Assemination Depot Hydrographic Map of 1925. Walker Lake covering a distance of 4,900 feet exactly from the west shore and 30,000 feet north from the south shore, show a depth of 300 feet below the water surface of July 2, 1935. No data is available at this time to its maximum depth. The water surface of Walker Lake is gradually falling, as much of the water from Walker River, the main source of supply, is being stored for irrigation.

In September 1934 the elevation was 4,629.2 feet above sea level.

*Supply exhausted.

*Precipitation dry.

*Includes portion in California.

*Stream course along Great Salt Lake—Not located until after unionization in Look-look Valley due to location of Pitt-Taylor Reservoir.

*Includes portion in Arizona and Utah.

**WILD HORSE DAM**

Twelve miles south of Mountain City: 2,400 acres; 22,000 acres; 87 feet; 270 feet long; variable radius concrete arch; 1937; $250,000; East Fork Owyhee River.

**HIDROELECTRIC PLANTS IN NEVADA**

**LAHONTAN**

This plant is located on the Carson River immediately below Lahontan Dam and is in the SR-1 Sec. 33, T. 19 N., R. 26 E. in Churchill County. The plant is operated by the commissioned waters of the Carson and Truckee Rivers stored in the Lahontan Reservoir. The point of diversion of the water from the Truckee River is at the Derby Dam, being in the SW\(\frac{1}{4}\) of Sec. 19 T. 20 N., R. 22 E. The plant is owned by the Truckee-Carson Irrigation District, being a publicly-owned utility and having an installed capacity of 1,900 horsepower. The water rights from both the Carson and Truckee Rivers are vested rights of a priority of May 26, 1903.

**LAMOILLE**

The Lamoille plant owned by the Elko Lamoille Power Company is located on Lamoille Creek in Elko County, being in the NR-1 Sec. 6, T. 32 N., R. 58 E. The point of diversion of the water from Lamoille Creek is in the SE\(\frac{1}{4}\) of Sec. 16, T. 32 N., R. 56 E. The plant is a privately-owned utility of 415 horsepower installed capacity. The water right was obtained under Permit No. 909 issued to change the point of diversion of water under Permit No. 2390, of June 6, 1911, priority. The plant also operates under a Department of Agriculture permit.

**FLEISCH**

The water used to operate this plant is diverted from the Truckee River in California, being in the SR-1 Sec. 6, T. 18 N., R. 18 E. and the plant is located near Verdi in the SE\(\frac{1}{4}\) of Sec. 30, T. 19 N., R. 18 E., being in Washoe County. The plant is a private utility, being owned by the Sierra Pacific Power Company, and has an installed capacity of 3,000 horsepower. The water right is vested in a right of priority of February 16, 1904.

**VERDI**

This plant is located near Verdi on the Truckee River, being in the SR-1 Sec. 8, T. 19 N., R. 18 E. The water is diverted from the river at a point in the SE\(\frac{1}{4}\) of Sec. 19 T. 20 N., R. 18 E. The plant is a private utility, being owned by the Sierra Pacific Power Company, and has an installed capacity of 3,200 horsepower. The water right is held under Permit No. 1787, which was issued to change the point of diversion under Permit No. 1475, and has a priority of October 21, 1909.

**WARHORSE**

This plant is located on the Truckee River near Verdi, and being in the SW\(\frac{1}{4}\) Sec. 14, T. 19 N., R. 18 E. The point of diversion is in the NE\(\frac{1}{4}\) of Sec. 16, T. 19 N., R. 18 E. The plant is owned by the Sierra Pacific Power Company, being a private utility, and has an installed capacity of 3,400 horsepower. The water right is held under vested rights with a priority of October 27, 1905.
RENO

The Reno plant is located near Reno, being in Lot 6, Sec. 10, T. 19 N., R. 19 E. Water is diverted from the Truckee River at a point in the N.E.4 of Sec. 16, T. 19 N., R. 19 E. The plant is owned by the Sierra Pacific Power Company, being a private utility, and has an installed capacity of 1,200 horsepower. The water is held under vested rights of priority of March 31, 1891, and in addition has a right for 47 c.f.s. with a priority of November 1, 1909.

YOUNG

This plant, which has not been operated for several years, is located in Pershing County in the N.W.1/4 of Sec. 28, T. 19 N., R. 32 E., a few miles northerly from Lovelock. Water was diverted from the Humboldt River at a point in the N.E.4 of Sec. 21, T. 19 N., R. 32 E. The plant was a private utility, being under the ownership of the Love- lock & Washoe Power Company, having an installed capacity of 235 horsepower. Water was held under vested rights, being set forth on page 66 of the Humboldt River Decree, and having priorities of 1888 and 1909.

WELLS

The Wells power plant is located in the SE.1/4 of Sec. 17, T. 37 N., R. 61 E., in Elko County near Wells, Nevada. Water to operate the power house is diverted from Trout Creek at a point in the SW.1/4 of Sec. 21, T. 37 N., R. 61 E. The Wells Power Company, a private utility, owns the plant, which has an installed capacity of 200 horsepower. The water right is held under Permit No. 7054, with a priority of January 8, 1927. The company operates under a Federal Power Commission license.

ELY

Water is diverted from Murry Creek and Springs at a point in the N.E.4 of Sec. 29, T. 16 N., R. 63 E., and is conveyed to the power plant located in the SE.1/4 of Sec. 16, T. 16 N., R. 63 E., which is near Ely in White Pine County. The plant is a private utility, being owned by the Ely Light & Power Company, sometimes called the EC Water Company, and has an installed capacity of 45 horsepower. Water rights are held under Permit No. 9328 of May 4, 1907, priority.

WINNEMUCCA

This plant is located in Humboldt County and is in the SE.1/4 of Sec. 29, T. 36 N., R. 38 E. Water is diverted from Water Canyon at a point in the N.E.4 of Sec. 11, T. 35 N., R. 38 E. The plant is owned by the Western States Utility Company, a private utility, and has an installed capacity of 100 k.w.

MCGILL

The McGill power plant is located in Sec. 16, T. 18 N., R. 64 E., being in White Pine County near McGill. Water is diverted from Duck Creek at a point in the SE.1/4 of Sec. 11, T. 18 N., R. 65 E. The Nevada Consolidated Copper Company owns the plant, which has an installed capacity of 649 k.w. The water right is held under Permit No. 584, which has a priority of September 9, 1908.

INFORMATIONAL DATA

LIST OF PUBLICATIONS PRINTED FOR DISTRIBUTION BY STATE ENGINEER'S OFFICE

ADJUDICATION PUBLICATIONS

Abstract of Claims—
Carson River, 1921.
Carran Creek, 1919.
Evans Creek, 1916.*
Humboldt River, 1909.
Humboldt River, 1912.
Humboldt River, 1922.
Little Humboldt River, 1913.*
Little Humboldt River, 1929.
Muddy River, 1906.
Salmon River, 1919.
Walker River, 1907.*

Preliminary Order of Determination—
Carson River, 1921.*
Humboldt River, 1922.
Little Humboldt River, 1929.
Palparanog Lake, 1926.*

Objections to Preliminary Order of Determination—
Humboldt River, 1922.*
Little Humboldt River, 1930.

Order of Determination—
Carson River, 1927.
Humboldt River, 1922.
Palparanog Lake, 1930.

Objections to Order of Determination—
Humboldt River, 1928.
Priority Index Chart Humboldt River, 1924.*

Decrees and Proposed Decrees—
Humboldt River, Proposed Findings of Fact, Conclusions of Law and Decree, 1931.
Little Humboldt River, Proposed Findings of Fact, Conclusions of Law and Decree, 1935.
Little Humboldt River, Findings of Fact, Conclusions of Law and Decree, 1935.

BIENNIAL REPORTS STATE ENGINEER


*Supply exhausted.
REPORT OF STATE ENGINEER

Little Humboldt River, 1926

Lawrence Mathews, Water Commissioner, March 19, 1926.
To July 1, 1926, Entire District

P. E. Backus, Water Commissioner, July 1, 1926.
Entire District

White River, 1926

M. E. Harris, Water Commissioner.
Entire District

White River, 1927

C. H. Waitwright, Water Commissioner.
Entire District

(No Water Commissioner 1928)

Muddy River, 1926-1927

Raymond Mills,* Water Commissioner.
Entire District

Muddy River, 1928

Dave Marshall, Water Commissioner.
Entire District

Currant Creek and Duckwater Creek, 1926

M. E. Harris, Water Commissioner.
Entire District

(No water distribution for Currant Creek, 1925-1926)

Currant Creek and Duckwater Creek, 1927-1936

C. H. Waitwright, Water Commissioner.
Entire District

(No water distribution for Currant Creek, 1925-1926)

*Assigned December 1, 1927

Pahranagat Lake, 1926

Gerald Throgmorton, Water Commissioner.
Entire District

*Pahranagat Lake, 1927

O live Stock, Water Commissioner.
Entire District

(July 6 to September 3, November 16 to December 10)

BIRD CREEK

The Nevada Consolidated Copper Company, a private utility and industrial company, also owns this power plant, which is located in the SE1/2 of Sec. 31, T. 19 N., R. 66 E. Water is diverted from Bird Creek at a point in the SW1/4 of Sec. 33, T. 19 N., R. 66 E., and is conveyed to the power plant, which has an installed capacity of 300 k.w. The right to appropriate this water is held under Permit No. 2498 of a priority of October 25, 1912.

LOGANDALE

The Logandale plant, which is owned by the Logandale Light & Power Company, a private utility, is located in Clark County near Logandale in the SE1/4 of Sec. 21, T. 15 S., R. 67 E. Water is obtained from the Muddy River to a point in the NE1/4 of Sec. 21, T. 15 S., R. 67 E. The plant has an installed capacity of 20 k.w.

BOULDER DAM

Boulder Dam is located on the Colorado River on the State line between Arizona and Nevada, in Clark County. In Nevada the plant is located in the SE1/2 of Sec. 29, T. 22 S., R. 65 E. M. D. B. & M. and is in Arizona in the SW1/4 of Sec. 3, T. 30 N., R. 23 W., G. & S. R. M. The plant is owned by the U. S. Bureau of Reclamation and has an installed capacity of 325,000 horsepower.

MEASUREMENT OF WATER AND USEFUL EQUIVALENTS

Measuring water usually means measuring the amount of water that passes a given point in a given time. The present-day unit of measurement is cubic feet per second (c.f.s.). Prior to recent times the unit of measurement in most western States was the miner's inch. The miner's inch is the quantity of water flowing in a certain time through an orifice of one inch square under a specified head. In Nevada the miner's inch has a head of about 66 inches. Both the dimensions and head vary in different States and it is therefore an arbitrary unit. The amount of water represented by a miner's inch in Nevada is 0.025 c.f.s. or 11.22 gallons per minute. Forty miner's inches are equivalent to a statutory cubic foot per second. The same unit is statutory in northern California, Arizona, and Montana. The Utah statutory inch is the flow of water through an orifice with an area of one square inch with a head of four inches, approximately 5/4 cubic foot per second. This unit is the statutory miner's inch in Idaho, New Mexico, Oregon, Washington, and southern California. Being so ambiguous the unit of measurement is not satisfactory and has been practically replaced by the cubic foot per second unit.

Water and Water Power Equivalents

WATER

One acre foot of water is the quantity that will cover an area of one

acre one foot deep—

\[1 \text{ cubic foot per second of water flowing continuously for 12 hours and six minutes.} = 43,560 \text{ cubic feet.}\]

\[= 325,881 \text{ gallons}\]
One second foot of water is the quantity that will fill a space of one cubic foot in one second of time.  
= 40 miner's inches.  
= 7.4805 gallons per second.  
= 448.83 gallons per minute.  
= 1.933 acre feet per day.  
= 446,315.2 gallons per day.

One miner's inch of water is the approximate flow through an orifice with an area of one square inch under a head of 44 inches—  
= 0.005 \( \frac{1}{4} \) cubic feet or 0.0054 gallons per second.  
= 0.3525 gallons per minute.  
= 1 acre inch in 40 hours and 40 minutes.  
= 1 acre foot in 484 hours (approximately 20 days), or 0.0016 acre feet (approximately \( \frac{1}{600} \) per day.  
= 16,156.40 gallons in 24 hours.

Million gallons per day—  
= 1,547 cubic feet per second (e.g.s.).  
= 694.4 gallons per minute.  
= 61.99 miner's inches.  
= 1 acre foot in 7 hours and 40 minutes, or 3.07 acre feet per day.

One gallon per minute—  
= 0.00220 (\frac{1}{480}\) cubic feet per second.  
= 8.0691 (approximately \( \frac{1}{12} \)) statutory miner's inch.  
= 1 acre foot in 226.1 days or 0.0042 acre feet per day.

One miner's inch flowing 150 days (5 months of 30 days each) will cover an acre of land 7.4 feet deep.

One second foot of water flowing 150 days equals 29.145 acre feet, or enough water to cover 10 acres of land 29.145 feet deep.

One cubic foot—  
= 1,728 cubic inches.  
= 7.48 gallons of water, weighing approximately 62.5 pounds.

One gallon—  
= 231 cubic inches.  
= 0.1336 cubic foot, weighing approximately 8.34 pounds.

To find water pressure in pounds pressure per square inch, multiply height of head or column of water measured in feet by 0.434.

Pounds pressure per square inch multiplied by 2.31 gives weight of water in feet.

WATER TABLES FOR MINING, MILLING, METAL-SURGICAL OPERATIONS

1 miner's inch of water = 0.0054 gallons per second.  
= 5,614.5 pounds of water per hour.  
= 22,648 pounds of water per 24 hours.  
= 67.37 tons of water per 24 hours.

OFFICIAL ROSTER DEPARTMENT OF STATE ENGINEER

Crawford, Nevada  
July 1, 1934, to June 30, 1935

JACK STAFFORD, Engineer.  
WATER DISTRIBUTION PERSONNEL

Humboldt River, 1936

J. A. MILLER, Supervising Water Commissioner— 
Entire River

SHANE HALEY, Water Commissioner— 
Lovelock District

PETER HAGUS, Water Commissioner— 
Winnemucca District

JOSEPH TREBUT, Water Commissioner— 
Battle Mountain District

GILBERT TIBBETT, Water Commissioner— 
Fernley District

D. E. WINCHESTER, Water Commissioner— 
Wells District

DUDLEY OWENS, Hydrographer— 
Mills

JACK STAFFORD, Hydrographer— 
Lovelock

Humboldt River, 1937

J. A. MILLER, Supervising Water Commissioner— 
Entire River

D. E. WINCHESTER, Water Commissioner— 
Lovelock District

PETER HAGUS, Water Commissioner— 
Winnemucca District

JOSEPH HALEY, Water Commissioner— 
Battle Mountain District

GILBERT TIBBETT, Water Commissioner— 
Fernley District

L. E. GAYNOR, Water Commissioner— 
Sealy Valley and Wells District

GILBERT TIBBETT, Hydrographer— 
Elko

JACK STAFFORD, Hydrographer— 
Lovelock

Humboldt River, 1939

J. A. MILLER, Supervising Water Commissioner— 
Entire River

D. E. WINCHESTER, Water Commissioner— 
Lovelock District

PETER HAGUS, Water Commissioner— 
Winnemucca District

JOSEPH HALEY, Water Commissioner— 
Battle Mountain District

G. E. TIBBETT, Water Commissioner— 
Fernley District

GILBERT TIBBETT, Water Commissioner— 
Wells District

JACK STAFFORD, Hydrographer— 
Elko

DUDLEY OWENS, Hydrographer— 
William Creek

Little Humboldt River, 1896-1937

Humboldt River, 1936
1 gallon per minute  =  8.34 pounds of water per minute.
                   =  500.4 pounds of water per hour.
                   =  0.25 tons of water per hour.
                   =  12,016 pounds of water per 24 hours.
                   =  6 tons of water per 24 hours.
1 second-foot of water  =  7.48 gallons per second.
                      =  62.4 pounds of water per second.
                      =  448.56 gallons per minute.
                      =  8,743.2 pounds of water per minute.
                      =  1.97 tons of water per minute.
                      =  26,930 gallons per hour.
                      =  224,569 pounds of water per hour.
                      =  112.3 tons of water per hour.
                      =  646,315 gallons per 24 hours.
                      =  5,290,267 pounds of water per 24 hours.
                      =  2,695 tons of water per 24 hours.

To convert tons of water to:
Minor's inches, continuous flow for 24 hours, divide by 67.37.
Gallons per minute, continuous flow for 24 hours, divide by 8.
Cubic feet per second, continuous flow for 24 hours, divide by 2,685.

**POWER**

1 cubic foot of water = 62.5 pounds.
1 horsepower = 550 foot-pounds per second.
1 horsepower = 33,000 foot-pounds per minute.
1 horsepower = 746 watts or 0.746 kilowatts (kW).
1 horsepower = 1 second-foot of water falling 88 feet (100% efficiency).

Horsepower developed at water wheel at 80% efficiency =
Second-feet x fall in feet / 11

The horsepower required to lift any quantity of water any specified distance may be obtained from the following formula:

\[
\text{Horsepower} = \frac{\text{g.p.m.} \times E}{4,000 \times E} \quad \text{(approximately)}
\]

when g.p.m. = gallons pumped per minute.
h = total head in feet against which pump must work. This includes total material lift, plus frictional and other losses.
E = Efficiency of pump (expressed as a decimal fraction).

Theoretical horsepower developed by potential water source =

\[
10 \times h \times c.f.s.
\]

when h = head in feet; c.f.s. = second feet of water discharge.
A kilowatt-hour is the quantity of energy resulting from the utilization of 1 kilowatt of power for one hour of time.

Electrical energy yearly in kilowatt-hours = horsepower \times 8,760 \times 24 \times 365 = horsepower \times 6,534.96.
To reduce kilowatt-hours (kw.-hrs.) per year to continuous kilowatts
divide by 8,760 (365 days × 24 hrs.).
To reduce kilowatt-hours per year to continuous horsepower, divide
by 6,334.96 (6,746 × 24 × 365).
Power is defined as the time rate of doing work. A kilowatt and a
horsepower are both units of power. Power multiplied by time gives
energy or work.
Thus 1 kw. of power acting for 1 hour of time yields the units of
energy called 1 kw.-hour. Likewise 1 hp. of power acting for 1 hour
of time yields 1 hp.-hour of energy.
Power should not be confused with energy.

| MAP SCALE | inches to
| kilo miles | miles to
| kilo miles |
|-----------|----------|
| 1:1,000,000 | 0.06336 | 15.7822 |
| 1:500,000  | 0.12672 | 7.8914 |
| 1:250,000  | 0.25344 | 3.9870 |
| 1:125,000  | 0.50688 | 1.9785 |
| 1:62,500   | 1.01376 | .9842 |
| 1:31,250   | 1.52060 | .6183 |
| 1:15,625   | 2.02735 | .2786 |
| 1:7,812.5  | 2.43441 | .1393 |
| 1:3,906.25 | 2.94153 | .0697 |

**SUMMARY OF THE WORK OF THE STATE ENGINEER**

**STATE COMMISSIONS AND BOARDS**
The State Engineer upon taking office automatically becomes a mem-
ber of the following Commissions:
1. The Nevada Public Service Commission.
2. The Nevada State Board of Irrigation.
3. The Nevada State Agricultural Commission.
4. The Bureau of Industry, Agriculture and Irrigation.
5. The State Range Commission.

By gubernatorial appointment the present State Engineer is also
a member of the following:
6. The Colorado River Commission of Nevada.
7. The Nevada State Planning Board.
8. Regional Vice President National Association of State Aviation
Officers—Utah, Arizona, California, Nevada.

**RECLAMATION ORGANIZATIONS**
1. The Association of Western State Engineers (seventeen western
States).

**STATUS OF ADJUDICATION OF STREAM SYSTEMS**
The work of adjudicating the waters of the Nevada stream systems

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**STATE ENGINEERS SINCE CREATION OF OFFICE**

<table>
<thead>
<tr>
<th>Name</th>
<th>Term Dates</th>
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<tr>
<td>A. E. Chandler</td>
<td>May 29, 1903, to May 1, 1905</td>
</tr>
<tr>
<td>Henry Thurtell</td>
<td>May 1, 1905, to May 1, 1907</td>
</tr>
<tr>
<td>Frank R. Nicholas</td>
<td>May 1, 1907, to March 3, 1910</td>
</tr>
<tr>
<td>Ralph D. Botkin</td>
<td>March 8, 1910, to March 21, 1911</td>
</tr>
<tr>
<td>W. M. Krueger</td>
<td>March 23, 1911, to May 15, 1917</td>
</tr>
<tr>
<td>J. G. Schurham</td>
<td>May 16, 1917, to January 10, 1918</td>
</tr>
<tr>
<td>Seymour Case</td>
<td>January 25, 1918, to March 28, 1919</td>
</tr>
<tr>
<td>J. G. Schurham</td>
<td>March 28, 1919, to October 7, 1922</td>
</tr>
<tr>
<td>Robert A. Allen</td>
<td>October 7, 1922, to March 28, 1927</td>
</tr>
<tr>
<td>Alfred M. Smith</td>
<td>May 28, 1935—</td>
</tr>
</tbody>
</table>
difficult problems and situations that it is entirely beyond my ability to give them proper credit, and thanks for what they have done.
I extend my thanks and appreciation to many county officers throughout our wide State. They were called upon many times in connection with our work. On every occasion they have rendered willing aid and the best of cooperation.

ALFRED MERRITT SMITH,
State Engineer.

has proceeded since the inception of this office in 1903 to the present time:
1. Stream systems adjudicated, 1903 to date. 24
2. Acres under adjudicated streams. 383,826
3. Vested water users under adjudicated streams. 608
4. Adjudicated stream systems supervised by this office during the past biennium. 7
5. Adjudicated stream systems not supervised by this office during the past biennium. 18
6. Streams in process of adjudication. 26
7. Adjudications completed during past biennium. 2
8. Stream systems on which decrees have been entered by civil suit not under supervision of this office. 11
9. Stream systems adjudicated by United States District Court. 3
10. Stream systems under process of adjudication by United States District Court. 2

STATUS OF WATER APPLICATIONS AND PROOFS OF APPROPRIATION
1. Water applications filed, 1903 to June 30, 1938. 10,294
2. Water applications acted upon, 1903 to June 30, 1938. 3,262
3. Water applications on which no action has been taken. 1,051
4. Water applications filed, July 1, 1928, to June 30, 1938. 317
5. Water applications filed, July 1, 1938, to June 30, 1938. 261
6. Proofs of commencement of work filed, July 1, 1936, to June 30, 1938. 170
7. Proofs of completion of work filed, July 1, 1936, to June 30, 1938. 114
8. Proofs of beneficial use filed, July 1, 1936, to June 30, 1938. 147
9. Protests filed against the granting of applications, July 1, 1936, to June 30, 1938. 61
10. Certificates of appropriation issued under permitted water rights, July 1, 1936, to June 30, 1938. 140
11. Proofs of appropriation filed, 1903 to June 30, 1938. 2,292
12. Proofs of appropriation filed, July 1, 1936, to June 30, 1938. 6

COOPERATIVE WORK
The State Engineer also carries on cooperative work in the compilation of stream gaging and stream runoff observations through the medium of two State appropriations. The cooperating agencies are:
The Nevada Cooperative Snow Surveys.
The activities of the State Engineer in each of the fields are briefly related under their proper headings elsewhere.

PUBLIC SERVICE COMMISSION
The Nevada Public Service Commission is composed of the following members:
Harley A. Harmon, Chairman, Carson City.
Hoyt B. Martin, Reno.
Alfred Merritt Smith, Carson City.
Lee S. Scott, Secretary, Carson City.
The work of this Commission is published by the Chairperson in a biennial report. During the past biennium many hearings have been held in various parts of the State on matters concerning the rate schedules of public utilities, rail and motor vehicle fares, complaints as to public service, and requests for certificates of convenience and necessity for the operation of public utilities.

THE NEVADA STATE BOARD OF IRRIGATION

The Board is composed of the following members:
Richard Kirman, Sr., Governor of Nevada, Carson City.
Ray G. Staley, Surveyor-General, Carson City.
Gray Mushburn, Attorney-General, Carson City.
Alfred Merritt Smith, State Engineer, Carson City.

This Board was created by the provisions of section 2, chapter 59, Nevada Statutes of 1901 (Nevada Compiled Laws 1929, section 8231), for the purpose of administering and managing a system of irrigation and drainage in the State. The Board was empowered by the Legislature to carry on hydrographic work, irrigation studies and stream measurements in cooperation with the United States Geological Survey and the United States Agriculture, in association with the Nevada Agricultural Experiment Station. The State appropriation was contingent upon an equal amount of money being appropriated by the Government. The State Printing Office was authorized to publish additional copies of the Government reports. The Board was also authorized to have printed copies of or extracts from any United States report on irrigation or related matters which, in the opinion of the Board, would be of value to the people of Nevada.

The activities of the Board of Irrigation were continued by the last legislature through an appropriation of $1,500 for cooperative work with the United States Geological Survey, Water Resources Branch, and the State Engineer (section 19, chapter 216, 1927 Nevada State). A report on work prepared by Mr. A. B. Purton of the Water Resources Branch of the United States Geological Survey is printed on page 106. This work, which has been continuously carried on since 1916, is continuing to add to the valuable information regarding Nevada’s water resources and supply.

THE STATE IRRIGATION DISTRICT BOND COMMISSION

The State Irrigation District Bond Commission was created by an Act of the Legislature approved February 25, 1921, being sections 8237-8238 Nevada Compiled Laws 1929. The Commission consists of the following members:
Richard Kirman, Sr., Governor of Nevada.
D. O. Larkoe, Bank Examiner.
Alfred Merritt Smith, State Engineer.

It is the duty of the Commission to pass upon the eligibility of bonds of irrigation districts as legal investments within Nevada. A resume of the work of the past biennium is set forth in chapter 12.

THE STATE RANGE COMMISSION

The Commission consists of the following members:
Richard Kirman, Sr., Governor of Nevada.

ACKNOWLEDGMENT

In submitting this report covering the second two years of work by my associates and myself in the department of the State Engineer, I wish especially to praise the splendid and unstinted service to the department and the State rendered by the staff. The preparation of this biennial report has proceeded at odd times—at intervals not too crowded with steadily increasing duties in the office. Each employee has submitted an outline of work performed in his own field. The work of all employees has had to be increased in order to take care of a greater volume of business, as may be shown by a comparison of this report with that of preceding years. The personnel and number of employees remains the same as it was two years ago.

Expenses have, by the care and vigilance of all, been kept within the State appropriation made for the department by the Legislature. Special recognition is accorded Hugh A. Shamberger, Deputy State Engineer, who arranged and assembled the report, and wrote various parts thereof; and to H. W. Reppert, Assistant State Engineer, who checked the matter appearing herein, and who wrote the able chapter on the problems of water distribution and the complex litigation which has had its origin in the conflicting interests of two vital reservoir companies in the Lovelock District of the Humboldt River.

Acknowledgment and sincere thanks are extended to the following persons for the contribution of valuable data appearing under the given titles:
Crae Venztrom, "Range Control Laws of Nevada."
H. W. Emery, "CCC Activities in the Truckee-Carson Irrigation District."
Edwin Marshall, "Flood Control in the Mono Valley Area."
V. H. Bernard, "CCC Activities in the Walker River District."
P. M. Spencer, "The Truckee Storage Project."
H. P. Boardman, "Snow Surveys."
C. S. Hale, Construction Engineer, for photos and data on the Truckee Storage Projects.
S. R. Marcev, Superintendent Humboldt River Project, for important miscellaneous data.

I wish here to repeat the statements made in my report of two years ago which was that the success and efficiency of the department are in no small measure due to the help of State officers in other departments. Those officials, with whom we are in daily contact, and whose work is often related to our own, have, by full cooperation and helpful advice, greatly lightened and expedited our own tasks. Governor Richard Kirman, Attorney-General Gray Mushburn, and his able assistants Wm. F. Mathews and W. Howard Gray, have been, each of them, of so much assistance to me and my staff in dealing with many
Harley A. Harmen, Chairman, Public Service Commission.
Alfred Merritt Smith, State Engineer.

The 1923 Legislature created the "State Range Commission" for the purpose of determining the principles, laws or policies that should apply to the grazing use of the natural range forage resources of publicly-owned lands within Nevada. A resume of the report by this Commission is given in the 1923-1925 Biennial Report of the State Engineer.

The 1937 Legislature appropriated the sum of $200 to carry on this work. No hearings were held during this biennium, and no expenditures were made from this fund.
LETTER OF TRANSMITTAL

STATE OF NEVADA
OFFICE OF STATE ENGINEER,
CARSON CITY, JULY 21, 1938.

To His Excellency, Honorable Richard Kirman, Sr., Governor of Nevada, Carson City, Nevada.

Sir: In compliance with the provisions of section 14, chapter 140, Nevada Statutes 1933, and section 1, chapter 171, Nevada Statutes 1931, I have the honor to transmit herewith the Biennial Report of the State Engineer for the period ending June 30, 1938.

Respectfully submitted,

ALFRED MERRITT SMITH,
State Engineer.
The Reno plant is located near Reno, being in Lot 6, Sec. 10, T. 19 N., R. 19 E. Water is diverted from the Truckee River at a point in the NE 4 of Sec. 16, T. 19 N., R. 19 E. The plant is owned by the Sierra Pacific Power Company, being a private utility, and has an installed capacity of 1,200 horsepower. The water is held under vested rights of priority of March 31, 1891, and in addition has a right for 47 c.f.s. with a priority of November 1, 1909.

**YOUNG**

This plant, which has not been operated for several years, is located in Pershing County in the NW 1/4 of Sec. 35, T. 28 N., R. 32 E., a few miles northeasterly from Lovelock. Water was diverted from the Humboldt River at a point in the NE 4 of Sec. 21, T. 28 N., R. 32 E. The plant was a private utility, being under the ownership of the Love- lock & Washoe Power Company, having an installed capacity of 255 horsepower. Water was held under vested rights, being set forth on page 66 of the Humboldt River Decree, and having priorities of 1888 and 1899.

**WELLS**

The Wells power plant is located in the SE 1 of Sec. 17, T. 37 N., R. 61 E., in Elko County near Wells, Nevada. Water to operate the power house is diverted from Trout Creek at a point in the SW 1/4 of Sec. 21, T. 37 N., R. 61 E. The Wells Power Company, a private utility, owns the plant, which has an installed capacity of 100 horsepower. The water right is held under Permit No. 7079, with a priority of January 8, 1927. The company operates under a Federal Power Commission license.

**ELY**

Water is diverted from Murr Creek and Springs at a point in the NW 1/4 of Sec. 29, T. 16 N., R. 63 E., and is conveyed to the power plant located in the SE 1/4 of Sec. 16, T. 16 N., R. 63 E., which is near Ely in White Pine County. The plant is a private utility, being owned by the Ely Light & Power Company, sometimes called the Ely Water Company, and has an installed capacity of 45 horsepower. Water rights are held under Permit No. 3260 of May 4, 1901, priority.

**WINNEMUCCA**

This plant is located in Humboldt County and is in the SE 1/4 of Sec. 29, T. 36 N., R. 38 E. Water is diverted from Water Canyon at a point in the NE 1/4 of Sec. 11, T. 35 N., R. 38 E. The plant is owned by the Western States Utility Company, a private utility, and has an installed capacity of 100 k.w.

**MCGILL**

The McGill power plant is located in Sec. 16, T. 18 N., R. 64 E., being in White Pine County near McGill. Water is diverted from Duck Creek at a point in the SW 1/4 of Sec. 11, T. 19 N., R. 65 E. The Nevada Consolidated Copper Company owns the plant, which has an installed capacity of 640 k.w. The water right is held under Permit No. 584, which has a priority of September 9, 1908.

---

**INFORMATIONAL DATA**

**LIST OF PUBLICATIONS PRINTED FOR DISTRIBUTION BY STATE ENGINEER’S OFFICE**

**ADJUDICATION PUBLICATIONS**

Abstract of Claims—
- Carson River, 1921.
- Currant Creek, 1919.
- Evans Creek, 1916.
- Humboldt River, 1909.
- Humboldt River, 1912.
- Humboldt River, 1922.
- Little Humboldt River, 1913.
- Little Humboldt River, 1929.
- Muddy River, 1906.
- Salmon River, 1910.
- Walker River, 1907.

Preliminary Order of Determination—
- Carson River, 1921.
- Humboldt River, 1922.
- Little Humboldt River, 1929.
- Pahranagat Lake, 1929.

**Objections to Preliminary Order of Determination—**
- Humboldt River, 1922.
- Little Humboldt River, 1930.

Order of Determination—
- Carson River, 1927.
- Humboldt River, 1922.
- Pahranagat Lake, 1929.

**Priority Index Chart Humboldt River, 1924.**

**Decrees and Proposed Decrees—**
- Humboldt River, Proposed Findings of Fact, Conclusions of Law and Decree, 1931.
- Little Humboldt River, Proposed Findings of Fact, Conclusions of Law and Decree, 1938.
- Little Humboldt River, Findings of Fact, Conclusions of Law and Decree, 1939.

**BIENNIAL REPORTS STATE ENGINEER**


*Supply exhausted.*
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CHAPTER II
Office Engineering and Miscellaneous Office Work

In the two years covered by this report much has been done toward disposing of the current routine office duties, such as examining all new applications and checking and filing maps submitted in support thereof. With respect to this work, the aim of this office has been to eliminate all errors before filing and publishing the notices of proposed appropriations. All proofs of commencement of work and completion of work, and proofs of application of water to beneficial use, together with the maps in support thereof, are carefully examined for errors before filing. Proofs of appropriation of water and supporting maps covering vested water rights or rights initiated prior to March 1, 1965, are also given careful study before filing as a part of our routine office work in order to expedite the work of preparing data for adjudication proceedings.

Assumptions of certificates of appropriation of water under both permits and decrees rights under statutory adjudication has occupied considerable time. In connection with this work it must be borne in mind that the certificate of appropriation of water is the final step in a perfected water right and, therefore, it is of vital importance that no errors exist, and for this reason they are examined at least three times before they are sent to the County Recorder in the county where the appropriation exists for recording.

Budgets covering the costs of water distribution prepared and submitted to the County Clerks are a part of our annual work.

Many deeds affecting the transfer of water rights of record are carefully examined in order to ascertain that there is no missing link in the chain of title from the owner of record to the new owner. In other words, the succession of title to the water right of record must be strictly adhered to so as to keep in close contact with the owners, especially in cases of rights covering pending applications and permits where the attention of the holder of such application and permit is required to keep it in good standing, and also for the purpose of enabling this office to issue the certificate of appropriation of the perfected right to the legal owner or owners of record. In cases where the State Engineer's file numbers are omitted in the deeds, but the description of the lands and appurtenances are given, much time is devoted in searching through the records to determine with certainty that none of the water rights covered by such deeds are omitted.

As a result of the many new Federal and State agencies functioning under the New Deal toward the conservation of water and land utilization, and toward gathering much additional information, a great demand is constantly made upon the office of the State Engineer for information relative to existing and pending water rights, proposed irrigation developments, power and other information relative to this State and, therefore, much time is devoted to their assistance.

Many answers to inquiries are made to outside Federal agencies relative to water, power, and resources of the State. Some of the data submitted requires much careful searching of the records and the compilation of the requested data. Undivided attention is the policy of
this office to personal callers at the office, and in many instances
unbiased advice is given on request.
Law suits involving the Humboldt River adjudication and that of
the Humboldt-Leoville Irrigation Light and Power Company, com-
monly known as the Pitt-Taylor reservoir, have been a trying factor
to this office. All possible efforts are made to see that no injustice is
done and our policy has been to avoid legal entanglements.
Much has also been done by the State Engineer’s office in the way of
clearing of the records of applications and permits which have for
many years lain dormant in the files, thus paving the way for new
appropriations.
Important articles, maps, plans, reports and other data relative to
water and concerning this State have been received and indexed for
our reference, and for the use of the general public, Federal and State
agencies. This collection and indexed data have proven very valuable
in many cases. During this biennium eighty-seven of such articles,
reports, maps, etc., have been filed, and up to date seven hundred and
eighty-four of them have been indexed.
Since the inception by the State Engineer early in 1927 of the policy
of range protection, in that the users of the public domain are notified
when new applications are filed to appropriate water within the limits
of the range claimed by them, as shown by their range map indexed in
this office, three hundred and thirty-nine of such range maps have
been submitted and indexed under serial numbers since December 6,
1927. The boundaries of the range claimed as shown by the submitted
maps have been placed on the State range map, which map gives a clear
picture of the utilization of the stockmen of the public domain for
grazing purposes. The submission of range maps by a majority of the
stockmen of this State has about approached the limit. During this
biennium only one range map has been submitted and accepted, on
September 1, 1936. However, the stockmen are still showing their
interest in this work, as many inquiries are made relative to their range
maps, and they are extensively and constantly used by this office for
assistance in acting on pending applications.
Our attention and time has been given both in the field and in the
office toward the improvement of channels, diversion and headgates on
the Little Humboldt River stream system. Maps and plans have been
made and prepared from field investigations covering the actual con-
ditions on the ground of the many obstacles which tend to retard and
obstruct the flow and tend to make distribution inefficient. Under
these plans actual construction of headgates has been completed on
several diversions, as described elsewhere in this report.
Assistance both in the office and in the field has been given water
commissioners in their perplexing problems relative to the distribution
of water.
- 10% of the Class A rights decreed are filled with 1875 priorities.
- 30% of the Class A rights decreed are filled with 1884 priorities.
- 40% of the Class A rights decreed are filled with 1887 priorities.
- 50% of the Class A rights decreed are filled with 1888 priorities.
- 60% of the Class A rights decreed are filled with 1900 priorities.

In the Lethe Valley the land holdings are small, but with a few exceptions. The principal crops are alfalfa, wheat, barley and oats. In 1918 the hay production was 75,000 tons, while in 1929 only 9,000 tons were raised. It is very seldom that there is sufficient water to irrigate after July 1, and usually but two cuttings of hay are obtained.

<table>
<thead>
<tr>
<th>WINNEMUCA DISTRICT</th>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Class of land</td>
<td>Irrigation season</td>
<td>Total acre</td>
<td>Percent</td>
</tr>
<tr>
<td>A</td>
<td>March 15 to September 15</td>
<td>2,057</td>
<td>20</td>
</tr>
<tr>
<td>A</td>
<td>March 15 to June 18</td>
<td>1,942</td>
<td>18</td>
</tr>
<tr>
<td>C</td>
<td>March 15 to April 28</td>
<td>940</td>
<td>8</td>
</tr>
<tr>
<td>Totals</td>
<td></td>
<td>4,939</td>
<td></td>
</tr>
</tbody>
</table>

Notes—4,900 acre feet on Little Rock and Pole Creeks are not included.
- 10% of the Class A rights decreed are filled with 1864 priorities.
- 30% of the Class A rights decreed are filled with 1871 priorities.
- 40% of the Class A rights decreed are filled with 1874 priorities.
- 50% of the Class A rights decreed are filled with 1875 priorities.
- 60% of the Class A rights decreed are filled with 1879 priorities.

<table>
<thead>
<tr>
<th>BATTLE MOUNTAIN DISTRICT</th>
<th></th>
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</thead>
<tbody>
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<td>Class of land</td>
<td>Irrigation season</td>
<td>Total acre</td>
<td>Percent</td>
</tr>
<tr>
<td>A</td>
<td>March 15 to September 15</td>
<td>2,125</td>
<td>22</td>
</tr>
<tr>
<td>A</td>
<td>March 15 to June 18</td>
<td>1,900</td>
<td>20</td>
</tr>
<tr>
<td>C</td>
<td>March 15 to April 28</td>
<td>940</td>
<td>10</td>
</tr>
<tr>
<td>Totals</td>
<td></td>
<td>4,965</td>
<td></td>
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</tbody>
</table>

Notes—4,842 acre feet of water on Rock Creek, Willow Creek and Boulder Creek are not included.
- 30% of the Class A rights decreed are filled with 1873 priorities.
- 40% of the Class A rights decreed are filled with 1874 priorities.
- 50% of the Class A rights decreed are filled with 1877 priorities.
- 60% of the Class A rights decreed are filled with 1879 priorities.

In these two districts the land holdings are large. For instance, the Dumpy Estate has holdings of over 100,000 acres. The decreed water rights are apportioned to 22 properties in the Battle Mountain District and 24 properties in the Winnemucca District.

The main crop is native hay, particularly rye and blue jolt. Only one cutting is obtained, yielding about three-fourths of a ton per acre.

<table>
<thead>
<tr>
<th>ELKO DISTRICT</th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Class of land</td>
<td>Irrigation season</td>
<td>Total acre</td>
<td>Percent</td>
</tr>
<tr>
<td>A</td>
<td>April 15 to August 15</td>
<td>112,324</td>
<td>81</td>
</tr>
<tr>
<td>B</td>
<td>April 15 to June 15</td>
<td>531</td>
<td>4</td>
</tr>
<tr>
<td>C</td>
<td>April 15 to May 15</td>
<td>21,912</td>
<td>15</td>
</tr>
<tr>
<td>Totals</td>
<td></td>
<td>144,460</td>
<td></td>
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</table>

**CHAPTER III**

**State Water Right Surveyors of Nevada**

Following is a complete list of licensed State Water Right Surveyors authorized to practice before the office of the State Engineer during the past biennium:

**NEVADA**

- Manhattan—Arthur E. Smith
- Minid—L. B. Spencer
- Minden—J. A. Miller
- Mountain City—Walter B. Coons
- Nevada City—Charles D. Thompson
- Paradise Valley—W. & B. Stewart
- Pioche—Frank Walker
- Reno—R. M. Spencer
- Sparks—L. H. Taylor
- D. H. Updike
- Theis, B. Kingsley
- John W. Studler
- M. A. Fay
- Walter G. Kelly
- Carl Stoddard
- Sparks—C. C. Taylor
- Spring Valley—J. E. VanDyke
- Tonopah—D. J. Johnson
- C. A. Liddell
- H. F. Reiss
- Frank Bagley
- Tonopah—H. L. Woodward
- John W. King
- Winnemucca—F. R. O'Leary
- Winnemucca—Winnemucca
- A. V. Tulloss
- Virginia—George Parker

**CALIFORNIA**

- Berkeley—R. E. Tilden, 2829 Broadway Avenue
- San Francisco—H. M. McCloud, 62 Market Street
- J. W. Williams, 988 Mills Boulevard
- Cashmere—A. M. Green
- Sacramento—O. F. Ehlert, 1847 Forty-Fourth Street
- Benicia—Joseph Markert

**IDAHO**

- Twin Falls—Harold M. Merritt

**OREGON**

- Burns—Mott V. Dodge

**UTAH**

- St. George—Leo A. Snow
- Garrison—O. A. Qualls
- Ogden—H. B. Way, Carpenter of Utah Construction Company
- Louis H. Beulah, Carpenter of Southern Pacific Company
- E. B. Conger, 719 First Security Building
- Salt Lake City—Norman Stryker, 807 State Building
- E. A. Hall, 600 State Building
- George B. Clark, 107 South 14th East
CHAPTER IV
Applications for Water Rights

During the biennium period dating from July 1, 1936, to June 30, 1938, there has been 261 applications filed with this office for permission to appropriate water. Of this number 19 applications were made to change either the point of diversion, place or manner of use of water already appropriated under an existing permit or claim of vested right. Under our water laws such an application can be made to change the point of diversion, place and manner of use either collectively or singly. A segregation of the applications as to the manner of use is as follows:

- Irrigation purposes: 41
- Mining and milling: 130
- Stock watering: 48
- Domestic purposes: 2
- Migratory water fowl refuge: 3
- To change point of diversion, manner or place of use: 20
- Municipal purposes: 8
- Bathing purposes: 2
- Gravel and sand washing: 6
- Power: 6
- Recreational purposes: 6
- Fish rearing purposes: 1

Definite action has been taken on 337 applications during this biennium, representing action on 147 applications filed during this period and 170 applications filed prior to June 30, 1936. There have also been issued during the period 140 certificates of water right following the perfection of permits.

Due to amendatory Acts being added to our water law, the State Engineer considered it advisable, during this biennium, to republish a compiled edition of our water laws, and which was released from the press in October 1937. This contains, besides the general water law, Acts relating to the adjudication emergency fund; stock watering Act; Nevada range law; and underground water law. Summaries on the adjudication procedure on vested rights, and the statutory procedure to appropriate water by filing an application with the State Engineer's office are also given, together with a list of State Water Right Surveyors, and tables relating to the measurement of water.

The summaries mentioned above relating to adjudication procedure on vested rights and applications for water rights were also included in the Biennial Report for the period 1934 to 1936.

During the past biennium hearings have been held on protests against the granting of permits under 19 applications. In addition to these, rulings were made by the State Engineer on 35 other protested applications. Appeal from the findings of the State Engineer have been made under only one application and is now pending in the District Court.

Pertinent information regarding water applications filed in this

FLOWS AT MILL CITY TO SERVE 1921 RIGHTS IN LOVELOCK VALLEY

<table>
<thead>
<tr>
<th>Class of land</th>
<th>Date of water in</th>
<th>District No. 5</th>
<th>Elko District</th>
<th>Loveless Valley and Ingersoll Springs and</th>
<th>Elko District</th>
<th>20/30</th>
<th>20/30</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class A</td>
<td>15 to 15</td>
<td>April 15 to 15</td>
<td>May 15 to 15</td>
<td>Loveless Valley</td>
<td>15 to 14</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Class B</td>
<td>15 to 14</td>
<td>April 15 to 14</td>
<td>March 15 to 14</td>
<td>Ingersoll Springs</td>
<td>14 to 15</td>
<td>10</td>
<td>15</td>
</tr>
<tr>
<td>Class C</td>
<td>15 to 14</td>
<td>April 15 to 14</td>
<td>May 15 to 15</td>
<td>Loveless Valley</td>
<td>20/30</td>
<td>15</td>
<td>20</td>
</tr>
</tbody>
</table>

The amount of water in continuous flow allowed for each acre of land is the same for all classes of culture in each district. The length of time allowed to irrigate the different classes varies as set forth in the table above. In arriving at the amount of water in continuous flow for a certain acreage the number of acres is multiplied by 0.00653 in District No. 1 and by 0.0182 in District 2; the Elko District.

A brief summary of the amounts of water decreed in each district is herewith given.

LOVELOCK DISTRICT

<table>
<thead>
<tr>
<th>Class</th>
<th>Irrigated season</th>
<th>Total acres</th>
<th>Actual</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class A</td>
<td>March 15 to September 15</td>
<td>28,669</td>
<td>55,157</td>
<td>51.17</td>
</tr>
<tr>
<td>Class B</td>
<td>March 15 to June 15</td>
<td>925</td>
<td>1,281</td>
<td>72.00</td>
</tr>
<tr>
<td>Class C</td>
<td>March 15 to June 15</td>
<td>1,344</td>
<td>11</td>
<td>0.90</td>
</tr>
</tbody>
</table>

Total: 32,718

35,842
office since its creation will be found on page 25. The status of applications filed and certificates issued will be found as follows:
2. Status of applications filed prior to July 1, 1936, upon which action has been taken during the past biennium, Chapter 17.
3. Certificates issued under permits during the past biennium, Chapter 18.
CHAPTER V
Adjudication of Water Rights

Section 1, chapter 4, Statutes of 1909, provided a law creating the office of State Engineer and furnishing a method for the determination of the relative rights in and to waters already appropriated. Several amendments were subsequently made with the result that our water law is now admirably adapted to conditions in Nevada, and has been declared constitutional in its entirety by decisions rendered by the Supreme Court of Nevada.

Amendatory Acts were passed during the 1907 and 1909 sessions of the Legislature. In 1918 a new water law was enacted and the old water law in its entirety was repealed. The new law was approved March 22, 1918. Under this Act the water law was greatly broadened, both as to the adjudication procedure on the determination of vested rights and the appropriation of water procedure by application to the State Engineer. Subsequent amendments to the laws relating to the adjudication procedure were enacted in the following sessions of the Legislature, viz., 1915, 1917, 1919, 1921, 1925, 1927, 1929, 1931, 1933, and 1937. A brief description of these various amendments may be found in Chapter 6 of this report, wherein a summary of the laws enacted by the Nevada Legislature relating to water and the office of the State Engineer is given. A summary of the statutory procedure to determine the relative rights in an irrigation system under a claim of vested right may be found in our 1934-1936 Biennial Report and also in the compiled edition of the water laws of this State published in 1937 by this office, both of which are available upon request.

PROOFS OF APPROPRIATION Filed DURING THE YEARS OF THE PRESENT BICENTENNIAL

During this period the following proofs of appropriation, which are claims of vested water rights, have been filed for future use in the determination of the relative rights and also to make of record such claims. A condensed statement giving the salient data is hereupon given in the order of:

1. Proof serial number.
2. Date filed.
3. Name of claimant.
4. Source of water supply.
5. Location by county.
6. Use claims.

CHAPTER VII
Water Distribution—Humboldt River
PERTINENT FACTS AND HISTORY

Pertinent facts relating to the Humboldt River Stream System are briefly as follows:
Length of main river channel, approximately 800 miles.
Width of river channel, 50 to 100 feet.
Area of watershed, 14,200 square miles.
Area of irrigated lands, 300,000 acres; decreed water rights, 642,913 acres.
Number of decreed water rights, approximately 450.
Earliest date of known diversion, about 1860.
Elevation, Lovelock, 3,327 feet.
Elevation, Winnemucca, 4,334 feet.
Elevation, Battle Mountain, 4,514 feet.
Elevation, Elko, 5,063 feet.
Elevation, Wells, 5,633 feet.

PERTINENT HISTORY

During the latter part of 1836 the Rye Patch Dam was completed on the Humboldt River. This structure is located about 20 miles northeast from Lovelock and was built by the Bureau of Reclamation under repayment contract dated October 1, 1834, with the Pershing County Water Conservation District. The history and description of this project was written by L. J. Foster, Construction Engineer, U. S. Bureau of Reclamation, and was included in the State Engineer's 1834-1936 Biennial Report.

The Pershing County Water Conservation District, incorporated in 1927, has about 30,350 acres of irrigable lands within its boundaries, of this amount 21,096 acres have decreed water rights. Land with decreed water rights not within the district amount to approximately 11,600 acres. In order to obtain water to irrigate the irrigable lands within the district not having decreed water rights and to supplement the decreed water rights the district purchased considerable land and water rights in the Battle Mountain area and made application to the State Engineer for permission to change the point of diversion and place of use of these waters. The applications in their order appear on the following page.

The amount of water transferred from the Battle Mountain area was 276.85 c.f.s. for the period from March 15 to April 28; approximately 102 c.f.s. for the period from April 28 to June 13; and approximately 69 c.f.s. for the final period from June 13 to September 13.

The reservoir caused by the construction of the Rye Patch Dam affects three water rights commonly called reservoir area rights. Two of these rights were purchased and permits granted by the State Engineer transferring them down to the Lovelock area. See page 62.

The other reservoir area right is owned by the Rogers Estate as set forth on page 80 of the decree, and amounts to 517 c.f.s. This right has never been transferred.

River losses have been assumed to be 10% from Battle Mountain to
Chapter 149, Statutes of 1937, provides amendments to the underground water law approved on March 24, 1915, and amended in 1935. The essential points of the amendments are the requiring of an application for a permit to appropriate water before any work is done towards the sinking of a well in an artisan basin; requiring the permittee to keep an accurate log of the well on forms furnished by the State Engineer's office, and which must be filed in the State Engineer's office within 30 days following the completion of the well; and providing that anyone violating the provisions of the Act shall be deemed guilty of a misdemeanor and on conviction thereof shall be fined in a sum not exceeding $250 or by imprisonment in the county jail not exceeding six months, or by both fine and imprisonment. Following Chapter 150, Statutes of 1937, provides an amendment to section 36 of the general water law as amended, Chap. 223, Stats. of 1931. In this Act certain additions were made to the manner of assessment of court costs by the court and the collection thereof. Also, under this amended Act whenever a Judge before whom a proceeding for the adjudication of a stream system is pending shall cease to be such Judge, his successor to whom such proceedings may be assigned may do all things in and about such adjudication that may be necessary and proper.

SHELL CREEK

Shell Creek (sometimes called and known as Shell Creek) and its tributaries is located about 50 miles north-northeastly from Ely, Nevada, in township 22 north, ranges 64 and 65 east, M. D. B. & M. There are two water users on the stream system and the total irrigated area is approximately 337.97 acres.

September 16, 1934—Jose Castillo, one of the water users on the stream system, petitioned the State Engineer for a determination of the relative rights in and to the waters thereof.

November 18, 1934—The report of the investigation on the stream system was filed in the office of the State Engineer.


January 25, 1936—The State Engineer entered Notice and Order for Taking Proof.

June 11, 1936—The Abstract of Claims was prepared by the State Engineer and filed in his office.

June 12, 1936—The Preliminary Order of Determination was filed by the State Engineer in his office.

June 12, 1936—Notice and Order issued by State Engineer setting time and place of inspection.

August 18, 1936—Notice and Order extending time for filing objections to Preliminary Order of Determination to and including August 30, 1936.

September 2, 1936—Notice of fixing time for hearing objections to the Preliminary Order of Determination at Ely, Nevada, on October 7, 1936.

October 1, 1936—Notice and Order postponing time for hearing objections to the Preliminary Order of Determination and setting over to October 21, 1936.

October 21, 1936—Hearing on Objections to the State Engineer's Preliminary Order of Determination held at Ely, Nevada, on October 21, 22, and 23, before a representative of the State Engineer's office.

May 22, 1937—Order of Determination filed by State Engineer in his office.

May 24, 1937—Order of Determination, together with all original evidence and data as of record in the State Engineer's office, were filed with the Clerk of the Seventh Judicial District Court of the State of Nevada, in and for the county of White Pine.

May 24, 1937—Court entered an order setting July 12, 1937, as the date for hearing exceptions. The hearing was set over from time to time, the last order of the Court setting the time for hearing for October 18, 1937.


June 18, 1938—Decision entered by Hon. L. O. Hawkins, Presiding Judge of the Seventh Judicial District Court.

MANKE SPRINGS

The location of Manke springs and tributaries is in the southerly portion of Nye County about six miles southerly from Pahrump.
Nevada, and about 28 miles northeastly from Shoshone, California. There are two claimants to the waters from this source, one by virtue of vested rights and the other under application to the State Engineer for permission to appropriate this water.

April 14, 1937.—Petition filed with State Engineer by water users to initiate proceedings for determination of relative rights in and to the waters of Massie Springs and tributaries.

May 17, 1937.—Field investigation completed and report filed by the State Engineer in his office.

May 16, 1937.—Order filed granting petition to determine relative rights in and to the waters of Massie Springs and tributaries. Order of letter and order advising claimants that since the claimants had all signed waiver of notice the State Engineer would proceed under section 36B.

May 24, 1937.—Abstract of claims prepared by the State Engineer and filed in his office.

June 8, 1937.—Order of Determination filed by State Engineer in his office.

June 12, 1937.—Order of Determination, together with all original evidence and data as of record in the State Engineer’s office, were filed with the Clerk of the Fifth Judicial District Court of the State of Nevada, in and for the county of Nye.

June 15, 1937.—Court entered an order setting July 24, 1937, as the date for hearing exceptions. This hearing was postponed and set over from time to time, the last order setting the time for November 5, 1937.

November 5, 1937.—Hearing before Hon. William D. Hatton, Judge of the Fifth Judicial District Court of the State of Nevada, in and for the county of Nye. Case submitted pending filing of briefs by respective counsel.

The location of North and South Springs and tributaries is about seven miles northeastly from Beatty, Nevada, lying about one mile easterly from State Highway No. 5. There is only one claimant on this source.

February 20, 1937.—Petition filed with the State Engineer to initiate proceedings for the determination of the relative rights in and to the waters of North and South Springs and tributaries.

May 24, 1937.—Field investigation completed and report filed by the State Engineer in his office.

May 24, 1937.—Order filed by State Engineer granting petition to determine the relative rights in and to the waters of North and South Springs and tributaries.

May 29, 1937.—Letter to claimant advising that the State Engineer would proceed under section 36B.

July 23, 1937.—Abstract of Claims prepared by the State Engineer and filed in his office.

July 29, 1937.—Order of Determination filed by State Engineer in his office.

August 4, 1937.—Order of Determination, together with all original evidence and data as of record in the State Engineer’s office, were appropriate and shall be issued to an applicant who is not a citizen over the age of 21 or to a firm or company which is not a corporation authorized to do business in this State.

Chapter 209, Statutes of 1931, provides an amendment to section 52 of the water law relating to the preparation of a budget for the payment of the salaries of the water commissioners. Said budget shows the costs assessed against each water user in proportion to the aggregate rights in the stream system. When submitted to the Board of County Commissioners said board shall certify the respective charges contained therein to the Assessor of the county who in turn enters the amounts of such charges on the assessment roll against each claimant. Said taxes, when collected, shall be deposited with the State Treasurer of Nevada and placed in a fund known as “Water Distribution Fund,” as hereinafter provided, to be paid out in payment of claims for salaries, etc. The section is amended to the effect that the water commissioners shall execute the laws prescribed in sections 52 to 58, inclusive.

Chapter 223, Statutes of 1931, provides amendments to section 36 of the water law relating to the assessing of court costs and the collection thereof; so when a judge is about to retire from office and who has filed a written decision before retirement may hold hearings for the settlement of written findings of fact and conclusions of law and decree appurtenant to such written decision so filed, and shall be entitled to $100 per day for such services, total expenses not to exceed $1,000.

Chapter 222, Statutes of 1931, provides an appropriation to create a revolving fund to be known as “The Water Distribution Fund.” The sum of $20,000 was set aside for the purposes as set forth in section 29 of the Nevada Compiled Laws 1929, as amended by the 1931 session of the Legislature (section 52).

Chapter 109, Statutes of 1933, provides for the insertion of a section to follow section 55 of the general water law and to be known as section 55A. This section provides for the employment of guards, when necessary, by the State Engineer to prevent unlawful diversions of water in any ditch or ditch system, the salaries of such guards to be charged against the owner or owners of the ditch or ditch system, and collected as provided for in section 77, chapter 253, Statutes of 1915.

Chapter 184, Statutes of 1933, provides amendments to the underground water law (Chap. 210, Stats. 1915) and also adds a new section. The amendments concern the protection of wells, both above and below the ground surface, and the administration of the Act by the State Engineer. The new sections pertain to the exercise of the police powers of the State to prevent the waste of underground waters.

Chapter 46, Statutes of 1937, provides an amendment to section 72 of the water law as amended, Chap. 128, Stats. 1931. This section applies to the issuance of certificates under permits to appropriate water, and includes the issuance of certificates under permits to change the place of diversion, manner or place of use of water already appropriated.
objected shall be served with a copy of the proposed findings of fact and decree by serving the Attorney-General of the State. The section provides also that the cost bill shall be prepared and filed only with the Clerk of the Court.

Chapter 161, Statutes of 1927, provided a new section to the general water law. This section, being 361, is to the effect that following the filing of the Order of Determination in the District Court the distribution of water by the State Engineer shall at all times be under the supervision and control of the District Court, and said officers and each of them shall, at all times, be deemed to be officers of the court in distributing water under and pursuant to the Order of Determination, or under and pursuant to the decree of the court.

Chapter 136, Statutes of 1927, provided for the creation of an “Adjudication Emergency Fund” for the purpose of advancing and paying for transcripts, witness fees, etc., incurred by or upon the authority of the Attorney-General and the State Engineer in any litigation affecting any Order of Determination adjudicating the waters of any stream system. For this purpose all of the money returned to the Act to authorize the payment of costs in the Humboldt River adjudication (chapter 181, Statutes 1925) until such returns shall aggregate the total sum of $6,000 is to go into the fund and thereafter to be maintained as a revolving fund.

Chapter 107, Statutes of 1929, provided an Act authorizing the establishment of a revolving fund for the State Engineer. Under this Act the State Engineer was authorized to establish out of the fees received from applications for permission to appropriate water and from proceeds of appropriation a revolving fund in an amount of $10,000. The money in this fund is to be used for the payment of emergency bills and expenses.

Chapter 128, Statutes of 1929, provided an Act creating a State Range Commission, the members of said commission to consist of the Governor, the State Engineer, and the third member to be a member of the Nevada Tax Commission.

Chapter 176, Statutes of 1929, provided an amendment to section 54 of the 1913 Water Law Act in the distribution of the waters of an adjudicated stream system by the State Engineer, also as to the regulation of the distribution of water among the various users under any ditch or reservoir.

Chapter 90, Statutes of 1931, provides an amendment to section 84 of the General Water Law. This amendment is to the effect that the Judge having jurisdiction over the proceedings in relation to the determination of the relative rights of a stream system retires from office, then the Judge of the District Court having jurisdiction of the proceedings shall act as the Judge to preside in such matter.

Chapter 125, Statutes of 1931, provides an amendment to section 72 of the general water law relating to the issuance of certificates under permits to appropriate water. The section is amended to the effect that the no final certificate of appropriation or certificate granting a change in the place of diversion, manner of use or place of use of water already filed with the Clerk of the Fifth Judicial District Court of the State of Nevada, in and for the county of Nye. August 4, 1937—Court entered an order setting September 17, 1937, to the date for hearing exceptions. This hearing was postponed and set over from time to time, the last order setting the time for November 4, 1937.

November 4, 1937—Hearing before Hon. William D. Hatton, Judge of the Fifth Judicial District Court of the State of Nevada, in and for the county of Nye. February 21, 1938—Proposed Findings of Fact, Conclusions of Law and Decree filed. Agreeance with decreed rights, 97.2. ADJUDICATIONS BY DEPARTMENT OF STATE ENGINEER Streams on Which Decrees Have Been Entered Under Civil Suits, Statutory Court Decrees, and Streams Adjudicated by United States District Court The following table shows the status of all the streams in the State that have been or are the subject of adjudications proceedings, given in the order of:

1. Name of stream system.
2. Location.
3. Date adjudication proceedings initiated.
4. Status toward completion, etc.

Baker and Lehman creeks (White Pine County)—May 2, 1936; both streams considered as one; Findings of Fact, Conclusions of Law and Decree entered October 1, 1934. Agreements last involved 3,993.7.

Barber Creek (Douglas County)—September 31, 1934; Court Decree entered May 22, 1931. Land involved 3,993.7 acres.

Barlett Creek (Humboldt County)—Petition for Determination received December 20, 1929; Proof of Appropriation voluntarily filed; Proofs submitted for 2,025.3 acres.

Battle Creek (Humboldt County)—Petition for Determination received December 20, 1929, report on investigation made May 22, 1930; Proofs of Appropriation voluntarily filed; Land involved approximately 600.0 acres.

Bishop Creek (Elko County)—Included in adjudication of Humboldt River system.

Boone-Victor Creek (Pershing County)—Petition for Determination of Relative Rights—May 12, 1931.

Carson Creek (Lander County)—July 29, 1927; Court Decree entered November 25, 1928; Certificate issued under Court Decree July 5, 1930. Decreed 20 acres.

Carson River (Douglas, Ormsby, Lyon, and Churchill Counties)—May 19, 1931; Order of Determination filed November 30, 1929, with an office Clerk of the First Judicial District Court of the State of Nevada, in and for the County of Ormsby. Court duly proceeded with the determination, setting February 6, 1939, as time for hearing exceptions to the Order of Determination. On April 4, 1939, the Supreme Court of the State of Nevada issued Alternative Writ of Prohibition in the matter of the Matson Dam and Bighorn Company et al., Petitioners, v. District Court of the First Judicial District of the State of Nevada, in and for the County of Ormsby, and眦, G. A. Belding, Judge thereof, Defendants, prohibiting defendants from proceeding with the determination for such time as such writ of prohibition is effective and until the final determination for such matter is made in the Supreme Court. On July 1, 1930, the writ was made permanent on the ground that certain provisions of the law were not complied with and ordered that the matter be referred back to the State Engineer for full and complete determination of the water rights in the entire Carson River stream system. The status of this matter remains unchanged. On May 11,
1935, Bill of Complaint in Equity, D-185, was filed in the District Court of the United States for the District of Nevada in the matter of the United States of America, Plaintiff, v. Alps Land and Resources Company, a Corporation, et al., Defendants. Summary judgment was rendered May 23, 1955. The plaintiff's motion for order to take possession of various water areas, August 17, 1955, motions to dismiss Bill of Complaint were denied, and 20 days thereafter were allowed to file answers. Answers were filed November 27, 1956. Hearing on motion of setting time for trial and proposed appointment of appraisers was held April 15, 1957, beginning of trial before Hon. Frank H. Neave, Judge of the United States District Court, District of Nevada. November 15, 1957, Miss Ada Terrazas was appointed special master in chancery for purpose of taking testimony, the transcript of which to be submitted to the Judge for final action. From time of appointment of special master, hearings were held off and on in Fallon and Carson City in the same manner at the present time. All testimony is in and briefs are yet to be filed before case is submitted to court.

Chacurvich Creek (Eureka County)—1914; Notice and Order for Taking Proofs, June 10, 1929.

Clover Valley Creek (Lincoln County)—November 4, 1919; Preliminary Order of Determination, proposed. Land involved approximately 467.25 acres.

Clear Creek (Dinwiddie County)—June 19, 1919; Court decree rendered November 19, 1919, certifying to Court on December 19, 1929, under Court decree. Land involved 1363.20 acres.

Clear Creek (Dougherty County and Douglas County)—December 27, 1927, civil suit; Notice and Order of Pendency of Proceeding, February 5, 1914.

Cron and Wilson Creek (Lander County)—July 14, 1929; Court decree rendered May 26, 1929; certificates issued July 25, 1929, under Court decree. Decreed rights for 614.60 acres.

Current Creek (Nye County)—1919; Notice for submission of proofs dated May 26, 1926; decree entered April 22, 1927; certificates issued October 30, 1927, and February 12, 1928, under Court decree. Decreed rights for 600 acres.

Deephole Springs, Clear Creek, Squaw Valley Creek, Last Creek, Grass Valley Creek, Ocotillo Creek and Hot Springs (Walker County)—1893; To abstract of proofs; adjudication initiated under provisions Sec. 86a, chapter 552, Statutes of 1911.

Duck Creek (White Pine County)—Decreed entered November 24, 1886, civil suit.

Duckwater Creek (Nye County)—December 1, 1906; a first Court decree was rendered by Hon. M. R. Airiki, 1906, 1907, civil suit; July 19, 1919, another decree was entered by the above Court. October 8, 1919, a stipulation was entered and endorsed by the Court according to State Engineer to make field investigations as to types of structures, etc., required for costs economical and practical, etc., and that the claims be aggregated. Stipulation and reports filed April 11, 1921; March 30, 1921, a stipulation was entered into by the various water users which brought to a conclusion the questions involved in the litigation of the waters of this stream. Decreed rights for approximations.

Eden Creek (Humboldt County)—1915; To abstract of proofs; adjudication initiated under provisions Sec. 86a, chapter 552, Statutes of 1911.

Edgewood Creek (Dougherty County)—Petition for Determination of Relative Rights April 29, 1920. Waiver of motion for trial.

Evans Creek and its Tributaries, Being Huffman, or Jake's Creek, and Wing Springs (Humboldt and Elko Counties)—1915; To abstract of proofs; adjudication initiated under provisions Sec. 86a, chapter 552, Statutes of 1915, Lands involved approximately 843.09 acres.

Franklin River (Elko County)—July 19, 1927; To investigation of Foods and Conditions; pending order granting petition.

Ganiss Creek (Douglas County)—December 14, 1923, civil suit.

Goose Creek (Elko County)—March 7, 1923; decree entered March 3, 1925. Land involved 890.97 acres.

Section 36A is added, which provides that after the decree is entered a claimant may at any time within three years from entry thereof apply to the court for a modification of said decree, insofar only as said decree fixed the duty of water.

Section 36B is added which provides that whenever there are ten or more claimants on a stream system the claimants can waive in writing the provisions of this Act with reference to notices and the service and publication thereof, and the State Engineer may make an Order of Determination without the giving, serving, or publication of any notice required in this Act, and may file the same with the District Court in the manner provided in section 34 of this Act.

The sections relating to fees collected by the State Engineer were amended. Under this Act the fees for filing an application to appropriate water were increased to $20, and for the issuance of permits were increased with a minimum of $10. The fee for filing proofs of appropriation was increased, with the minimum being $10.

This Act also provided that all maps and surveys and measurements of water required under the provisions of this Act shall be made by a State Water Right Surveyer. Provision for the appointment, fees and bonds are also set forth in this Act.

Chapter 126, Statutes of 1921, repeals an Act approved on March 19, 1901, relating to the payment of a bounty to encourage the boring of wells for searching for oil, natural gas, and artesian water in the State of Nevada.

1905

Chapter 85, Statutes of 1925, provided an amendment to the section of the general water law applying to publication of applications to appropriate water. In this Act the publishing fee to be paid by the applicant is fixed at $12.50. Under the 1913 Act the fee was $10.

Chapter 201, Statutes of 1925, related to the use of water for watering livestock, generally known as the 1925 Stock Watering Act. This Act provides in part that whenever one or more persons shall have a subsisting right to water range livestock at a particular place and in sufficient number to utilize substantially all that portion of the public range readily available to livestock watering, no further appropriation shall be made; that any person, without the right to do so, watering more than fifty head of livestock at the watering place of another who has a subsisting right to water more than fifty head of stock, or within three miles thereof, shall be guilty of a misdemeanor.

Chapter 121, Statutes of 1925, provided an Act to authorize the payment of costs and expenses of the Humboldt River adjudication; for the purpose of paying for stenographic work and transcripts, etc., in the Humboldt River litigation, the sum of six thousand dollars was appropriated.

Chapter 191, Statutes of 1927, amended section 35 relating to the filing of objections with the court to the State Engineer's Order of Determination and the hearing of same before the court. This Act also provides for the service of proposed findings of fact and decree, in the following manner: All claimants who have filed exceptions shall be served with a copy of the proposed findings of fact and decree by serving the attorney who appeared for them. All claimants who have not
the 1913 Act provides that the water commissioners appointed by the Governor shall execute the laws prescribed in sections 53 to 58, inclu-
sive, under the general direction of the State Engineer. That the
salaries of said commissioners shall be paid by the water users
in proportion to the acreage served as determined by the findings of
the State Engineer or the court. The commissioner prepar-
ing the plat of the land to be served and transmit same to the Board of
County Commissioners, follows the plan of the board transmitting
each property holder being served by the water commissioner a state-
ment showing the amount due; that if said amount is not paid within
30 days the amount so charged the property holder is a lien against the
property; that upon the receipt of a statement from the State Engineer
showing the land served by the commissioner and the number of days
he was employed, the board is to draw a warrant against the General
Fund of the county; that upon payment by said property owners the
amount collected is to be placed to the credit of the General Fund of
said county.
Under the 1915 amendment the Act is changed so that the water
commissioners shall execute the laws prescribed in sections 53 to 58,
inclusive, and provides a minimum charge of one dollar against each
water user assessed under this Act.
The 1915 amendment provided that the Board of County Commis-
sioners may establish a special fund for each water district within the
county which shall be known as "... Water District Special Fund," and all moneys collected from the water users in any such dis-

385  trict shall be placed in such fund. Upon receipt of a certified state-

386  ment from the State Engineer showing the number of days the water

387  commissioners were employed, payment for such service to be made

388  from the said special fund.

389

1921
Chapter 106, Statutes of 1921, provided several amendments and
new sections to the general water law. The sections relating to adjudi-
cations were amended so as to provide for contests being filed against
findings made by the State Engineer rather than against the claims of
the appropriators. In 1921 the Supreme Court ruled that sections
29, 31, and 32 of the 1913 Act and section 30, as amended by section 2,
chapter 235, of the 1915 Act, are constitutional. During this
Legislature the objectionable features and wording of these sections were
changed. The amendments were to the effect that following the filing of
the Proof of Appropriation and the preparation of an abstract of
the steps claimed the State Engineer shall prepare a Preliminary Order of Deter-
mination, copies of which are sent to all claimants, together with
notices fixing the time and place of inspection. Within certain specified
periods objections may be made to any finding, part or portion of the
Preliminary Order of Determination by filing such objections with
the State Engineer, and a time for hearing of objections before the
State Engineer is set. Following the hearing of objections to the
Preliminary Order of Determination the State Engineer prepares an
Order of Determination. A certified copy of which is filed with the
Cl ner of the District Court which has the legal effect of a complaint
in a civil action. Certified copies are also sent to all claimants who have
the right of filing with the Clerk of the Court their objections to said order.

41
Humboldt River (Elko, Elko, and Pershing Counties)—
1913: January 21, 1921; Opinion and Decision of the Court entered and filed August 25, 1921, Proposed Findings of Fact, Conclusions of Law and Decrease filed with the District Court at Winnemucca; December 14-17, 1921, Notice for new trial presented and argued March 18, 1922, and filed by the Court of Compensation. Arguments to the Supreme Court before Hon. H. W. Edwards, presiding District Judge at Winnemucca, December 7, 1922. Proposed Findings of Fact, Conclusions of Law and Decree by Hon. H. W. Edwards, Judge Presiding, filed with Clerk of Court December 15, 1924; Proposed Findings of Fact, Conclusions of Law and Decree by Hon. H. W. Edwards, Judge Presiding, filed with Clerk of Court December 15, 1924.

41
Humboldt River (Elko, Elko, and Pershing Counties)—
1913: January 21, 1921; Opinion and Decision of the Court entered and filed August 25, 1921, Proposed Findings of Fact, Conclusions of Law and Decrease filed with the District Court at Winnemucca; December 14-17, 1921, Notice for new trial presented and argued March 18, 1922, and filed by the Court of Compensation. Arguments to the Supreme Court before Hon. H. W. Edwards, presiding District Judge at Winnemucca, December 7, 1922. Proposed Findings of Fact, Conclusions of Law and Decree by Hon. H. W. Edwards, Judge Presiding, filed with Clerk of Court December 15, 1924; Proposed Findings of Fact, Conclusions of Law and Decree by Hon. H. W. Edwards, Judge Presiding, filed with Clerk of Court December 15, 1924.

41
Humboldt River (Elko, Elko, and Pershing Counties)—
1913: January 21, 1921; Opinion and Decision of the Court entered and filed August 25, 1921, Proposed Findings of Fact, Conclusions of Law and Decrease filed with the District Court at Winnemucca; December 14-17, 1921, Notice for new trial presented and argued March 18, 1922, and filed by the Court of Compensation. Arguments to the Supreme Court before Hon. H. W. Edwards, presiding District Judge at Winnemucca, December 7, 1922. Proposed Findings of Fact, Conclusions of Law and Decree by Hon. H. W. Edwards, Judge Presiding, filed with Clerk of Court December 15, 1924; Proposed Findings of Fact, Conclusions of Law and Decree by Hon. H. W. Edwards, Judge Presiding, filed with Clerk of Court December 15, 1924.

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reservoirs to beneficial use. The Attorney-General and District Attorney of the county in which legal questions arise were made the legal advisors of the State Engineer.

Section 84 of this Act is to the effect that nothing in said Act contained shall impair the vested right of any person to the use of the water, nor shall the right of any person to the use of water impaired or affected by any of the provisions of this Act where appropriations have been initiated in accordance with law prior to the approval of this Act.

Chapter 174, Statutes of 1913, provided an Act relating to the issuance of permits for the appropriation of water, where any part thereof to be constructed under such permits or the point of diversion or place of intended use, or any part thereof, are situated without the State of Nevada.

Chapter 181, Statutes of 1913, provided an Act for the investigation of the reservoirs of the State of Nevada in cooperation with the United States Geological Survey, and to make an appropriation for the expense of such investigations.

Chapter 210, Statutes of 1915, provided an Act to amend certain sections of the general water law (chapter 140, Statutes 1913) to repeal certain other sections and to add new sections. Apparently in order to give the administrative findings a judicial effect the 1915 Legislature enacted the numerous sections and amendments to the 1913 law.

The essential changes in the amending sections were: Upon neglect or refusal of any person to make proof of his claim or rights to the waters of a stream system, the State Engineer shall determine the right from such evidence as he may have and file same in court as provided in the 1915 Statutes. Under the 1913 Act anyone refusing to submit proof of his claim was guilty of a misdemeanor and subject to a fine. Following the hearing of contests on the State Engineer's abstract of proofs and the Order of Determination, and the transmittal to the various claimants a certified copy of the Order of Determination and all evidence is filed with the ex officio Clerk of the District Court, whereupon the Clerk of the Court furnishes the State Engineer with a copy of the order of the court setting a time for the hearing. Provisions were made for anyone aggrieved with the Order of Determination to file exceptions with the Clerk of the District Court. Following the hearing before the court, the court enters a decree affirming or modifying the Order of Determination.
and operation of the proposed project is feasible and practicable. This is a general idea of the existing requirements to initiate, promote and construct an irrigation project under said laws.

After the irrigation system is completed and water is ready for delivery, then the land is subject to entry in tracts not exceeding 160 acres by any bona fide applicant, who must establish residence thereon by actually occupying, reclaiming and utilizing same. The price of the land is usually a very small consideration per acre and is fixed by State authority, a small portion of which is paid to the State when making the entry, and the balance in partial payments or when final proof of settlement and reclamation is submitted. The entryman pur- chases his water right from the person or agency that constructed and completed the irrigation works, and when fully paid has a permanent right with a proportionate interest or ownership in the irrigation works and canal system and all of the rights and franchises thereof. The cost of the water right per acre usually depends on the amount of capital invested in constructing and completing the enterprise in relation to the amount of land to be reclaimed; however, such right is usually obtained by annual payments extended over a period of several years. When the irrigation works are completed and water is available for reclaiming a specific amount of land, then the United States, through the Secretary of the interior, will patent and grant to the State without any charge therefor, after which the authorized State officials convey title to the occupants when they comply with the regulations and requirements governing such entries have been complied with.

Chapter 54, Statutes of 1913, provided an Act to provide a law for the conservation of underground waters in the State of Nevada; providing for the capping and covering of underground waters; and providing a penalty for the violation of the provisions of such Act. This Act applied only to arid lands.

Chapter 140, Statutes of Nevada, approved on March 22, 1913, pro- vided a new water law, sections 1 to 87, and repealed the water law of February 26, 1907, there being no Act of 1909, together with all other Acts in conflict with the new law. The water law for the first time took cognizance of underground water, viz., "The waters of all of those sources of water supply within the boundaries of the State, whether above or beneath the surface of the ground, belong to the public." (Section 1, chapter 140.)

Under the Act of 1913 the water law was greatly broadened, both as to the adjudication procedure of vested rights and the appropriation of water procedure by application to the State Engineer. The major changes and additions to the 1907 Act in regard to the determin- ation of vested rights are briefly as follows:

Vested water users of any stream had the privilege of petitioning the State Engineer for a determination of relative rights of the various claimants to the waters thereof. Should the State Engineer grant the petition notice thereof had to be published for a period of four consenctive weeks in a newspaper of general circulation within the bound- aries of the stream system. Investigations were to be made by the State Engineer and maps caused to be prepared, and upon the filing
CHAPTER VI

Brief Summary of Laws Enacted by the Nevada Legislature Relating to Water and the Office of the State Engineer

1866

Chapter 100, Statutes of 1866, provided an Act to allow any person or persons to divert the waters of any river or stream, and run the same through any ditch or flume, and to provide for the right of way through lands of others.

1869

Chapter 77, Statutes of 1869, provided an amendment to the 1866 Act to allow any person or persons to divert the waters of any river or streams, etc.

1870

Chapter 83, Statutes of 1870, provided an Act to encourage the sinking of artesian wells, under which Act any persons thereafter sinking an artesian well or wells within the State shall be entitled, for sinking said artesian well or wells, to have the bounty sunk, to the amount of $2 per foot, provided that said well or wells shall flow water to be used beneficially. The bounty of $2 per foot after the first 500 feet was to be paid from the General Fund of the county in which said well was located.

1877

Chapter 127, Statutes of 1877, also provided an Act to encourage the sinking of artesian wells and repealing all Acts or parts of Acts in conflict with any of the provisions of this Act. This Act provided that anyone after the passage of this Act commencing the sinking of artesian wells shall be entitled for sinking said artesian well or wells where flowing water is obtained, to the sum of $1.25 per foot, provided that no bounty shall be paid on any well which does not furnish 7,000 gallons of water every 34 hours flowing continuously for 30 days; and provided that bounties shall not be paid on more than three wells in each county; and provided further, that no two wells shall receive a bounty if located within 10 miles of each other. The bounty money was to be paid by the State of Nevada, and the sum of $10,000 was appropriated for this purpose.

1889

Chapter 41, Statutes of 1889, provided an Act defining and prohibiting the unlawful diversion and waste of water, during the irrigation season, from any river, creek, or ditch, and making penalties, etc.

Chapter 78, Statutes of 1889, provided an Act to prevent the owners, supervisors, or managers of ditches, flumes, or artificial water courses, to allow the water from same to run into or upon any public road, highway, street, or alley in the State.

Chapter 204, Statutes of 1889, provided an Act to amend an Act entitled "An Act to allow any person or persons to divert the waters of any river or stream, and run the same through any ditch or flume, and to provide for the right of way through the lands of others," approved March 3, 1866. This Act was to the effect that any person constructing or maintaining a ditch or flume under the provisions of this Act the State Engineer that the applicant had applied for a permit to appropriate water. The State Engineer then examined the land to determine the feasibility of the project and reported to the State Land Register. Following a favorable report the State Land Register entered into an agreement with the Secretary of the Interior to withdraw the land and also an agreement with the applicant. Any citizen may then make application to the State Land Register to enter any of said lands in any amount not exceeding 160 acres for any one person. Such application must contain, among other things, a certified copy of a contract for a perpetual water supply from the party who was authorized by the State to furnish water to the settlers for reclamation. When any of the said lands were irrigated, reclaimed and occupied as provided in the Acts of Congress, the settler made proof of compliance. The Government then issued a patent to the State, which in turn issued a patent to the settler.

1911

Chapter 74, Statutes of 1911, provided an Act creating the Bureau of Industry, Agriculture and Irrigation, consisting of five members, four of whom shall be ex officio members, namely, the Governor, the Attorney General, the Surveyor General, the Chairman of the State Board of Agriculture, and the State Engineer. The main purposes of this commission were to make a study of industrial, agricultural, irrigation and reclamation problems; to carry on explorations and experiments to determine the feasibility of reclaiming favorable portions of the State by utilizing the subsurface waters, and to have control of the selection, management and disposal of all lands granted to the State under the provisions of the Act of Congress approved in 1894 and known as the Carey Act.

Chapter 76, Statutes of 1911, provided an Act in relation to the Act of Congress known as the Act of 1909 (chapter 194) for the purpose of securing private capital to carry out the provisions thereof. This Act repealed the Act of 1909 (chapter 194). The primary purpose of this Act was to aid the State in carrying out the provisions of the Act of 1909 in securing private capital to construct irrigation works and hereby aid in the development and reclamation of its arid lands. Briefly, the essential provisions of this Act are as follows:

Any person, association, company, or other agency that desires to operate under said laws must supply the required funds for constructing, under State supervision, such irrigation works as are necessary to store or develop and deliver water in sufficient quantity to irrigate such arid land as can be reclaimed under the project. An application must contain at least 1,296 acres of unappropriated public land, and the applicant is required to prepare a map showing the location and lay of the area to be reclaimed, the plan of the irrigation system, and the source of water supply, together with such other full and complete data as is necessary to show that the proposed scheme when fully developed will be sufficient to thoroughly irrigate and reclaim the land within the meaning of the law. It is very important that full and complete information be submitted to show that the water supply will be adequate for the purpose desired, and, also, the application must contain all necessary data and estimates to prove that the construction
and the filing of sworn statements within set periods setting forth the facts necessary to determine the nature and extent of the appropriation gained thereunder.

1907
Chapter 31, Statutes of 1907, contains "An Act to provide for the appropriation, distribution and use of water, and to define and preserve existing water rights, to provide for the appointment of a State Engineer, an Assistant State Engineer, and furnish them compensation, duties etc." This Act, which was approved on February 26, 1907, repealed chapter 4, State Engineer Act, of 1897. This Act repealed the Act of 1897, together with all other Acts and parts of Acts in conflict therewith. The law as enacted under this Act did not differ in any essential particular from the Act of 1897; but contained additional provisions regarding applications to appropriate water. The principal additions were a method to change the point of diversion and place of use of water already appropriated; providing a method for aggrieved parties to appeal to district court of the State Engineer, and providing a fine for anyone found guilty of a misdemeanor. The method of adjudicating vested rights remained the same as set out in the 1903 laws, briefly being as follows: Claimants vested rights filed proofs of such claims on forms furnished by the State Engineer's office. Following the filing of such claims the State Engineer made an investigation of the stream system and prepared a list of priorities, following which certificates were issued to each appropriator. Any party aggrieved by the determination of the State Engineer had the privilege of bringing action in any court of proper jurisdiction.

1909
Chapter 31, Statutes of 1909, approved on February 20, 1909, provides an Act amendatory to the Act of 1907. The main amendatory provisions provided for the maximum quantity of water which may thereafter be appropriated; for the examination of an application to appropriate water if the application is not corrected and refiled within 60 days after being returned toapplicant, and for the filing of proofs of commencement of work. New sections added provided for fees to be charged for filing applications, proofs, advertising papers, etc., and for review of any application for water. Chapter 81, Statutes of 1909, approved March 10, 1909, required the State Engineer to issue certificates of titles to any person using water in this State under the certificate or permit issued by the State Engineer must install and maintain at or near the point of diversion or use a substantial headgate and measuring weir. The water commissioner, acting under the instructions of the State Engineer, was given the right to enter in or over private property for the purpose of installing headgates.
Chapter 164, Statutes of 1909, contained an Act to provide for the reservation and occupancy of lands subject to acceptance by the State of Nevada under the provisions of the Acts of Congress approved on August 18, 1894, June 11, 1896, and March 3, 1901, known as the Carey Act, and to repeal all laws in conflict therewith. Under this Act anyone desiring to construct ditches, canals or artificial wells to reclaim land had to file with the State Land Register a list of the lands desired, together with proposed irrigation works and a certificate from shall have the undisturbed right of flowing water through the same, provided that nothing in this Act contained shall be so construed as to interfere with any prior or existing claim or right.

Chapter 112, Statutes of 1889, contained an Act to provide for the storage of water, to encourage milling, mining and industrial improvements and to reclaim the arid desert lands and develop the agricultural resources of the State of Nevada, and to provide funds for the payment of same. The State of Nevada had heretofore received from the Government a grant of 2,000,000 acres of land not confined in any particular location, and in order to make this land of some value the above Act was passed. Under this Act a board of reclamation commission was created, consisting of four members. The duties of the board were to procure statutes in regard to all public lands and waters subject to reclamation; to divide the State into districts, and to let bids for the construction of canals, dams, etc. For the purposes of carrying out construction work the sum of $100,000 was appropriated from the State School Fund and replaced by bonds. For the payment of the interest and redemption of these bonds an ad valorem tax of two cents on each $100 of all taxable property in the State was fixed.

Chapter 113, Statutes of 1889, provided an Act to regulate the use of water for irrigation and for other purposes, for settling the priority of rights thereto, and to prevent the unlawful interference with such rights; to provide for the condemnation of land for reservoirs; for recording claims to water rights, and the appointment and duties of water commissioners. Under this Act the State was divided into seven districts with one water commissioner for each district. The district court in each district was vested with the jurisdiction of hearing, adjudicating and settling all questions concerning priorities, etc. The Act provided that all persons claiming any interest in any ditch, canal or reservoir shall on or before September 1, 1889, file a statement with the Secretary of State. The Act further provided a procedure for the determination of the priorities by the district court, for the issuance of certificates of appropriation by the County Clerk; for an appeal from the decree rendered by the District Court, and for the repeal of all Acts inconsistent with this Act.

1889
Chapter 97, Statutes of 1889, provided an Act to define and preserve existing water rights, provide for the storage of storage waters, and regulate the mode of using and acquiring the use of water in the future. It provided that all natural water courses and natural lakes, and the waters thereof which are not held in private ownership, belong to the State, and are subject to regulation and control by the State; that all existing rights, whether acquired by appropriation or otherwise, shall be respected and preserved; that there is no absolute property
in the waters of a natural water course or natural lake and that only a
nuisnaceous right can be acquired; that when the necessity for the
use of water does not exist the right to divert it ceases; that change of
point of diversion and place of use may be made provided that such
change does not substantially injure others; that prior rights to the
use of unappropriated waters may be acquired in the manner provided
for in this Act; that a cubic foot of water per second of time shall be
the standard of measurement; that a board of water commissioners
in each county is hereby created consisting of the Board of County
Commissioners and County Surveyor; that anyone desiring to appro-
priate water shall forward to the county surveyor an application in a
duplicate for permission to make such appropriation; that the appli-
cation shall set forth the source, the amount of water desired, the proposed construction, work, and if for
irrigation, a description by legal subdivisions; that permission to appro-
priate water be granted only if there is a surplus of water remain-
ing in the source over and above that then existing vested and accrued
rights; that if an applicant making such applic-
ation has the right to appeal therefrom in the District Court; that
after an application has been perfected a certificate can be issued to the
applicant and must be recorded in the office of the County
Recorder; that anyone desiring to construct a dam more than ten feet
in height shall submit plans to the board of water commissioners for
their approval; that anyone violating any of the provisions of this
Act shall be deemed guilty of a misdemeanor in the discretion of the
County Commissioners, severally, whether such county shall
avail itself of the provisions of this Act, as to forming a board of water
commissioners.

Chapter 59, Statutes of 1901, provided an Act to provide for the
measurement of streams, the survey of reservoir sites, the determina-
tion of the irrigation possibilities, and of the best methods of controll-
ing and utilizing the water resources of the State in cooperation with
the United States Geological Survey, the United States Department of
Agriculture, and the Nevada Experiment Station. For the above pur-
pose a sum of $4,000 was appropriated. A State Board of Irrigation
was created, consisting of the Governor, the Secretary of State, and the
Attorney-General to direct the expenditure of the money appropriated.

Chapter 4, Statutes of 1905, provided an Act for the construc-
tion of reservoirs and the measurement of water resources and
water supply for the irrigation of arid lands in the State of Nevada.
It provided for the enrolling upon the Secretary of the Interior of the
United States in the construction and administration of irrigation
works for the reclamation of arid lands, commonly known as the
Reclamation Act. It provided that "all natural water courses and
natural lakes, and the waters thereof which are not held in private
ownership, belong to the public, and are subject to appropriation for
a beneficial use, and the right to the use of water so appropriated for
irrigation shall be appurtenant to the land irrigated, and beneficial
use shall be the basis, the measure, and the limit of the right; the use
of all water now appropriated, or that may hereafter be appropriated,
is hereby declared to be a public use." (Section 1, chapter 4, Statutes
of 1905.)

The office of State Engineer was created, vesting in him the author-
ity to collect and prepare for each stream in the State a list of the appro-
priations of water according to priority thereon, based on a
hydrographic survey of such streams, a cultural survey of the lands
irrigated therefrom, and upon the sworn statement of each appro-
priator of the facts upon which he based his claim to the use of such
water and his priority. Following the preparation of such a list, it
became the duty of the State Engineer to issue to each person repre-
sented in such list a certificate over his signature, setting forth the
name and post-office address of the appropriator, the priority number
of such appropriation, the amount of water appropriated and the
amount of prior appropriation, and in cases where the water was used
for irrigation, a description of the land to which the water was appurte-
nant. Proper provision was made for appeal to any court of competent
jurisdiction from the determination of the State Engineer by any
party or number of parties acting jointly, who might have felt
themselves aggrieved by his action, making all other parties having interest
adverse to the party or parties bringing the action defendants therein. The Act also provided that "the State Engineer shall be a
member of the State Board of Irrigation and shall act as secretary.
This Act was the first step made by the State in providing a speedy
and inexpensive method of adjudicating water rights.

Chapter 46, Statutes of 1905: The Act of 1903, while providing for
adjudication of all rights to the use of water which had become vested
or were then in process of initiation by the physical act of appropri-
a tion, did not provide for rights thereafter to be initiated. There-
fore an Act amending said supplemental act was approved on
March 1, 1905 (chapter 46, Statutes 1905) requiring any person,
association or corporation thereafter desiring to appropriate any of
the public waters of the State, or to change the place of use of water
already appropriated, to file an application for permission to make
such appropriation or change with the State Engineer, and making it
the duty of the State Engineer to examine into the facts regarding
water supply in the source applied for and to approve or deny the
application in accordance with his findings as to the existence or non-
existence of unappropriated water in such source. This amending
Act provided for the publication of a notice of each application in
some newspaper of general circulation within the boundaries of the
water system, or water source from which the appropriation was to be
made; for the filing of protests against the granting of such appli-
cation; the hearing of pertinent testimony in connection therewith;
the filing of maps by applicants whose applications had been approved,
in the waters of a natural water course or natural lake and that only a usufructuary right can be acquired; that when the necessity for the use of water does not exist the right to divert it ceases; that change of point of diversion and place of use may be made provided that such change does not substantially injure others; that prior rights to the use of unappropriated waters shall be acquired in the manner provided for in this Act; that a cubic foot of water per second of time shall be the standard of measurement; that a board of water commissioners in each county is hereby created consisting of the Board of County Commissioners and County Surveyor; that anyone desiring to appropriate water shall forward to a board of water commissioners an application in duplicate for permission to make such appropriation; that the application shall set forth the name of the source, the amount of water desired, the proposed construction work, and if for irrigation, a description by legal subdivisions; that permission to appropriate water be granted if there is a surplus of water remaining in the source over and above the amount needed for irrigation; that if an applicant making such application has the right to appeal therefrom in the District Court; that after an application has been perfected a certificate can be issued to the applicant and must be recorded in the office of the County Recorder; that anyone desiring to construct a dam more than ten feet in height shall submit plans to the board of water commissioners for their approval; that anyone violating any of the provisions of this Act shall be deemed guilty of a misdemeanor by the County Commissioners, severally, whether such county shall avail itself of the provisions of this Act, as to forming a board of water commissioners.  

Chapter 59, Statutes of 1903, provided an Act to provide for the measurement of streams, the survey of reservoir sites, the determination of the irrigation possibilities, and of the best methods of controlling and utilizing the waters of the State in cooperation with the United States Geological Survey, the United States Department of Agriculture, and the Nevada Experimental Station. For the above purposes, a sum of $4,000 was appropriated. A State Board of Irrigation was created, consisting of the Superintendent of State, and the Attorney-General to direct the expenditure of the money appropriated.  

Chapter 4, Statutes of 1903, provided an Act for the protection of crops and the Secretary of the Interior of the United States in the construction and administration of irrigation works for the reclamation of arid lands in the State of Nevada. It provided for the confering upon the Secretary of the Interior such rights and powers under the laws of Nevada as were necessary to enable him to carry out and execute an Act of the Congress of the United States, approved on June 17, 1892, entitled "An Act appropriating the receipts from the sale and disposal of public lands in certain States and Territories to the construction of irrigation works for the reclamation of arid lands," commonly known as the Reclamation Act. It provided that "all natural water courses and natural lakes, and the waters thereof which are not held in private ownership, belong to the public, and are subject to appropriation for a beneficial use, and the right to the use of water so appropriated for irrigation shall be appurtenant to the land irrigated, and beneficial use shall be the basis, the measure, and the limit of the right; the use of all water now appropriated, or that may hereafter be appropriated, is hereby declared to be a public use." (Section 1, chapter 4, Statutes of 1903.)  

The office of State Engineer was created, vesting in him the authority to collect and prepare for each stream in the State a list of the appropriations of water according to priority thereon, based on a hydrographic survey of such streams, a cultural survey of the lands irrigated therefrom, and upon the sworn statement of each appropriator of the facts upon which he based his claim to the use of such water and his priority. Following the preparation of such a list, it became the duty of the State Engineer to issue to each person represented in such list a certificate over his signature, setting forth the name and post-office address of the appropriator, the priority number of such appropriation, the amount of water appropriated and the amount of prior appropriation, and in cases where the water was used for irrigation, a description of the land to which the water was appurtenant. Proper provision was made for appeal to any court of competent jurisdiction from the determination of the State Engineer by any party or number of parties acting jointly, who might have felt themselves aggrieved by his action, making all other parties having interest adverse to the party or parties bringing the action codfellows therein. The Act also provided that "the State Engineer shall be a member of the State Board of Irrigation and shall act as secretary." This Act was the first step made by the State in providing a speedy and inexpensive method of adjudicating water rights.  

Chapter 46, Statutes of 1905. The Act of 1903, while providing for adjudication of all rights to the use of water which had become vested or were then in process of initiation by the physical act of appropriation, did not provide for rights thereafter to be initiated. Therefore an Act amendatory of and supplemental thereto was approved on March 1, 1906 (chapter 46, Statutes 1905) requiring any person, association or corporation thereafter desiring to appropriate any of the public waters of the State, or to change the place of use of water already appropriated, to file an application for permission to make such appropriation or change with the State Engineer, and making it the duty of the State Engineer to examine into the facts regarding water supply in the source applied for and to approve or deny the application in accordance with his findings as to the existence or nonexistence of unappropriated water in such source. This amendatory Act provided for the publication of a notice of such application in some newspaper of general circulation within the boundaries of the water system, or water source from which the appropriation was to be made; for the filing of protests against the granting of such application; the hearing of pertinent testimony in connection therewith; the filing of maps by applicants whose applications had been approved,
and the filing of sworn statements within set periods setting forth the facts necessary to determine the nature and extent of the appropriation gained thereunder.

1897
Chapter 31, Statutes of 1907, contains "An Act to provide for the appropriation, distribution and use of water, and to define and preserve existing water rights, to provide for the appointment of a State Engineer, an Assistant State Engineer, and other officers, and to provide for the better use and control of the water resources of this State, and for the protection of the same; and for the issuance of certificates of appropriation by the County Clerk; for an appeal from the decision rendered by the District Court, and for the repeal of all Acts inconsistent with this Act.

1899
Chapter 112, Statutes of 1889, contained an Act to provide for the storage of water, in irrigation, mining and industrial improvements and to reclaim the arid desert lands and develop the agricultural resources of the State of Nevada, and to provide funds for the payment of same. The State of Nevada had heretofore received from the United States Government a grant of 2,000,000 acres of land not confined in any particular location, and in order to make this land of some value the above Act was passed. Under this Act a board of reclamation commissioners was created, consisting of four members. The duties of the board were to procure stations in regard to all public lands and waters subject to reclamation; to divide the State into districts, and to let bids for the construction of canals, dams, etc. For the purpose of carrying out construction work the sum of $100,000 was appropriated from the State School Fund and replaced by bonds. For the payment of the interest and redemption of these bonds an ad valorem tax of two cents on each $100 of all taxable property in the State was fixed.

Chapter 31, Statutes of 1889, provided an Act to regulate the use of water for irrigation and for other purposes; for settling the priority of rights thereto, and to prevent the unlawful interference with such rights; to provide for the condemnation of land for reservoirs; for recording claims to water rights, and the appointment and duties of water commissioners. Under this Act the State was divided into seven districts with one water commissioner for each district. The district court in each district was vested with the jurisdiction of hearing, adjudicating and settling all questions concerning priorities, etc. The Act provided that all persons claiming any interest in any ditch, canal or reservoir shall on or before September 1, 1889, file a statement with the County Recorder, and thereafter any person building any ditches, etc., for the purpose of appropriating water shall first file a statement with the County Recorder showing source, point of diversion of water, etc. Section 13 of said Act was to the effect that the waters of every natural stream not herebefore appropriated within the State are hereby declared to be the property of the public, subject to appropriation as herein provided. The Act further provided a procedure for the determination of the priorities by the district court, and for the issuance of certificates of appropriation by the County Clerk; for an appeal from the decision rendered by the District Court, and for the repeal of all Acts inconsistent with this Act.

Chapter 97, Statutes of 1899, provided an Act to define and preserve existing water rights, provide for the storage of surplus waters, and regulate the mode of using and acquiring the use of water in the future. It provided that all natural water courses and natural lakes, and the waters thereof which are not held in private ownership, belong to the State, and are subject to regulation and control by the State; that all existing rights, whether acquired by appropriation or otherwise, shall be respected and preserved; that there is no absolute property

shall have the undisturbed right of flowing water through the same, provided that nothing in this Act contained shall be so construed as to interfere with any prior or existing claim or right.
CHAPTER VI
Brief Summary of Laws Enacted by the Nevada Legislature Relating to Water and the Office of the State Engineer

1866
Chapter 100, Statutes of 1866, provided an Act to allow any person or persons to divert the waters of any river or stream, and run the same through any ditch or flume, to provide for the right of way through lands of others.

1869
Chapter 77, Statutes of 1869, provided an amendment to the 1866 Act to allow any person or persons to divert the waters of any river or stream, etc.

1879
Chapter 82, Statutes of 1879, provided an Act to encourage the sinking of artesian wells, under which Act any person thereafter sinking an artesian well or wells within the State shall be entitled, for sinking said artesian well or wells, to have the bounty sunk, to the sum of $2 per foot, provided that said well or wells shall flow water to be used beneficially. The bounty of $2 per foot after the first 500 feet was to be paid from the General Fund of the county in which said well was located.

1887
Chapter 127, Statutes of 1887, also provided an Act to encourage the sinking of artesian wells and repealing all Acts or parts of Acts in conflict with any of the provisions of this Act. This Act provided that anyone after the passage of this Act commencing the sinking of artesian wells shall be entitled to a bounty for said artesian well or wells, where flowing water is obtained, to the sum of $1.25 per foot, provided that no bounty shall be paid on any well which does not furnish 7,000 gallons of water every 34 hours flowing continuously for 30 days; and provided that bounties shall not be paid on more than three wells in each county; and provided further, that no two wells shall receive a bounty if located within 10 miles of each other. The bounty money was to be paid by the State of Nevada, and the sum of $90,000 was appropriated for this purpose.

1889
Chapter 48, Statutes of 1889, provided an Act defining and prohibiting the unlawful diversion and waste of water, during the irrigation season, from any river, creek, brook or any public road, highway, street or alley in the State.

1891
Chapter 78, Statutes of 1889, provided an Act to prevent the owners, supervisors, or master ditches, fluxes, or artificial water courses, to allow the water from same to run into or upon any public road, highway, street or alley in the State.

1894
Chapter 104, Statutes of 1894, provided an Act to amend an Act entitled "An Act to allow any person or persons to divert the waters of any river or stream and run the same through any ditch or flume, and to provide for the right of way through the lands of others." approved March 3, 1866. This Act was to the effect that any person constructing or maintaining a ditch or flume under the provisions of this Act the State Engineer that the applicant had applied for a permit to appropriate water. The State Engineer then examined the land to determine the feasibility of the project and reported to the State Land Register. Following a favorable report the State Land Register entered into an agreement with the Secretary of the Interior to withdraw the land and also an agreement with the applicant. Any citizen may then make application to the State Land Register to enter any of said lands in any amount not exceeding 160 acres for any one person. Such application must contain, among other things, a certified copy of a contract for a perpetual water supply from the party who was authorized by the State to furnish water to the settler for reclamation. When any of the said lands were irrigated, reclaimed and occupied as provided in the Acts of Congress, the settler made proof of compliance. The Government then issued a patent to the State, which in turn issued a patent to the settler. 1891
Chapter 74, Statutes of 1911, provided an Act creating the Bureau of Industry, Agriculture and Irrigation, consisting of five members, four of whom shall be ex officio members, namely, the Governor, the Surveyor General, the Attorney-General and the State Engineer. The main purposes of this commission were to make a study of industrial, agricultural, irrigation and reclamation problems; to carry on explorations and experiments to determine the feasibility of reclaiming favorable portions of the State by utilizing the subsurface waters, and to have control of the selection, management and disposal of all lands granted to the State under the provisions of the Act of Congress approved in 1894 and known as the Carey Act.

Chapter 76, Statutes of 1911, provided an Act in relation to the Act of Congress known as the Carey Act, or in relation to the State of Industry, Agriculture and Irrigation in the control of the selection, management and disposal of all lands granted to the State under the provisions thereof. This Act repealed the Act of 1909 (chapter 164). The primary purpose of this Act was to aid the State in securing private capital to construct irrigation works and hence aid in the development and reclamation of its arid lands. Briefly, the essential provisions of this Act are as follows:

Any person, association, company or other agency that desires to operate under said laws must supply the required funds for construction, under State supervision, such irrigation works as are necessary to store or develop and deliver water in sufficient quantity to irrigate such arid land as can be reclaimed under the project. An application must contain at least 1,280 acres of unappropriated public land, and the applicant is required to prepare a map showing the location and lay of the area to be reclaimed, the plan of the irrigation system, and the source of water supply, together with such other full and complete data as is necessary to show that the proposed scheme when fully developed will be sufficient to thoroughly irrigate and reclaim the land within the meaning of the law. It is very important that full and complete information be submitted to show that the water supply will be adequate for the purpose desired, and, also, the application must contain all necessary data and estimates to prove that the construction
and operation of the proposed project is feasible and practicable. This is a general idea of the existing requirements to initiate, promote and construct an irrigation project under said laws.

After the irrigation system is completed and water is ready for delivery, then the land is subject to entry in tracts not exceeding 160 acres by any bona fide applicant who must establish residence thereon by actually occupying, reclaiming and utilizing same. The price of the land is usually a very small consideration per acre and is fixed by State authority, a small portion of which is paid to the State when making the entry, and the balance in partial payments or when final proof of settlement and improvement is submitted. The entryman pur-

Chapter 54, Statutes of 1913, provided an Act to provide a law for the conservation of underground waters in the State of Nevada; providing for the caging and pumping of wells; and providing a penalty for the violation of the provisions of such Act. This Act applies only to arid counties.

Chapter 140, Statutes of Nevada, approved on March 22, 1913, pro-
vided a new water law, sections 1 to 87, and repealed the water law of February 26, 1907, filed on February 29, 1907, together with all other Acts in conflict with the new law. The water law for the first time takes cognizance of underground water, viz., “The waters of all sources of water supply within the boundaries of the State, whether above or beneath the surface of the ground, belong to the public.” (Section 1, chapter 140.)

Under the Act of 1913 the water law was greatly broadened, both as to the adjudication procedure of vested rights and the appropriation of water procedure by application to the State Engineer. The major changes and additions to the 1907 Act in regard to the determin-

Vested water users of any stream had the privilege of petitioning the State Engineer for a determination of relative rights of the various claimants to the waters thereof. Should the State Engineer grant the petition notice thereof had to be published for a period of four successive weeks in a newspaper of general circulation within the bound-

Investigations were to be made by the State Engineer and maps caused to be prepared, and upon the filing of
reservoirs to beneficial use. The Attorney-General and District Attorney of the county in which legal questions arise were made the legal advisors of the State Engineer.

Section 84 of this Act is to the effect that nothing in said Act contained shall impair the vested right of any person to the use of the water, nor shall the right of any person to the use of water impaired or affected by any of the provisions of this Act where appropriations have been made in accordance with law prior to the approval of this Act.

Chapter 174, Statutes of 1913, provided an Act relating to the issuance of permits for the appropriation of water for any part thereof to be constructed under such permits or the point of diversion or place of intended use, or any part thereof, are situated without the State of Nevada.

Chapter 161, Statutes of 1913, provided an Act providing for the investigation of the reservoirs of the State of Nevada in cooperation with the United States Geological Survey, and to make an appropriation for the expense of such investigations. 1913

Chapter 210, Statutes of 1913, provided an Act to amend certain sections of the general water law (chapter 140, Statutes 1913) to repeal certain other sections and to add new sections. Apparently in order to give the administrative findings a judicial effect the 1915 Legislative Session passed several numerous changes and amendments to the 1913 law.

The essential changes in the amendatory sections were: Upon neglect or refusal of any person to make proof of his claim or rights to the waters of a stream system, the State Engineer shall determine the right from such evidence as he may have and file the same in court as provided in the 1915 Statutes. Under the 1913 Act anyone refusing to submit proof of his claim was guilty of a misdemeanor and subject to a fine. Following the hearing of contentions on the State Engineer's abstract of proofs and the submission of the Order of Determination and the transmittal to the various claimants a certified copy of the Order of Determination and all evidence is filed with the ex officio Clerk of the District Court, whereupon the Clerk of the Court furnishes the State Engineer with a copy of the order of the court setting a time for the hearing. Provisions were made for anyone aggrieved with the Order of Determination to file exceptions with the Clerk of the District Court. Following the hearing before the court, the court enters a decree affirming or modifying the Order of Determination. It
is noted that under the 1913 Act if no exceptions were taken to the Order of Determination the matter never went into court and the State Engineer issued certificates of appropriation based on said order. In case anyone made exception to the Order of Determination the court could modify said order as applying to the exceptor’s claims. Certain provisions were added relating to appeals from the Order of Determination were repealed. The section referring to fees was amended as was the section giving anyone dissatisfied with any order of the State Engineer the proper review before the court.

New sections added provided that all maps and other evidence relating to any Propriety of Appropriation on file in the office of the State Engineer shall be admissible in court upon certain provisions, the hearing of the Order of Determination; provisions were also made under a new section providing that when the State Engineer had already issued findings declaring the relative rights of appropriators in and to the waters of any stream system, the same may be submitted to the court under the provisions of sections 34 to 39, inclusive.

1913 Chapter 190. Statutes of 1917, provided only an amendment to section 3 of the 1913 general water laws statutes. This section mainly concerns the regulations as to use and appropriation of water. The amended section provides that should the owner of any ditch, canal or reservoir fail to use the water therefrom for beneficial purposes for which water rights exist during any five successive years, the right to use same shall be considered as having been abandoned, and he shall forfeit all water rights, easements and privileges appurtenant thereto and the water formerly appropriated by said owner may again be appropriated for beneficial use, the same as if such ditch, canal or reservoir had never been constructed. Under the 1913 Act the limit for nonuse was four years.

1919 Chapter 39. Statutes of 1919, provided an amendment to section 59 of the 1913 Water Law Act. In the 1913 Act it provided “that any person desiring to appropriate ** * * * *”. The amended section reads: “Any corporation authorized to do business in the State, or any citizen of the United States, or any person who has legally declared his intention to become such, over the age of 21 years, desiring to appropriate ** * * * * provided, that any person under the age of 21 years who has served or shall hereafter serve in the Army of the United States, during the present emergency, shall be entitled to the same rights as owners over 21 years of age possess ** * * * * provided further, that no assignment of any water permit or application shall be valid for any purpose unless made to one authorized hereunder to acquire the same in the first instance.”

Chapter 209. Statutes of 1919, provided an amendment to section 52 of the 1915 Act relating to the appointment of water commissioners by the Governor and the method of assessment among the water users to pay the salaries of said water commissioners. Briefly, section 52 of
Section 36A is added, which provides that after the decree is entered a claimant may at any time within three years from entry thereof apply to the court for a modification of said decree, insofar only as said decree fixed the duty of water.

Section 36B is added which provides that whenever there are ten or less claimants on a stream system the claimants can waive in writing the provisions of this Act with reference to notices and the service and publication thereof, and the State Engineer may make an Order of Determination without the giving, serving, or publication of any notice required in this Act, and may file the same with the District Court in the manner provided in section 34 of this Act.

The sections relating to fees collected by the State Engineer were amended. Under this Act the fees for filing an application to appropriate water were increased to $20, and for the issuance of permits were increased with a minimum of $10. The fee for filing proofs of appropriation was increased, with the minimum being $10.

This Act also provided that all maps and surveys and measurements of water required under the provisions of this Act shall be made by a State Water Right Surveyor. Provision for the appointment, fees and bond are also set forth in this Act.

Chapter 128, Statutes of 1921, repeals an Act approved on March 19, 1911, relating to the payment of a bounty to encourage the boring of wells for searching for oil, natural gas, and artesian water in the State of Nevada.

1925

Chapter 85, Statutes of 1925, provided an amendment to the section of the general water law applying to publication of applications to appropriate water. In this Act the publishing fee is paid by the applicant is fixed at $12.50. Under the 1913 Act the fee was $10.

Chapter 201, Statutes of 1925, provides an Act relating to the use of water for watering livestock, generally known as the 1925 Stock Watering Act. This Act provides in part that whenever one or more persons shall have a subsisting right to water range livestock at a particular place and in sufficient number to utilize substantially all that portion of the public range readily available to livestock watering, no further appropriation shall be made that any person, without the right to do so, watering more than fifty head of livestock at the watering place of another who has a subsisting right to water more than fifty head of stock, or within three miles thereof, shall be guilty of a misdemeanor.

Chapter 131, Statutes of 1925, provided an Act to authorize the payment of costs and expenses of the Humboldt River adjudication; for the purpose of paying for stenographic work and transcripts, etc., in the Humboldt River litigation, the sum of six thousand dollars was appropriated.

Chapter 191, Statutes of 1927, amended section 35 relating to the filing of objections with the court to the State Engineer's Order of Determination and the hearing of same before the court. This Act provides for the service of proposed findings of fact and decree, in the following manner: All claimants who have filed exceptions shall be served with a copy of the proposed findings of fact and decree by serving the attorney who appeared for them. All claimants who have not
objected shall be served with a copy of the proposed findings of fact and decree and serve by the Attorney-General of the State. The section provides also that the cost bill shall be prepared and filed only with the Clerk of the Court.

Chapter 121, Statutes of 1921, provided a new section to the general water law. This section, being 364, is to the effect that following the filing of the Order of Determination in the District Court the distribution of water by the State Engineer shall at all times be under the supervision and control of the District Court, and said officers and each of them shall, at all times, be deemed to be officers of the court in distributing water under and pursuant to the Order of Determination for the person or under and pursuant to the decree of the court.

Chapter 136, Statutes of 1921, provided for the creation of an "Adjudication Emergency Fund" for the purpose of advancing and paying for transcripts, witness fees, etc., incurred by or upon the authority of the Attorney-General and the State Engineer in any litigation affecting any Order of Determination adjudicating the waters of any stream system. For this purpose all of the money returned from the Act to authorize the payment of costs in the Humboldt River adjudication (chapter 181, Statutes 1921) until such returns shall aggregate the total sum of $6,000 is to go into the fund and thereafter to be maintained as a revolving fund.

Chapter 107, Statutes of 1929, provided an Act authorizing the establishment of a revolving fund for the State Engineer. Under this Act the State Engineer was authorized to establish out of the fees received from applications for permission to appropriate water and from proceeds of appropriation a revolving fund in an amount of $10,000. The money in this fund is to be used for the payment of emergency bills and expenses.

Chapter 128, Statutes of 1929, provided an Act creating a State Range Commission, the members of said commission to consist of the Governor, the State Engineer, and the third member to be a member of the Nevada Tax Commission.

Chapter 176, Statutes of 1929, provided an amendment to section 54 of the 1913 Water Law Act in the distribution of the waters of an adjudicated stream system by the State Engineer, also as to the regulation of the distribution of water among the various users under any ditch or reservoir.

Chapter 90, Statutes of 1931, provides an amendment to section 34 of the General Water Law. This amendment is to the effect that if the judge having jurisdiction over the proceedings in relation to the determination of the relative rights of a stream-system retire from office, then the Judge of the District Court having jurisdiction of the proceedings shall act as the Judge shall select the Judge to preside in such matter.

Chapter 122, Statutes of 1931, provides an amendment to section 72 of the general water law relating to the issuance of certificates under permits to appropriate water. The section is intended to the effect that no final certificate of appropriation or certificate granting a change in the place of diversion, manner of use or place of use of water already filed with the Clerk of the Fifth Judicial District Court of the State of Nevada, and for the county of Nye.

August 4, 1957—Court entered an order setting September 17, 1957, as the date for hearing exceptions. This hearing was postponed and set over from time to time, the last order setting the time for November 4, 1957.

November 4, 1957—Hearing before Hon. William D. Hatton, Judge of the Fifth Judicial District Court of the State of Nevada, in and for the county of Nye.


ADJUDICATIONS BY DEPARTMENT OF STATE ENGINEER

Streams on Which Decrees Have Been Entered Under Civil Suits, Statutory Court Decrees, and Streams Adjudicated by United States District Court

The following table shows the status of all the streams in the State that have been or are the subject of adjudication proceedings, given in the order of:

1. Name of stream system.
2. Location.
3. Date adjudication proceedings initiated.
4. Status toward completion, etc.

Baker and Lehman Creeks (White Pine County) — May 22, 1955; both streams considered as one. Findings of Fact, Conclusions of Law and Decree entered October 1, 1954. Average land involved 3,283.7 acres.

Barker Creek (Douglas County) — September 31, 1914; Court Decree entered May 27, 1921. Land involved 334.25 acres.

Barlett Creek (Humboldt County) — Petition for Determination received December 20, 1929; Proofs of Appropriation voluntarily filed. Proofs submitted for 21.4 acres.

Battle Creek (Humboldt County) — Petition for Determination received December 20, 1929; report on investigation made May 22, 1930; Proofs of Appropriation voluntarily filed. Land involved approximately 604.80 acres.

Bishop Creek (Elko County) — Included in adjudication of Humboldt River system.

Boone Vivio Creek (Pershing County) — Petition for Determination of Relative Rights — May 12, 1925.

Carice Creek (Lander County) — July 29, 1927; Court Decree entered November 26, 1929; Certificate issued under Court Decree July 3, 1930; Decreed lands in part, 3,000 acres.

Carron River (Douglas, Ormsby, Lyon, and Churchill Counties) — May 9, 1901; Order of Determination filed November 30, 1921, with an official Clerk of the First Judicial District Court of the State of Nevada, and for and in the County of Ormsby. Court duly proceeded with the determination, setting February 4, 1930, as time for hearing exceptions to the Order of Determination. On April 4, 1930, the Supreme Court of the State of Nevada issued Alternative Writ of Prohibition in the matter of the Metzna Dam and Blich Company et al., Petitioners, v. District Court of the First Judicial District of the State of Nevada, and for the County of Ormsby, and issue, G. A. Blich, Judge thereof, Defendants, prohibiting defendants from proceeding with the determination for such time as such Writ of Prohibition is effective and until the final determination for such matter in the Supreme Court. On July 1, 1930, the writ was made permanent on the ground that certain provisions of the law were not complied with and ordered that the matter be referred back to the State Engineer for full and complete determination of the water rights in the entire Carron River stream system. The status of this matter remains unchanged. On May 11,
Nevada, and about 28 miles northeast from Shoshone, California. There are two claimants to the waters from this source, one by virtue of vested rights and the other under application to the State Engineer for permission to appropriate this water.

April 14, 1937—Petition filed with State Engineer by water users to initiate proceedings to determine relative rights in and to the waters of Manse Springs and tributaries.

May 17, 1937—Field investigation completed and report filed by the State Engineer in his office.

May 18, 1937—Order filed granting petition to determine relative rights in and to the water of Manse Springs and tributaries. Copies of order and letter advising claimants that since the claimants had all signed waiver of notice, the State Engineer would proceed under section 36B.

May 24, 1937—Abstract of claims prepared by the State Engineer and filed in his office.

June 8, 1937—Order of Determination filed by State Engineer in his office.

June 12, 1937—Order of Determination, together with all original evidence and data as of record in the State Engineer’s office, were filed with the Clerk of the Fifth Judicial District Court of the State of Nevada, in and for the county of Nye.

June 15, 1937—Court entered an order setting July 24, 1937, as the date for hearing exceptions. Hearing was postponed and set over from time to time, the last order setting the time for November 5, 1937.

November 5, 1937—Hearing before Hon. William D. Hatton, Judge of the Fifth Judicial District Court of the State of Nevada, in and for the county of Nye. Case submitted pending filing of briefs by respective counsel.

The location of North and South Springs and tributaries is about seven miles northeast from Beatty, Nevada, lying about one mile east from State Highway 6, and there is only one claimant on this source.

February 20, 1937—Petition filed with the State Engineer to initiate proceeding for the determination of the relative rights in and to the waters of North and South Springs and tributaries.

May 24, 1937—Field investigation completed and report filed by the State Engineer in his office.

May 24, 1937—Order filed by State Engineer granting petition to determine the relative rights in and to the waters of North and South Springs and tributaries.

May 29, 1937—Letter to claimant advising that the State Engineer would proceed under section 36B.

July 23, 1937—Abstract of Claim prepared by the State Engineer and filed in his office.

July 29, 1937—Order of Determination filed by State Engineer in his office.

August 4, 1937—Order of Determination, together with all original evidence and data as of record in the State Engineer’s office, were appropriated shall be issued to an applicant who is not a citizen over the age of 21 or to a firm or company which is not a corporation authorized to do business in this State.

Chapter 209, Statutes of 1931, provides an amendment to section 32 of the water law relating to the preparation of a budget for the expenditure of the salaries of the water commissioners. Said budget shows the costs assessed against each water user in proportion to the aggregate rights in the stream system. When submitted to the Board of County Commissioners said board shall certify the respective charges contained therein to the Assessor of the county who in turn enters the amounts of such charges on the assessment roll against each claimant. Said taxes, when collected, shall be deposited with the State Treasurer of Nevada and placed in a fund known as “Water Distribution Fund,” as hereinafter provided, to be paid out in payment of claims for salaries, etc. The section is amended to the effect that the water commissioners shall execute the laws prescribed in sections 32 to 38, inclusive.

Chapter 223, Statutes of 1931, provides amendments to section 36 of the water law relating to the assessing of court costs and the collection thereof; so when a judge who is about to retire from office and who has filed a written decision before retirement may hold hearings for the settlement of written findings of fact and conclusions of law and decree appertaining to such written decision so filed, and shall be entitled to $100 per day for such services, total expenses not to exceed $1,000.

Chapter 222, Statutes of 1931, provides an appropriation to create a revolving fund to be known as “The Water Distribution Fund.” The sum of $20,000 was set aside for the purposes as set forth in section 243 of the Nevada Compiled Laws 1929, as amended by the 1931 session of the Legislature (section 52).

Chapter 109, Statutes of 1933, provides for the insertion of a section to follow section 55 of the general water law and to be known as section 55A. This section provides for the employment of guards, when necessary, by the State Engineer to prevent unlawful diversions of water in any ditch or ditch system, the salaries of such guards to be charged against the owner or owners of the ditch or ditch system, and collected as provided for in section 77, chapter 253, Statutes of 1915.

Chapter 184, Statutes of 1933, provides amendments to the underground water law (Chap. 210, Stats. 1915) and also adds a new section. The amendments concern the prevention of loss of water from artesian wells, both above and below the ground surface, and the administration of the Act by the State Engineer. The new sections pertain to the exercise of the police powers of the State to prevent the waste of underground waters.

Chapter 46, Statutes of 1937, provides an amendment to section 72 of the water law as amended, Chap. 128, Stats. 1931. This section applies to the issuance of certificates under permits to appropriate water, and includes the issuance of certificates under permits to change the place of diversion, manner or place of use of water already appropriated.
Chapter 149, Statutes of 1937, provides amendments to the underground water law approved on March 24, 1915, and amended in 1935. The essential points of the amendments are the requiring of an application for a permit to appropriate water before any work is done towards the sinking of a well in an artisan basin; requiring the permittee to keep an accurate log of the well on forms furnished by the State Engineer's office, and which must be filed in the State Engineer's office within 30 days following the completion of the well; and providing that anyone violating the provisions of the Act shall be deemed guilty of a misdemeanor and on conviction thereof shall be fined in a sum not exceeding $250 or by imprisonment in the county jail not exceeding six months, or by both fine and imprisonment.

Chapter 150, Statutes of 1937, provides an amendment to section 36 of the general water law as amended, Chap. 223, Stats. of 1931. In this Act certain additions were made to the manner of assessment of court costs by the court and the collection thereof. Also, under this amended Act whenever a Judge before whom a proceeding for the adjudication of a stream system is pending shall cease to be such Judge, his successor to whom such proceedings may be assigned may do all things in and about such adjudication that may be necessary and proper.

SCHELL CREEK

Schell Creek (sometimes called and known as Shell Creek) and its tributaries is located about 50 miles northeast from Ely, Nevada, in township 22 north, ranges 64 and 65 east, M. D. B. & M. There are two water users on the stream system and the total irrigated area is approximately 337.97 acres.

September 16, 1934—Jesse Castillo, one of the water users on the stream system, petitioned the State Engineer for a determination of the relative rights in and to the waters thereof.

November 18, 1934—The report of the investigation on the stream system was filed in the office of the State Engineer.


January 25, 1936—The State Engineer entered Notice and Order for Taking Proof.

June 11, 1936—The Abstract of Claims was prepared by the State Engineer and filed in his office.

June 12, 1936—The Preliminary Order of Determination was filed by the State Engineer in his office.

June 12, 1936—Notice and Order issued by State Engineer setting time and place of inspection.

August 18, 1936—Notice and Order extending time for filing objections to Preliminary Order of Determination to and including August 30, 1936.

September 2, 1936—Notice of fixing time for hearing objections to the Preliminary Order of Determination at Ely, Nevada, on October 7, 1936.

October 1, 1936—Notice and Order postponing time for hearing objections to the Preliminary Order of Determination and setting over to October 21, 1936.

October 21, 1936—Hearing on Objections to the State Engineer’s Preliminary Order of Determination held at Ely, Nevada, on October 21, 22, and 23, before a representative of the State Engineer’s office.

May 22, 1937—Order of Determination filed by State Engineer in his office.

May 24, 1937—Order of Determination, together with all original evidence and data as of record in the State Engineer’s office, were filed with the Clerk of the Seventh Judicial District Court of the State of Nevada, in and for the county of White Pine.

May 24, 1937—Court entered an order setting July 12, 1937, as the date for hearing exceptions. The hearing was set over from time to time, the last order of the Court setting the time for hearing for October 18, 1937.


June 18, 1938—Decision entered by Hon. L. O. Hawkins, Presiding Judge of the Seventh Judicial District Court.

MANEE SPRINGS

The location of Manee springs and tributaries is in the southerly portion of Nye County about six miles southerly from Pahrump,
CHAPTER V

Adjudication of Water Rights

Section 1, chapter 4, Statutes of 1909, provided a law creating the office of State Engineer and furnishing a method for the determination of the relative rights in and to waters already appropriated. Several amendments were subsequently made with the result that our water law is now admirably adapted to conditions in Nevada, and has been declared constitutional in its entirety by decisions rendered by the Supreme Court of Nevada.

Amendatory Acts were passed during the 1907 and 1909 sessions of the Legislature. In 1910 a new water law was enacted and the old water law in its entirety was repealed. The new law was approved March 22, 1913. Under this Act the water law was greatly broadened, both as to the adjudication procedure on the determination of vested rights and the appropriation of water procedure by application to the State Engineer. Subsequent amendments to the laws relating to the adjudication procedure were enacted in the following sessions of the Legislature, viz., 1915, 1917, 1919, 1921, 1925, 1927, 1929, 1931, 1933, and 1937. A brief description of these various amendments may be found in Chapter 6 of this report, wherein a summary of the laws enacted by the Nevada Legislature relating to water and the office of the State Engineer is given. A summary of the statutory procedure to determine the relative rights in and to water by an adjudication under a claim of vested right may be found in our 1934-1936 Biennial Report and also in the compiled edition of the water laws of this State published in 1937 by this office, both of which are available upon request.

Proofs of Appropriation Filed During the Years of the Present Biennium

During this period the following proofs of appropriation, which are claims of vested water rights, have been filed for future use in the determination of the relative rights and also to make of record such claims. A condensed statement giving the salient data is hereupon given in the order of:

1. Proof serial number.
2. Date filed.
3. Name of claimant.
4. Source of water supply.
5. Location by county.
6. Use claimed.

A résumé is herewith given to the progress made on adjudication proceedings during this biennium.
office since its creation will be found on page 25. The status of applications filed and certificates issued will be found as follows:

1. Status of applications filed during the biennium 1936-1938, Chapter 16.

2. Status of applications filed prior to July 1, 1936, upon which action has been taken during the past biennium, Chapter 17.

3. Certificates issued under permits during the past biennium, Chapter 18.
CHAPTER IV
Applications for Water Rights

During the biennial period dating from July 1, 1936, to June 30, 1938, there has been 261 applications filed with this office for permission to appropriate water. Of this number 19 applications have been made to change either the point of diversion, place or manner of use of water already appropriated under an existing permit or claim of vested right. Under our water law such an application can be made to change the point of diversion, place and manner of use either collectively or singly. A segregation of the applications as to the manner of use is as follows:

| Irrigation purposes | 47 |
| Minum and milling | 130 |
| Stock watering | 48 |
| Domestic purposes | 9 |
| Migratory water fowl refuge | 3 |
| To change point of diversion, manner or place of use | 19 |
| Municipal purposes | 8 |
| Bathing purposes | 2 |
| Gravel and sand washing | 6 |
| Power | 6 |
| Recreational purposes | 6 |
| Fish rearing purposes | 1 |

Definite action has been taken on 337 applications during this biennium, representing action on 147 applications filed during this period and 170 applications filed in 1936. There have also been issued during the period 140 certificates of water right following the perfection of permits.

Due to amendatory Acts being added to our water law, the State Engineer considered it advisable, during this biennium, to republish a compiled edition of our water laws, which was released from the press in October 1937. This contains, besides the general water law, Acts relating to the adjudication emergency fund; stock watering Act; Nevada range Act; and underground water law. Summaries on the adjudication procedure on vested rights, and the statutory procedure to appropriate water by filing an application with the State Engineer's office are also given, together with a list of State Water Right Surveyors, and tables relating to the measurement of water. The summaries mentioned above relating to adjudication procedure on vested rights and applications for water rights were also included in the Biennial Report for the period 1934 to 1936.

During the past biennial periods have been held on protests against the granting of permits under 10 applications. In addition to these, rulings were made by the State Engineer on 35 other protested applications. Appeal from the findings of the State Engineer have been made under only one application and is now pending in the District Court.

 Pertinent information regarding water applications filed in this

| Mill City gaging station on the transferred water, 10% from Mill City to Rye Patch Reservoir, and 15% from the reservoir to places of use in Lovelock Valley. |
| Priorities are established in the Lovelock area by the amount of water passing the Mill City gaging station. Since the river loss is assumed to be 25% to the places of use in Lovelock Valley from the Mill City gaging station the decreed Lovelock Valley rights are increased 25%: the Battle Mountain transferred rights are decreased 15%, and the reservoir area rights remain the same. |
| To serve all priorities up to and including the 1921 period in the Lovelock Valley the Mill City flow would be as follows: |

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<tr>
<th>FLOWS AT MILL CITY TO SERVE 1921 RIGHTS IN LOVELOCK VALLEY</th>
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<td><strong>Period</strong></td>
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<td>First period—</td>
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<td>March 15 to April 28</td>
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<td>April 28 to June 13</td>
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<td><strong>Second period</strong>—</td>
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<td>June 13 to Sept. 15</td>
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<td>Sept. 15 to Dec. 31</td>
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<td><strong>Third period</strong>—</td>
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<td>March 15 to June 13</td>
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<td>April 28 to June 13</td>
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<td><strong>Total for the year</strong></td>
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</tbody>
</table>

Assuming the loss of 25% between the Mill City gaging station and Lovelock Valley the amount of water reaching the valley when the 1921 rights are being served would be about 467 c.f.s. during the first period; 347 c.f.s. during the second period, and 284 c.f.s. during the third period. The decree entered on October 20, 1931, by Judge George A. Warfield in the matter of the determination of the relative rights in and to the waters of the Humboldt River and its tributaries divided the Humboldt stream system into two districts. District No. 1 covers the area below Palisade and District No. 2, known as the upper district, consists of all lands above Palisade. The length of the season and duty of water are as follows: |

<table>
<thead>
<tr>
<th>CLASS OF LAND</th>
<th>DATE OF WATER</th>
<th>DISTRICT NO. 1</th>
<th>DISTRICT NO. 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class A</td>
<td>April 15 to August 15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Class B</td>
<td>April 15 to June 15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Class C</td>
<td>April 15 to May 15</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In the Lovelock Valley the irrigation season for the class A runs from March 15 to June 15. The amount of water in continuous flow allowed for each acre of land is the same for all classes of culture in each district. The length of time allowed to irrigate the different classes varies as set forth in the table above. In arriving at the amount of water in continuous flow for a certain acreage the number of acres is multiplied by 0.00813 in District No. 1 and by 0.0185 in District No. 2. The Elko District.

A brief summary of the amounts of water decreed in each district is hereinafter given: |

<table>
<thead>
<tr>
<th>LOVELOCK DISTRICT</th>
<th>TOTAL</th>
<th>TOTAL</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class A</td>
<td>March 15 to September 15</td>
<td>28,650</td>
<td>64,167</td>
</tr>
<tr>
<td>Class B</td>
<td>March 15 to June 15</td>
<td>926</td>
<td>1,256</td>
</tr>
<tr>
<td>Total</td>
<td>March 15 to June 15</td>
<td>37,576</td>
<td>88,423</td>
</tr>
</tbody>
</table>
10% of the Class A rights decreed are filled with 1875 priorities.  
30% of the Class A rights decreed are filled with 1884 priorities.  
40% of the Class A rights decreed are filled with 1887 priorities.  
50% of the Class A rights decreed are filled with 1888 priorities.  
60% of the Class A rights decreed are filled with 1900 priorities.

In the Loevelock Valley the land holdings are small, but with a few exceptions. The principal crops are alfalfa, wheat, barley and oats. In 1918 the hay production was 77,000 tons, but in 1929 only 9,000 tons were raised. It is very seldom that there is sufficient water to irrigate after July 1, and usually but two cuttings of hay are obtained.

WINNEMUCCA DISTRICT

<table>
<thead>
<tr>
<th>Class of land</th>
<th>Irrigation season</th>
<th>Total acres</th>
<th>Percent</th>
<th>Total</th>
<th>Total acre feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class A</td>
<td>March 15 to September 15</td>
<td>5,979</td>
<td>29</td>
<td>5,979</td>
<td>12,679</td>
</tr>
<tr>
<td>Class B</td>
<td>March 15 to June 18</td>
<td>9,948</td>
<td>54</td>
<td>5,979</td>
<td>9,763</td>
</tr>
<tr>
<td>Class C</td>
<td>March 15 to April 28</td>
<td>9,048</td>
<td>50</td>
<td>9,048</td>
<td>18,627</td>
</tr>
</tbody>
</table>

Totals: 25,030 37,170

Note—2,500 acre feet of Little Rock and Pole Creeks are not included.  
10% of the Class A rights are filled with 1864 priorities.  
30% of the Class A rights are filled with 1871 priorities.  
40% of the Class A rights are filled with 1873 priorities.  
50% of the Class A rights are filled with 1878 priorities.

BATTLE MOUNTAIN DISTRICT

<table>
<thead>
<tr>
<th>Class of land</th>
<th>Irrigation season</th>
<th>Total acres</th>
<th>Percent</th>
<th>Total</th>
<th>Total acre feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class A</td>
<td>March 15 to September 15</td>
<td>21,127</td>
<td>27</td>
<td>27,574</td>
<td>65,213</td>
</tr>
<tr>
<td>Class B</td>
<td>March 15 to June 18</td>
<td>16,090</td>
<td>24</td>
<td>38,962</td>
<td>86,887</td>
</tr>
<tr>
<td>Class C</td>
<td>March 15 to April 28</td>
<td>16,090</td>
<td>24</td>
<td>39,256</td>
<td></td>
</tr>
</tbody>
</table>

Totals: 79,457 123,160

Note—14,421 acre feet of water on Rock Creek, Willow Creek, and Boulder Creek are not included.  
30% of the Class A rights are filled with 1873 priorities.  
40% of the Class A rights are filled with 1874 priorities.  
50% of the Class A rights are filled with 1877 priorities.

In these two districts the land holdings are large. For instance, the Dushey Estate has holdings of over 100,000 acres. The decreed water rights are appurtenant to 22 properties in the Battle Mountain District and 24 properties in the Winnemucca District.

The main crop is native hay, particularly rye and blue jolt. Only one cutting is obtained, yielding about three-fourths of a ton per acre.

ELKO DISTRICT

<table>
<thead>
<tr>
<th>Class of land</th>
<th>Irrigation season</th>
<th>Total acres</th>
<th>Percent</th>
<th>Total</th>
<th>Total acre feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class A</td>
<td>April 15 to August 15</td>
<td>112,724</td>
<td>81</td>
<td>347,172</td>
<td>82,324</td>
</tr>
<tr>
<td>Class B</td>
<td>April 15 to June 18</td>
<td>5,314</td>
<td>4</td>
<td>5,314</td>
<td>10,627</td>
</tr>
<tr>
<td>Class C</td>
<td>April 15 to May 15</td>
<td>21,931</td>
<td>15</td>
<td>15,636</td>
<td>37,223</td>
</tr>
</tbody>
</table>

Totals: 140,460

Note—4,000 acre feet of water on Rock Creek, Willow Creek, and Boulder Creek are not included.  
10% of the Class A rights are filled with 1873 priorities.  
30% of the Class A rights are filled with 1874 priorities.  
40% of the Class A rights are filled with 1877 priorities.

In these two districts the land holdings are large. For instance, the Dushey Estate has holdings of over 100,000 acres. The decreed water rights are appurtenant to 22 properties in the Battle Mountain District and 24 properties in the Winnemucca District.

The main crop is native hay, particularly rye and blue jolt. Only one cutting is obtained, yielding about three-fourths of a ton per acre.
Chamisans and Appropriators of the Waters of the Humboldt River and its Tributaries, No. 2804, be, and the same hereby is, stayed and made ineffective pending the determination of these proceedings on certiorari and until further order of this court, and that Alfred Merritt Smith, as State Engineer of the State of Nevada, be, and he hereby is, ordered and directed to conserve and preserve the waters of the Humboldt River in the Lovelock Valley District, Pershing County, Nevada, in accordance with that certain decree of the Sixth Judicial District Court of the State of Nevada in the matter of Humboldt River, by Honorable Geo. A. Barnett, District Judge presiding, entered and filed in said court the 20th day of October, 1914, and to distribute the waters until further order of this court."

On July 27, 1917, Alfred Merritt Smith, State Engineer, J. A. Millar, Supervising Water Commissioner, and D. E. Winslow, Commissioner, Lovelock Division, proceeded to the outlet gate of the Humboldt Lovelock Irrigation Light & Power Company reservoirs for the purpose of releasing water therefrom and distribution to those entitled to receive same in accordance with said decree. Upon refusal of officers and agents of the reservoir company, who were then and there present, to turn over the keys to the padlocks on the headgates, the State Engineer read to said officers and agents the order and writ of the Supreme Court. Following the reading of said writ, the State Engineer proceeded in an effort to release the stored water from the reservoirs, but was prevented by agents and employees of the reservoir company from doing so. The State Engineer then proceeded to Lovelock and swore out criminal complaints against the persons interfering with him in the performance of his duties and had them arrested for interference with him as a State official in the performance of his duties. He then returned to the headgates and released therefrom a sufficient amount of water impounded there to take care of immediate irrigation needs. Later in the day the officers and agents of the reservoir company swore out a criminal complaint against the State Engineer, charging him to be and acting in an illegal capacity.

On July 27, 1917, the Supreme Court of Nevada entered an order to the petitioners in No. 2336, Andrew John, Petitioner, v. The Sixth Judicial District Court, in and for the county of Humboldt, and J. M. Lockhart, as Acting and Presiding Judge thereof, Respondents, and, hereinafter referred to, as "You and each of you are hereby notified that in open court on the 27th day of July 1917, the court made an order permitting the respondent court and Humboldt Lovelock Irrigation Light & Power Company to appear in court on Friday, July 30, 1917, at the hour of 10 o’clock, a.m., and, upon notice for relief from suit of certiorari issued on July 23, 1917, in the above-entitled matter."

On August 6, 1917, a hearing on the petition in Case No. 2329 was held in the Supreme Court before Hon. H. W. Coleman, C. J., Hon. E. J. I. Taber, J., and Hon. Wm. D. Hatton, District Judge, following which, on August 9, 1917, in the court’s order, the court entered and adopted the method of obtaining relief contended for by the Humboldt Lovelock Irrigation Light & Power Company is exclusively provided for by section 75 of
the Rye Patch Reservoir and over 1,000 feet in the Humboldt
Lovelock Irrigation, Light and Power Company Reservoir.

During this season, 75,474 acre feet of water were delivered to the
various ditches in Lovelock Valley. Some of the figures relating to
releases from the reservoirs, etc., are missing due to the death of Mr.
Runner, the Water Company Commissioner for the Lovelock District.

HUMBOLDT RIVER SYSTEM—1937

By J. A. MILLER, Supervising Water Commissioner

<table>
<thead>
<tr>
<th>ORGANIZATION</th>
<th>ESTIMATE RIVER</th>
<th>ESTIMATE DITCHES</th>
<th>ESTIMATE WELL</th>
<th>ESTIMATE SUBURBAN</th>
<th>ESTIMATE STORED</th>
<th>TOTAL RESERVOIR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rye Patch Reservoir</td>
<td>34,070</td>
<td>11,742</td>
<td>2,400</td>
<td>1,330</td>
<td>10,000</td>
<td>65,299</td>
</tr>
<tr>
<td>Lovelock Reservoir</td>
<td>16,000</td>
<td>6,200</td>
<td>660</td>
<td>330</td>
<td>6,000</td>
<td>32,700</td>
</tr>
<tr>
<td>Total</td>
<td>50,070</td>
<td>17,942</td>
<td>3,060</td>
<td>1,660</td>
<td>16,000</td>
<td>97,999</td>
</tr>
</tbody>
</table>

A hard cold water with light frozen snow and one heavy storm in May created a flow of 133,000 acre feet of water through Palache. More than fifty percent of which was delivered to the Lovelock area. Rock Creek and all of the other tributaries below Palache did not contribute much water to the stream system.

A heavy snowstorm that occurred in the Lovelock District the last of February created a condition that made irrigation after March 15 unnecessary. It was not until April 5 that any irrigation took place, which only called for a small release from Rye Patch Reser-
voir. During this period of the water was saturated in the Rye Patch Reservoir. On or about April 20 the releases from Rye Patch Reservoir were increased to about one-fourth of the capacity of the valley. On April 23 the H. L. L. & F. Co., disapproved with the method of cumu-
lation of both decreed and transferred water accross to the Pershing
County Water Conservation District, took over the regulation of their
own intake dam and headgate, and accordingly diverted a full canal of
water and prevented interfering by virtue of an injunctive decree obtained on or about the year 1919. This diver-
sion was continued until after the 2nd, when the State Engineer also
intake headgate and opened the dam and released the water into Rye
Patch Reservoir for beneficial uses.

In the Winnemucca district irrigation did not start until April 15. The total continuous flow alloated to this district with the exception of the Shastin flow was delivered between the two or more ranches. Stall ranch received its water in terms of its continuous flow.

In the Battle Mountain district rotation was practiced wherever possible. The Russell Land & Cattle Company rotated the “25” ranch water with the “White House” ranch water. The Lacking ranch received two irrigations from Dangby ranches and received a continuous flow after April 15. The Humboldt Land and Cattle Company rotated among its several ditches. The rest of the smaller ranches secured their water by periodic turn.

In the Ely district irrigation of the river bottom lands started about April 1, but it was not until May 1 that any irrigation took

Power Company released by its reservoir system into said river bed, in strict and true accord with requests, notices and instructions, and
such and every thereof, given and/or made upon you, or either of you, by said Humboldt Lovelock Irrigation Light & Power Company; and
4. That you forthwith and immediately cease and desist from, in any and all forms and/or manner, staying, declaring, advising and/or
holding out to any and all persons, and particularly stockholders in
said Humboldt Lovelock Irrigation Light & Power Company, any and
all opinions, statements, conclusions, decisions, declarations and/or
advice in substance and/or effect that the water, and/or any thereof,
now impounded and/or stored in said reservoir system of the said Hum-
boldt Lovelock Irrigation Light & Power Company is illegally or
wrongfully held or impounded, or is decreed or is improperly or
illegally held or impounded in said reservoir system, and cease and desist from, in any and all forms and/or manner, expressing judgment and/or opinion upon the character of said referred to waters, and/or attempting and/or seeking to determine, or announce, or pass upon any question and/or controversy as to title to said waters as impounded and stored
in petitioners’ reservoir system; and
5. That you at all times receive and accept from said Humboldt
Lovelock Irrigation Light & Power Company and/or its officers, all
notices, requests and instructions given you and in form and substance
as is usual and heretofore customary in your dealing with said Hum-
boldt Lovelock Irrigation Light & Power Company, and with all due
and proper diligence and speed accede thereto and perform the same
in said and about all waters discharged and released from said reservoir
system into the river bed of the Humboldt River, all in accordance
with, and in performance of, section 77 of the water code of Nevada.

That the hour of 10 o’clock in the forenoon of the 25th day of
July, 1937, you personally appear before this court, in the District
Courtroom in the county courthouse, in the city of Winnemucca, county
of Humboldt, State of Nevada, and then and there make return to
this order.

On July 23, 1937, upon petition of the State of Nevada Ex Rel
Alfred Merritt Smith, State Engineer of the State of Nevada, Plaintiff
and Relator, v. The Sixth Judicial District Court of the State of Nevada,
in and for the county of Humboldt, and Humboldt J. M. Lockhart, Presiding Judge thereof, and Humboldt Lovelock Irrigation
Light & Power Company, a corporation, Defendants and Respondents,
Case No. 3299, a writ of certiorari was issued out of the Supreme
Court of the State of Nevada, directing said defendants and respondents to
come and appear and to submit to the Supreme Court of the State of Nevada before 10 a.m. on September 8, 1937, a transcript of the
records of and in the action taken as aforesaid on July 16 in Case No. 2804; that “The Humboldt Lovelock Irrigation Light & Power Company, a corporation,
and your officers, agents, representatives, attorneys and employees, and
each of them, desist from further proceeding in any manner under
or pursuant to said order of said Sixth Judicial District Court until fur-
ther order of the court” and “And it is further ordered that said
order issued out of the said Sixth Judicial District Court of the State
of Nevada, in and for the county of Humboldt, on the said 16th day of
July, 1937, in said Matter of Determination of the Relative Rights of
with representatives of the conflicting interests with the object in view of bringing about a conciliation of differences with respect to the dis-tribution of the impounded water.

On July 17, 1937, the State Engineer served upon officials of the Humboldt Lovelock Irrigation Light & Power Company notice, order, and demand that on or before 12 o'clock noon on Monday, the 19th day of July 1937, they open or cease to be opened the outlet gates or works controlling the release of water from the reservoirs of the Humboldt Lovelock Irrigation Light & Power Company, a corporation, in the manner and to the extent to be directed from time to time by the State Engineer of the State of Nevada and his water commissioner employed for the distribution of water in the Lovelock Valley, for the purpose and to the extent that the water so illegally impounded in said reservoirs may be distributed to claimants, appropriators, and permittees thereof in accordance with their law and their rights.

On July 16, 1937, based upon a petition filed by the Humboldt Love-lock Irrigation Light & Power Company, an order was issued by Hon. J. M. Lockhart, District Judge presiding in the District Court of the State of Nevada, in and for the county of Humboldt, in the matter of the determination of the rights of claimants and appropriators of the waters of the Humboldt River stream system. Case No. 2904, wherein the State Engineer, and each and every one of his assistants and employees, were instructed, required, and ordered as follows:

1. That you forthwith and immediately cease and desist from in any manner and/or at all interfering with and/or attempting or seeking to control or manage the intake and diversion ditches, canal and/or control works, or any part or portion thereof, of the reservoir and/or reservoir system of petitioner, Humboldt Lovelock Irrigation Light & Power Company, situated in Pershing County, Nevada; and

2. That you forthwith and immediately cease and desist from any and all effort and/or parts, purposes and/or attempt to control, open or shut down the outlet gate and/or control works of said Humboldt Lovelock Irrigation Light & Power Company reservoir system, and any and all plans, purposes and/or attempts in any manner or at any time, to discharge or release from said reservoir system waters, or any thereof, there stored and/or impounded; and

3. That you forthwith and immediately receive all water discharged or released by petitioners from its said reservoir system into said Hum-boldt River, and distribute the same through the ditches, and thereupon, named and specified in requests, instruction and/or notices from time to time given by petitioner to said State Engineer and/or to the Assistant State Engineer, or to the Water Commissioner, and cease and desist from failing or refusing to distribute to end for the benefit of the persons named in Humboldt Lovelock Irrigation Light & Power Company named as persons to whom said company desires and requests its water so released into the river bed of the Humboldt River, from said referred to reservoir system, to be delivered to forthwith and immediately open and keep open any and all gateways into which water released from said reservoir system herefores has been cus-tomerly received and carried, and to divert and turn into said respective ditches all water by said Humboldt Lovelock Irrigation Light &

place on the tributaries. The first irrigation was just about completed when a big storm of several days duration occurred and as a result most of the alfalfa and grain turned yellow. A second storm occurred in about ten days and as a result very little irrigation was done during the month of June. During the months of July and August the dis-charge of the tributary creeks became very low, and considerable difficulty was experienced in irrigating second crops.

Daily measurements were taken of the flow of Marys River, Lamoille Creek, South Fork River and the main river in Moleen Canyon. This work was done in connection with the snow survey conducted by the State Meteorologist.

HUMBOLDT RIVER SYSTEM—1938

By J. A. Millikin, Supervising Water Commissioner

ORGANIZATION

J. A. MILLIKIN, Supervising Water Commissioner

NOTICE

Humboldt River—Lovelock District

F. R. WATERS, Water Commissioner

Lovelock District

R. M. CLARK, Water Commissioner

Winnemucca District

R. M. CLARK, Water Commissioner

Lovelock District

R. M. CLARK, Water Commissioner

Battle Mountain District

R. M. CLARK, Water Commissioner

State Valley District

G. E. THOMPSON, Water Commissioner

Lovelock District

G. E. THOMPSON, Water Commissioner

North Park District

D. T. REED, Water Commissioner

Nevada Water Resources District

R. M. CLARK, Hydrographer

Elko District

R. H. OWEN, Hydrographer

Middle

P. T. BLACK, Yerington, Nevada

The irrigation season of 1938 followed a very mild warm winter. However, the rainfall was very much above normal, especially in that part of the watershed west of Palmisde. In spite of numerous storms in the Elko district the snow cover was below normal until the month of March, when several heavy snowstorms brought the snow cover almost to normal. Many rain storms during the months of April, May, and June aided in creating a sustained flow through Palmisde that increased steadily from 190 c.f.s. on March 15 to 1,300 c.f.s. on June 8.

On the last of June the discharge at the above-named point dropped to 500 c.f.s. However, due to heavy rains throughout the entire upper watershed during the last week of June the discharge increased to nearly 1,000 c.f.s. on July 10, with over 500 c.f.s. reaching the Calhagan gaging station.

Irrigation started in the Lovelock district immediately after March 15, due to the fact that all of the available purchased transferred water was by-passed through the Rye Patch Dam in order to comply with a provision of the permit that the transferred water could not be stored. However, all of the Pershing County Water Conservation District deeded water was cumulated and it was not until the middle of April that deeded water was released along with the transferred water for district use. It was nearly the first of May before sufficient water reached Lovelock to serve some district users. Prior to this time they purchased H. L. I. & P. Company reservoir water for their needs. On or about June 15 practically all irrigation in the Lovelock Valley was completed, and due to the excessive flow at Calhagan's over and above the required flow, it was decided to divert water into the H. L. I. & P Company intake canal. This flow was limited to 250 c.f.s. until the said company assumed all responsibility of damage if
a greater head was diverted. On July 10 the combined storage of both reservoirs amounted to about 40,000 acre feet.

In the Winnemucca district irrigation started on April 12. The required amount of water in terms of cubic feet per second was rotated among ten ranches throughout the entire season. However, the Stall ranch received its water in a continuous flow. The Russell Land and Cattle Company in the Battle Mountain area rotated its water between its two ranches, while William Licking received two irrigations in periodic turn. In the Requa area the water users were delivered their water by continuous flows.

One water commissioner was successful in preventing any irrigation in the Elko district from starting a few days before the river bottom started diverted water, and kept it on the land most of the time. However, very little irrigation on the tributaries took place until nearly the last of the month. Most of the water users were allowed to divert a double amount of water until their storage was covered once, then they were cut off their continuous flow.

The Willow Creek Reservoir was regulated throughout the entire season. The Ellison Ranching Company did not use any water from either Willow or Rock Creeks until forty days after March 15. During this period they were allowed to accumulate their decreased flow. After they started irrigating their diversion at no time exceeded their continuous flow.

In addition to distribution duties the commissioner employed and directed the work of a hydrographer, whose duty it was to measure the discharge of several important tributary streams in Elko County and the required data compiled into a report and submitted to Mr. Carl Elges, State Meteorologist.

LITTLE HUMBOLDT RIVER AND TRIBUTARIES—1936 DISTRIBUTION

BY MARSHALL WOODWARD, Water Commissioner

The Little Humboldt River stream system is made up of the Little Humboldt River and its twelve tributaries, located in Paradise Valley, forty-two miles north of Winnemucca, Nevada. There are thirty-six water users on the system.

The Carville Deere, which went into force in May 1935, fixes the irrigation season to commence on the right, power and authority of the State Engineer to open it earlier or later according to reasonable variations in climatic and moisture conditions. The year on account of an early spring runoff the season was declared open on March 20. As this is the first full season of distribution under the Carville Deere the major changes from past practices of past years.

The run-off this year was exceptionally early. Indeed, when he entered the valley about the middle of March the commissioner found that the whole upper and middle valley was in the process of being, and was then being, irrigated. Although there were some notable exceptions to this condition, on the whole it resulted in causing users on the lower portions of the streams to be unirrigated, and also in causing the channels that should convey the water to them to be unirrigated.

The streams of Paradise Valley are clogged and filled with willow
taking or in any manner interfering with the waters of plaintiff, and that the court appoint a water master, enforcing the orders and decree of the court, including an order requiring the release of the water unlawfully diverted and stored by defendant in its reservoirs.

On June 3, 1927, the Pershing County Water Conservation District, Union Canal Company, and 13 other plaintiffs, as the owners of water of users of lands within the Pershing County Water Conserva-
tion District of Nevada, each filed a petition for an order permitting the filing of a bill of irrigation. The petition was granted by defendant on a bond of $10,000, made payable to the defendants, on appeal. The defendant filed a petition to dismiss on the ground that the bill of irrigation was not allowed because of the pendency of the suit in the District Court. It was set over pending the suit to the United States Court of Appeals for the District of Nevada, and in and for the Dis-
tribution of Nevada, rendered a decision on plaintiff's motion for injunction pending notice and defendant's motion to dismiss. In this decision the court held that plaintiff's complaint failed "to set forth facts estab-
lishing ownership or property rights alleged to be invaded," and that the "lack of evidence to support the complaint in this case is to be in issue." The court denied the petition for injunctive pendente lite, and granted defendant's motion to dismiss.

On June 10, 1927, Hon. Frank H. Norcross, District Judge of the District Court of the United States of America, in and for the Dis-
tribution of Nevada, rendered a decision on plaintiff's motion for injunction pendente lite, and granted defendant's motion to dismiss. In this decision the court held that plaintiff's complaint failed "to set forth facts estab-
lishing ownership or property rights alleged to be invaded," and that the "lack of evidence to support the complaint in this case is to be in issue." The court denied the petition for injunctive pendente lite, and granted defendant's motion to dismiss.

From the decision of the District Court of the United States of America, in and for the District of Nevada, the plaintiff's United States, Irrigation District, the Union Canal Company, and W. W. Norcross, District Judge of the United States Circuit Court of Appeals for the Ninth Circuit, in an appeal from the District Court, brought this appeal to the United States Circuit Court of Appeals for the Ninth Circuit.

In an opinion rendered on this appeal on May 31, 1928, the Circuit Court of Appeals held: "The Nevada Irrigation District Act (Chap. 45, Acts of Nevada 1919, Ch. 45, p. 45) provides for the organization in that State the "water rights in question, regardless of whether it does or does not own land to be irrigated." With reference to defendant's contention that by the rule of eminent domain the suit should await determination of the suit pending in the District Court of Nevada (termed the Third State Court suit) the Circuit Court held: "The Third State Court suit has not substantially the same parties or substantially the same interests involved, we think. Since appellant owns the water rights claimed by it, those rights are not and could not be involved in the Third State Court suit, for appellant is not a party thereto." "Reversed and remanded with directions to dismiss and grant the injunction pendente lite."
asked an injunction enjoining defendants from (1) interfering with plaintiffs diversion and storage of waters to the extent of 49,770 feet, subject to the rights of State officials to regulate diversion and storage by plaintiff when necessary to serve appropriators prior in time; (2) storing any water whatsoever in Rye Patch Reservoir; and (3) from storing any waters in Rye Patch Reservoir under the rights claimed to have been acquired by the irrigation district until plaintiff had stored all of its 49,770 acre feet of water. The prayer also asked exemplary, punitive, and compensatory damages in the total sum of $600,000. An amended complaint in this matter was filed with the court on June 29, 1937, and a copy thereof served on the Attorney General's office on June 30, 1937. To date no time has been fixed by the court for a hearing of this suit.

SUIT OF OLD CHANNEL DITCH CO., A CORPORATION, V. STATE ENGINEER, ET AL.

On May 18, 1937, the Old Channel Ditch Company, a corporation, as plaintiff, through its attorneys, Hawkins, Mayotte & Hawkins, commenced an action in the Sixth Judicial District Court of the State of Nevada, in and for the county of Pershing, against the Pershing County Water Conservation District, the State Engineer, the Assistant State Engineer, and the Supervising Water Commissioner of the Humboldt River, as defendants. Briefly, the complaint alleged that the plaintiff owned, possessed, and was entitled to control of that certain irrigation ditch, diversion works, canal and ditch commonly spoken of and known as the Old Channel Canal and Ditch; that the defendants, conspiring, confederating and agreeing among themselves, and with persons unknown to the plaintiff, and without justifiable cause, and unlawfully, and with intent to harm and injure plaintiff, in collusion and agreement, wrongfully and illegitimately have used and are using the diverting dam and headworks of plaintiff, and by means thereof have diverted and turned, and are continuing to divert into plaintiff's said canal, large quantities of said so-called purchased and transferred waters and large quantities of said stored waters, all aggregating many hundreds cubic feet per second of said waters. The prayer also asks for a writ of injunction, pendente lite, against said defendants, and each thereof, in the sum of $5,000, also exemplary and punitive damages in the sum of $1,000. An amended complaint in this suit was filed on June 29, 1937. This action is still pending before the District Court.

SUIT OF THE UNITED STATES OF AMERICA, V. HUMBOLDT LOVELOCK IRRIGATION LIGHT & POWER COMPANY

On May 27, 1937, the United States of America, as plaintiff, filed an action in the District Court of the United States of America, in and for the District of Nevada, against the Humboldt Love Lock Irrigation Light & Power Company, a corporation, defendant. In brief, the plaintiff in the action asked that an injunction pendente lite, be issued enjoining the defendants from taking or in any manner interfering with the waters of the plaintiff; that upon final hearing a permanent writ of injunction be issued perpetually enjoining defendant from
was far more satisfactory than any other method that might have been used, without question, and more users produced successful crops under this practice than otherwise.

A very beneficial movement was started by Mr. Alfred Merritt Smith, State Engineer, in trying to get the Federal Government to use their CCC Camp, assigned to the Forest Reserve in Paradise Valley, to clean channels and to build dams on the Little Humboldt system as a winter work project. It is to be hoped that this movement becomes a reality, and thus it can be demonstrated that a clean channel and a good dam injures none and benefits all. Of course, the CCC Camp cannot clean all the channels in one winter. However, if the movement is once started, there is but little question but that it will be continued in years to come. Once the channels are cleaned properly, the expense of maintenance will be low.

**DISCHARGE IN ACRES FEET OF THE LITTLE HUMBOLDT RIVER AND TRIBUTARIES FOR PERIOD MARCH 20 TO AUGUST 31, 1935**

<table>
<thead>
<tr>
<th>Name of Creek</th>
<th>Discharge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Little Humboldt River</td>
<td>8,954</td>
</tr>
<tr>
<td>Martis Creek</td>
<td>1,385</td>
</tr>
<tr>
<td>Cottonwood Creek</td>
<td>3,462</td>
</tr>
<tr>
<td>Indian Creek</td>
<td>3,886</td>
</tr>
<tr>
<td>Mill Valley Creek</td>
<td>848</td>
</tr>
<tr>
<td>Little Cottonwood Creek</td>
<td>125</td>
</tr>
<tr>
<td>Happy Creek</td>
<td>312</td>
</tr>
<tr>
<td>Gravity Creek</td>
<td>1,385</td>
</tr>
<tr>
<td>Beef Creek</td>
<td>694</td>
</tr>
<tr>
<td>Stone House Creek</td>
<td>2,706</td>
</tr>
<tr>
<td>Wash O'Neill Creek</td>
<td>2,706</td>
</tr>
<tr>
<td>Pooe Creek</td>
<td>694</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>40,906</strong></td>
</tr>
</tbody>
</table>

**LITTLE HUMBOLDT RIVER AND TRIBUTARIES—1937 DISTRIBUTION**

*BY MARSHALL WOODWARD, Water Commissioner*

This report is the result of the activities of the water commissioner on the Little Humboldt River and its tributaries for the irrigation season of 1937. The main purpose of the office was to distribute water to the recipients with the greatest benefit to the valley, and still conform with the court decree on the stream system, and, also, to gather data and keep suitable records to facilitate future distribution. The water commissioner, realizing he was the personal representative of the State Engineer, endeavored to create as friendly a feeling as possible between the users and the State Engineer’s office.

In 1937 the irrigation season on the Little Humboldt River and its tributaries was opened on March 15. The peak flow on Martin Creek occurred on April 14, when 190 c.f.s. was reported. The flow on the Little Humboldt River reached its peak on May 19, when 37 c.f.s. was measured.

Owing to the character of the runoff this year so much time was consumed in regulating the many diversions of several users that little time was available for the measurement of stream discharge or the gathering of data. However, a record of all stream discharges was kept, and also a record of the amount of water used by many of the recipients. The office tried to conform in all cases to the court decree.
and to the saying "first in time shall be first in right." In doing this, many obstacles were encountered. Of those, one of the most difficult is the clogged channel, as found in Paradise Valley, with its appalling lack of proper regulatory dams. A form of rotation was practiced whereby the valley was zoned to the upper and lower valleys as two groups rotated with each other and also the users in the upper valley rotated among themselves. Following the Carville Deeve, page 9, article IX, the water allotted respective users was based upon a continuous flow of 0.1 cubic feet per second for each acre irrigated. Priorities were served according to the day to day need for irrigation. As stream discharge increased more water was available for distribution. As it decreased, the opposite was true. The thought always and ever was carried in mind that priority must govern. For example, if the discharge of a certain stream reached such a point that a user with a comparatively late priority, say 1876, and Martin Creek was entitled to water for just one week (as set forth in article IX, page 9, of the Carville Deeve) every effort was made to see that this man got the water that he was justly entitled to, even though for a few days only. Despite the utmost effort of the commissioner to serve every entitled user justly, certain obstacles were encountered that prevented certain users from participating in any rotation or using decreed continuous flows, as their lands were continuously under water during the high water period and they were unable to drain same under existing conditions, even though they might have wished to do so. Channel conditions have been thoroughly covered in previous reports, and little can be added in this report, except to again emphasize that channel conditions in Paradise Valley are extremely bad. Clogged and filled channels result in the flooding of areas that carry no or very late priority, and cause users with early priority but unavaila- ble geographical locations to go without water. Until the channels are cleared by removal of willows and debris in some way and regulatory dama installed, no one will be satisfied with the system as far as right or fair to all users. The work of the CCC boys, in cooperation with the U. S. Forest Service and the State Engineer's office, in regulatory dam construc- tion and channel cleaning is described in Chapter 11. DESCENDE IN ACRE FEET OF THE HUMBOLDT RIVER AND TRIBUTARIES FOR PERIOD MARCH 15 TO AUGUST 26, 1937

<table>
<thead>
<tr>
<th>Location</th>
<th>Acre Feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Little Humboldt</td>
<td>9,425</td>
</tr>
<tr>
<td>Martin Creek</td>
<td>15,014</td>
</tr>
<tr>
<td>Outwood Creek</td>
<td>2,826</td>
</tr>
<tr>
<td>Italian Creek</td>
<td>2,796</td>
</tr>
<tr>
<td>Mill Pond</td>
<td>4,135</td>
</tr>
<tr>
<td>Little Outwood Creek</td>
<td>659</td>
</tr>
<tr>
<td>Lame Creek</td>
<td>190</td>
</tr>
<tr>
<td>Handy Creek</td>
<td>540</td>
</tr>
<tr>
<td>Colony Creek</td>
<td>924</td>
</tr>
<tr>
<td>Beef Creek</td>
<td>32</td>
</tr>
<tr>
<td>Stone House Creek</td>
<td>3,214</td>
</tr>
<tr>
<td>Wash O'Neal Creek</td>
<td>0</td>
</tr>
<tr>
<td>Provo Creek</td>
<td>410</td>
</tr>
<tr>
<td>Total</td>
<td>20,211</td>
</tr>
</tbody>
</table>
The following comment is made by the court upon the foregoing condition in the Findings of Fact No. 38 of Findings of Fact, Conclusions of Law and Decree: "In one place in the Aragona region above Battle Mountain, the river channel is gradually lost and the water flows out over enormous areas of land, causing in some places the growth of hay, pasture, and other crop improvements. The evidence and observation show that the entire river must flow into this area for considerable time prior to the water finding its way through this area; the river from its source to the last cultivated area is but one and a half miles wide, and more than three hundred miles long.

During the year from April 23, 1932 to April 30, 1932 the Bureau of Reclamation made a survey of the needs of the water users, and of the water resources of the Humboldt River in the Great Basin, and as a result of the survey, a number of changes in the existing conditions in the Battle Mountain section. As a result of these investigations the Pershing County Water Conservation District initiated a program covering the following three major items: 1. Construction of a dam on the Table river channel at Rye Patch, approximately 20 miles north of Lovelock, Nevada; 2. Purchase of seven ranches and appurtenant water rights in the Battle Mountain section and transfer down stream of such purchased water to lands located within said irrigation district; 3. Removal of dams constructed across the river channel for irrigation and flooding of land on ranches purchased, and otherwise genuine improvement in drainage of such lands.

In the month of March 1898 the Pershing County Water Conservation District, with options to purchase water rights from seven different ranches located in the Battle Mountain section, filed with the State Engineer Applications Nos. 9729-9735, inclusive, for permission to transfer the desired water appurtenant to the lands on said ranches to lands included within said irrigation district in the Lovelock Valley. These applications after being duly advertised in accordance with the law, were formally protested by other appropriators of water in the Battle Mountain section, so it was only after hearings and conferences that these protests were disposed of by stipulation, and the way paved for the approval of the seven applications. These seven applications involved the transfer of approximately 50,000 acre feet of the waters of the Humboldt River, as a supplemental supply for lands having decreed rights in and newly reclaimed land, as approved by the State Engineer on October 8, 1894, and said transfer of water was in effect the irrigation season of 1895. These permits and water rights were subsequently assigned by the Pershing County Water Conservation District to the United States.

The Rye Patch Dam, which is a forerunner of the proposed dam in that region, is constructed across the channel of the Humboldt River about 25 miles north of the town of Lovelock, Wash. It was sufficiently completed in the early months of the year 1896 to store water.

With the advent of the spring of 1897 it was found that the construction of the Rye Patch Dam, coupled with the transfer of certain decreed waters from lands in the Battle Mountain section of the Humboldt River onto the lands included within the boundaries of the Pershing County Water Conservation District in Lovelock Valley, a goodly portion of which latter lands already had decreed rights from LITTLE HUMBOLDT RIVER AND TRIBUTARIES--1938 DISTRIBUTION

BY LAWRENCE E. MATHENY, Water Commissioner

Lawrence E. Matheny served as water commissioner for the Little Humboldt River and tributaries from March 13 through June 27, 1938. On June 27 Mr. Fred Backus took over the position as water commissioner to serve for the remainder of the irrigation season.

The State Engineer declared the irrigating season open on March 28. General conditions, amount of precipitation, snow depth and water content on March 1 indicated there would not be a very large supply of water for the 1938 season. However, during March a great deal of precipitation was experienced in the Paradise Valley area. The precipitation was 126% of the normal of March's normal in the Little Humboldt Basin, and practically all this precipitation was in the form of very wet snow. The snow cover on the Upper Backsin snow survey course increased from 57.6% of normal on March 1 to 144% of the normal March 1 normal on April 1. The increase during March is shown in the following compilation of data on snow measurements on the Upper Backsin course, as furnished by the Federal-State Cooperative Snow Surveys:

<table>
<thead>
<tr>
<th>Date</th>
<th>Depth of snow</th>
<th>Water content</th>
</tr>
</thead>
<tbody>
<tr>
<td>March 1</td>
<td>22.2</td>
<td>7.2</td>
</tr>
<tr>
<td>April 1</td>
<td>44.4</td>
<td>17.5</td>
</tr>
</tbody>
</table>

Elevation, 8,000 feet.

Although no measurements were taken on April 1, on other courses at the Little Humboldt Basin observers reported a great increase in snow cover on all areas throughout the basin, also the water content of the snow was about above normal which resulted in good ground conditions.

The first part of April was cool with frequent rains and snow storms. April 17, Easter Sunday, was the first real warm day of the year, and this was followed by another warm day, the effect of which was to cause the lower snow to melt, resulting in floods on all streams entering the valley. Cooler weather during the next two weeks caused the streams to drop a bit, but they still continued to flow at high levels. On April 30 a two-day rain started, and on May 2 all streams reached flood stage. In fact, the maximum flow on this day exceeded any recorded maximum since 1922, the last year of extreme high water. Many acres of land were flooded by this high flow, due to poor channel conditions and the unexpectedly large amount of water.

The flow of all streams continued to be extra large until about the middle of June, which gave all users a sufficient amount of water to irrigate all decreed rights. In fact, there was an excess of irrigation water as evidenced by the fact the water reached the sand dunes in the southern part of Paradise Valley and formed a lake, known locally as Old Boot Lake, about five miles long and from one-quarter to one-half mile wide, with a depth up to six feet in places (see picture). This was the first time since 1862 that water in Paradise Valley had reached the sand dunes.

In general, all decreed rights were served with all the water the owners needed, and very little trouble was experienced in water distribution. The only rights not served were in cases where no provision
water in ground storage, the water users have generally found it economically desirable to employ a system of rotation in the use of water. By this method the appropriators enjoy an increased head of water, but only those whose order in the rotation comes within the period of maximum crop demand will receive the highest beneficial use of water. The most practical and modern method to meet the variable demand for water by irrigated crops than by ground storage or rotation is the accumulation of water by means of regulatory storage. Although it may not always be economically feasible to provide such regulatory storage, it is believed where such facilities are available they should be used in the interest of conservation and highest beneficial use of water; provided, that by such accumulation there be no interference with any prior rights. By this means the user or users will divert from the stream at a uniform rate the quantity of water, measured by volume and time, that they are entitled to divert for direct irrigation, under the terms of the decree, within the priorities served and, for use within the limits of the irrigation season as defined by such decree. Irrespective of whether the accumulation of decreed water in storage is strictly legal under the provisions of the decree on the Humboldt River, there can be no question but that such accumulation under the foregoing conditions is conducive to the highest beneficial use of said water with a minimum of waste, and results to the benefit of all appropriators on the Humboldt River stream system, for the reason that such accumulation affords a practical means for meeting the constantly changing factor of beneficial use with, as aforesaid, a minimum disturbance of the river flow during the peak demand of growing crops.

One of the greatest difficulties encountered by the supervising water commissioners in the distribution of the waters of the Humboldt River under the Order of Determination of the State Engineer defining the relative rights of claimants and appropriators of water of said stream system, and later under the court decree, was the transportation of water through what is termed the Battle Mountain Basin. This basin is approximately 75 miles in length and several miles in width. Adjacent to the river channel through the basin were several large ranches that diverted water from the Humboldt River for irrigation of lands classified as harvest crop, meadow pasture, and diversified pasture. The usual method of irrigation as practiced on this section of the river was the installation of dams in the river channel in such a manner as to not only divert water into constructed canals and ditches, but also to irrigate by overflow and serving as great an area as possible. This wasteful practice of irrigation had been carried on for a period of from 40 to 60 years and was considered by engineers as one of the greatest contributing factors in dissipating the water resources of the river at the expense of other appropriators. It was also the consensus of opinion of water commissioners that any water diverted from the river through this section was lost water, and no return flow to the river of any consequence as the result of any diversions was apparent. In what was commonly referred to as the Arpenta Swamp alone, comprising a tide area of approximately 900 acres in extent in which the river channel had been entirely obliterated, it was conservatively estimated that there was an annual loss of water to the river of from 4,000 to 12,000 acre-feet.
doubt justified under the provisions of the decree when the use of the amount of water in acre feet delivered to land having a priority right is based upon actual beneficial use of the water. The main objectionable features to its exclusive use are:

1. Instability to determine at the present time with reasonable accuracy the amount of water in acre feet less transportation losses which will be available for irrigation, and thereby determine the priorities which can be served at the beginning of the irrigation season.

2. Impossibility of determining, on account of varying weather conditions, the time or times when the estimated probable maximum runoff will be available for distribution.

It is recognized that the only reliable method which can be used in making an estimate of the probable runoff from any watershed is based upon the principles advanced by Dr. J. L. Church, and as this work is carried on from year to year on the Humboldt River stream system, the data secured becomes more valuable and more accurate, and will play an important part in solving many of the vexing problems of distribution on said stream system. The time when the estimated quantities of water forecast by the snow surveys will be discharged by the stream system, of course, an unknown factor, and makes it imperative that some flexibility be maintained in determining the priorities which can be served by the river flow.

The measure of the allowance for irrigation use which will be most readily understood and most easily applied in connection with distribution under the court decree on the Humboldt River is, we believe, a continuous flow divided by the average rate of runoff in cubic feet per second.

For the most practical results in conformity with the provisions of the decree, the rate of flow allowed should be based upon the period of anticipated availability of water which will yield, during such period of time, the amount of water in acre feet required for a beneficial use by the growing crops, provided that the total amount diverted in acre feet for the various classes of culture shall not exceed the duty of water as specified in the decree for such culture. It must be understood that this flexibility is not only desirable but is necessary in order to take advantage of the peak flows in the stream system.

As heretofore stated, beneficial use of water is not and cannot be in the very nature of things a constant factor. In terms of cubic feet per second, the rate of consumption of water by irrigated crops varies with the season, being very low or perhaps none during the dormant season and reaching a maximum rate at the beginning of the growing season. The discharge of the Humboldt River during years of normal precipitation is seldom, if ever, great enough throughout the time of the growing season to meet the requirements of the irrigated crops during the peak of the growing season. Downstream appropriations of water, on the Humboldt River, being low and of small capacity, are limited quantities during the peak of the growing season, have of necessity been required to divert and accumulate in ground storage the runoff made available to them at the beginning of the irrigation season, thus conserving and retaining same in such ground storage for later use by the growing crops. In conjunction with accumulation of water made for irrigation, due to abandonment of ranches, or where the property had been allowed to deteriorate due to neglect in maintaining irrigation systems (dams, canals, ditches, etc.),

Although some streams usually dry up in June, this was not true this season, as all streams were flowing at the end of June.

**DISCHARGE IN ACRE FEET OF THE LITTLE HUMBOLDT RIVER AND TRIBUTARIES FOR PERIOD March 13 to June 20, 1938**

<table>
<thead>
<tr>
<th>Stream Name</th>
<th>Flow in Acre Feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Little Humboldt River</td>
<td>21,237</td>
</tr>
<tr>
<td>Martin Creek</td>
<td>34,067</td>
</tr>
<tr>
<td>Cottonwood Creek</td>
<td>9,778</td>
</tr>
<tr>
<td>Indigo Creek</td>
<td>8,736</td>
</tr>
<tr>
<td>Mullan Creek</td>
<td>12,340</td>
</tr>
<tr>
<td>Little Cottonwood Creek</td>
<td></td>
</tr>
<tr>
<td>Lamoine Creek</td>
<td>762</td>
</tr>
<tr>
<td>Haney Creek</td>
<td>1,965</td>
</tr>
<tr>
<td>Colony Creek</td>
<td>2,923</td>
</tr>
<tr>
<td>Brood Creek</td>
<td>1,975</td>
</tr>
<tr>
<td>Stone House Creek</td>
<td>4,969</td>
</tr>
<tr>
<td>Wash O’Neel Creek</td>
<td>1,309</td>
</tr>
</tbody>
</table>

Total: 102,996

In order to secure more complete flow data on the Little Humboldt River, a recording gage was installed near the Chimney, about one-half mile below where the North and South Forks meet. This recorder was installed April 14; high water on May 2 rendered it inoperative due to flooding, and it had to be repaired, after which it was reinstalled (June 1). Records from this station should assist in the compilation of data on Little Humboldt River flow. This station was installed in cooperation with Mr. Carl Elges of the Nevada Agricultural Experiment Station, Mr. Alexander McQueen of the United States Forest Service, and the CCC camp at Paradise Valley.

The channel cleaning program has been a good thing, and in the Basins where it was put into effect excellent results have been secured. This work should be carried on to completion, as clean channels are a great aid in the distribution of water.

During the winter season of 1937-1938 three new concrete regulatory structures were installed on Martin Creek, under the State Engineer's supervision by the Bureau of Reclamation, and thethroth water users. These structures will assist materially in water distribution work. As proof that the design and construction of these structures is correct we may say that the heavy floods of April 19 and May 2 did not damage the structures in any observable manner. It must be remembered that these were no ordinary high water stages, but were higher than any year since 1922. All structures were under water during both floods, but no damage was noticed. This test, during the first year of service, greatly increased the water users' confidence in the design and construction of modern concrete structures, and several requests came in for investigations to be made regarding the installation of structures in other parts of Paradise Valley.
the stream system in sufficient amount to satisfy the continuous flow that each water user is allocated under the decree from the beginning to the end of the irrigation season, then each of such users during such period of time will receive that amount of water in acre feet for the various classes of culture as specified by the decree. As aforesaid, this condition we know seldom, if ever, exists; so it naturally follows that a practical view must be taken of all the surrounding conditions and situations in the enforcement of the decree, and if the stream becomes from natural conditions insufficient for all claimants, prior appropriators must be given their full amount at all times in order, in preference to junior appropriators. A practical method of distribution, therefore, not only on the Humboldt River, but on any stream system, when the right to the use of water of the stream system has been consummated by use, and such right has been defined by court decree, is to allow the appropriator without undue interference to others to continue the use he has customarily made and enjoyed in the past.

Any system of distribution adopted in connection with the distribution of the waters of the Humboldt River to accomplish the foregoing results must be with the understanding that in the very nature of things, beneficial use is not and cannot be considered a constant factor. That is to say, the rate of consumption of water by the irrigated crops along said river varies with the season, being very little or perhaps none at the beginning of the irrigation season, fixed by the decree as of March 15 for the lands situated below Palisade, and reaching a maximum rate at the peak of the growing season sometime in the months of May and June. It must also be kept in mind that the Humboldt River is what might be termed more or less of a flash stream, the runoff depending upon melting snows or precipitation in the form of rain during the early months of the irrigation season on the upper reaches of the drainage basin, with wide fluctuations in flow due to seasonal climate conditions. Another important factor that has a direct influence on the delivery of water to water users is lagging or retardation of flow of the water in the main river as on account of its winding tortuous channel and slow gradient it requires, under normal conditions, a period of approximately fourteen days for an increase in the river flow at Palisade to make itself manifest on the lower reaches of the river. Also, in normal years the flow in the stream rapidly diminishes during the early part of July, so, as aforesaid, water is seldom, if ever, available in any appreciable quantities for irrigation on the lower reaches of the river after July 15 of each year.

During the years from 1927 to 1932, inclusive, the waters of the Humboldt River were distributed upon an acre-footage basis. In this method the office followed a policy of estimating the runoff in acre feet for the season as derived from snow survey data, and setting priorities to conform with the total amount available, less transportation losses, and delivering the amount to which the user was entitled at the time it could be most beneficially used, or as near as that could be done considering the flow of the stream and the acreage of the land entitled to water. This method of distribution was used with varying degrees of success and conforms to the recommendations made by the Humboldt River Advisory Board in its report of February 22, 1929. It is no
determination of the relative rights of claimants and appropriators is in the main a more or less simple process. The court can determine with reasonable certainty the location and extent of the irrigated areas, the duty of water for irrigated lands, and the time of initiation of the right, commonly referred to as priority. However, at this point in the proceedings there always appears that intangible something which seems to preclude the court to define definitely. Well, in his Fifty Years of Water Law, phase of water litigation in various appropriation States, quotes the following from an eminent water authority: "All indicate that there is something that should be reached and in every decision this something is just beyond the grasp of the court." In other words, the date of priority of an appropriation, the land to which the water is appurtenant under the priority, and the duty of water for such land can be as afterward determined with reasonable certainty as the date of the appropriator who was first in time will be the first in right in receiving, under varying conditions, that amount of water which the court has justly entitled to, cannot be definitely stated in any decree—it remains a problem of distribution.

In that portion of the decree defining the relative rights of claimants and appropriators of the Humboldt River stream system below Pailiade, there is embodied in said decree the length of irrigation season for such class of culture, viz, March 12 to September 30 for harvest crops, March 16 to June 15 for small grain, pasture, and March 16 to April 25 for diversified pasture, 184 days, 90 days, and 45 days, respectively, for various classes of culture. On this section of the river and tributaries the decree provides a rate of flow of 0.00313 c.f.s. for such acre irrigated, which, during the period specified as the irrigation season, will yield the amount of water in acre feet allowed for each class of culture.

Obviously in the distribution of water to appropriators in accordance with the priority, if we adhere strictly to the provisions of the decree with respect to the rate of flow as specified therein, it will require that such continuous flow be maintained throughout the entire length of the irrigation season. This rate is fixed for the different classes of culture in order to yield the amount of water in acre feet allowed for said classes of culture. This is to say, no rights are allowed under the various priorities upon a continuous flow basis as fixed by the decree for a full-time irrigation season, when such irrigation season is shortened as a result of failure in the water supply, the amount of water in acre feet actually delivered to the lands within the priority served will be in the proportion that the restiricted season due to the limited water supply bears to the full length of the irrigation season as fixed by the decree.

In actual practice on that portion of the river below Pailiade, river flow varies in any substantial quantity in seldom available for use on first-class culture land after the early part of July. Here, then, we have the anomaly of a decree which, in effect, based upon the continuous flow allowed, will under ordinary river flow conditions provide almost as much water for a second-class culture as can be obtained for the first-class culture.

For the foregoing it is readily seen that if water is available in PARADISE VALLEY UPLAND STORAGE

For several years the question of upstream storage in the Little Humboldt drainage basin on streams supplying Paradise Valley with water has been studied by members of the Nevada State Engineer's office and other interested parties. Surveys indicate feasible reservoir sites are available on the Little Humboldt River and Martin Creek, and in 1934 the United States Geological Survey made a survey of three sites on the former stream and two on the later. The streams coming into Paradise Valley all have an early runoff. The bulk of the runoff usually occurs in April, although in some years it occurs in May, and a storage reservoir, to hold water back until later, would seem to be very desirable in this type of river. In 1937 and 1938 work was done by the Nevada State Planning Board and WPA staff in collecting and compiling available data on water and allied subjects as it affects Paradise Valley.

In order to have this matter brought to the water users' attention and obtain their views on the matter, Mr. Alfred Merritt Smith, State Engineer, held two meetings in Paradise Valley with water users (May 29 and June 12). The question of upstream storage on the Little Humboldt River and Martin Creek were discussed at these meetings, and it was finally decided by most of those present that such a scheme is not feasible at present. After discussing this subject at these two meetings, the following points were brought out:

1. The present practice of ranching in Paradise Valley has been developed over a period of seventy years or more. The ranchers are used to this system and it would be difficult for them to change.

2. Nearly all ranchers are in the livestock business and raise feed for winter feeding of their livestock. Most of this feed consists of wild hay, which grows with early irrigation and only one crop is harvested.

3. A higher type of feed could be raised later in the season.

4. However, the distance from market prevents the sale of agricultural products at a profit. Most of this feed consists of wild hay, which grows with early irrigation and only one crop is harvested.

5. The raising of more feed would not benefit the ranchers as they are limited to the number of livestock they can raise by Forest Service regulations.

6. Cost appears prohibitive, as approximate figures by State Engineer's office showed a cost of from $150,000 to $200,000 for a suitable dam on Martin Creek which would store from 3,000 to 3,500 acre feet of water. This cost of $50 or more per acre foot appears excessive.

7. Channel conditions being bad, the point was raised that it would not be possible to get the water when and where it was needed.

*Such meetings were attended by Alfred Merritt Smith, State Engineer; Hugo A. Schmucker, Deputy State Engineer; Archie Miller, Supervising Water Commissioner, Humboldt River; Lawrence E. Mathews, Water Commissioner Little Humboldt River; and many other interested water users of Paradise Valley. The meeting held June 15, 1938, was also attended by Hon. Gray Mathis, Attorney-General of Nevada, who gave valuable information concerning the formation and operation of irrigation district.
CHAPTER VIII

Distribution of Water from Humboldt River, and Litigation Connected Therewith

The Humboldt River, for a period extending over many years, has furnished a fruitful field for water-right litigation. In the aggregate a goodly portion of this litigation may be considered constructive. Since it involved, more or less, the determination of priority of water rights and in the established order of events, the decisions rendered by the court in connection with such litigation have had a profound effect on the evolution of our present water law. However, litigation initiated during the irrigation season of 1907 and affecting the manner of distribution of the waters of the Humboldt River in the Lovelock Valley is apparently without parallel in the annals of water-right litigation within the State, and is of particular significance inasmuch as it involves the constitutionality of section 75 of our State water code* and the orderly distribution of water under the terms of any State court decree.

Preliminary to outlining the salient features of this litigation, it would seem pertinent to briefly discuss some of the basic principles relating to the distribution of water after the rights to the use thereof have been determined by court decree.

The first appropriators of water from the Humboldt River were not concerned with any distribution problems since the flow of the stream was ample for their requirements. It was only after continued settlement of land with new diversions from the river for the irrigation of such land, which brought about a condition that taxed beyond limit the natural flow of the stream to meet these new irrigation requirements, that early appropriators became concerned with the problems of establishing their priority rights as against the later appropriators. The arrival of this period was responsible for more or less extensive litigation between appropriators of water along the Humboldt River and resulted in numerous court decrees now of record. However, even after the rights were determined as between certain individuals there remained the problem of enforcement of the District Court decrees. It was to remedy this situation that our present water law was enacted, which provided for a court determination of all the relative rights of all the water users of a stream system with provisions for enforcement of any decree entered, so that the prior users, or those first in time, regardless of their location on the stream system, would receive the water to which they were justly entitled. The statutory adjudication proceedings initiated in the year 1903 for a determination of the relative rights of claimants and appropriators of the Humboldt River stream system resulted in the so-called Bartlett decree of 1913, as modified by the Edwards decree. The process of

*Section 75, chapter 253, Statutes of 1913, of the Nevada water code provides that anyone aggrieved by action or decision of the State Engineer may initiate an appeal in the District Court of the county in which the matters affected are situated. Appeals may be taken to the Supreme Court of the State from the decision of the District Court.
REPORT OF STATE ENGINEER

WHITE RIVER DISTRIBUTION—AUGUST 1927

<table>
<thead>
<tr>
<th></th>
<th>McQueen</th>
<th>Haynes</th>
<th>Vibber</th>
<th>Hermansen</th>
<th>Daily total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>c.f.s.</td>
<td>c.f.s.</td>
<td>c.f.s.</td>
<td>c.f.s.</td>
<td>c.f.s.</td>
</tr>
<tr>
<td>1</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>4.00</td>
</tr>
<tr>
<td>2</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>4.00</td>
</tr>
<tr>
<td>3</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>4.00</td>
</tr>
</tbody>
</table>

Daily average: 4.00 c.f.s. for August, 1927, inclusive. Water rotated between McQueen, Williams, and Hayden rights.

WHITE RIVER DISTRIBUTION—SEPTEMBER 1927

<table>
<thead>
<tr>
<th></th>
<th>McQueen</th>
<th>Haynes</th>
<th>Vibber</th>
<th>Hermansen</th>
<th>Daily total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>c.f.s.</td>
<td>c.f.s.</td>
<td>c.f.s.</td>
<td>c.f.s.</td>
<td>c.f.s.</td>
</tr>
<tr>
<td>1</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>4.00</td>
</tr>
<tr>
<td>2</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>4.00</td>
</tr>
<tr>
<td>3</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>4.00</td>
</tr>
</tbody>
</table>

Total c.f.s., September 1-15, 37,668. Haynes River, 9,928; Vibber, 12,490; McQueen, 15,250. Total acre feet, September, 37,668.

White River from July 1 to September 15, 1927.

I recommend in the future that any diversion dams that are built will be so constructed as to take care of 70 c.f.s. of water during the winter and the occasional summer storms. A dam with a spillway the full length of its crest appears to be the best suited for this stream. All headgates and diversion dams that have washed out were not equipped with spillways or devices to take care of flood waters.

All ranchers reported a good season, the first and second crops of alfalfa being good, also a good wild hay crop.

REPORT OF THE WATER COMMISSIONER, OF WHITE RIVER, WHITE PINE COUNTY, NEVADA

July 1 to September 15, 1927

C. B. WALKER, Water Commissioner

White River is located about 24 miles southwesterly from Ely, Nevada, in White Pine County. The stream flow is mainly derived from runoff from the mountains. The channel is narrow and shallow in the cultivated areas, and the overflow caused by the runoff in the early spring and occasional summer storms causes considerable damage.

I was called to White River on June 26, 1927. On inspecting the new headgate that had been installed in 1926 I found that the Hermansen headgate was washed out by flood waters, the river headgate having been closed during the winter months. The lower Albert Williams headgate was about 25 feet from the river channel, as the river had formed a new channel. The upper Williams headgate was in good condition, also the Hayden and McQueen headgates. Two new diversions had been made by T. A. Windows approximately 1,000 feet below the Hayden diversion. No headgates or measuring devices had been installed, these diversions being used only during flood periods. No water was diverted from these diversions during the irrigation season.

On August 2, 1927, the headgate for the McQueen ranch was washed out, due to a flood. A water commissioner was requested by Mr. J. A. Rosevear to settle a dispute between himself and Mr. T. A. Windows concerning the distribution of water for the Geo. Hayden ranch. It was decided to begin the 1st of July to rotate their decreed water according to a 21-day schedule:

J. A. Rosevear: 38.65% of 21 days, 8,116.5 days.
T. A. Windows: 61.35% of 21 days, 12,883.5 days.

This schedule has been used for several years previous. Before this could be put into effect Mr. Dan Clark, present owner of the McQueen right, and Mr. Tom Rosevear, representing the Williams right, asked that they be allowed to enter into the rotation plan until the 1st of November. The first and second alfalfa crops were poor, due to the late start. The wild hay was good and other crops fair. A survey of the Plateau lakes was made during the summer and the following conditions were found to exist:

The north lake is higher than the north lake, the average elevation of the bottom of the south lake being 5,009 feet and that of the north lake being 5,604 feet. A natural dyke of an elevation of 5,011 feet, divides the two lakes. Before any improvements were made the water raised in the south lake and flowed over the dyke into the north lake. Two headgates have been constructed and the dyke between the lakes raised so that the flow into the lakes can be controlled. The method used this season is to divert all of the water into the north lake, keeping the south lake dry. Whether this is the proper method or not of handling the water in these lakes is not as yet decided.

The table on page 58 gives the monthly average diversions in second feet and the seasonal discharge in acre feet from 1926 up to the end of the biennial period.
with their rights. This was agreeable to all parties and rotation between the four started on July 1, 1937. The water commissioner had complete charge of the handling of the schedule, and as the flow in White River dropped the various rights were dropped and adjust-
ments made in the schedule. When all rights were satisfied the follow-
ing schedule was used and found to be satisfactory:

<table>
<thead>
<tr>
<th>Name</th>
<th>% of Days</th>
<th>Start Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roosevelt</td>
<td>24.67%</td>
<td>5 days, 5 hours</td>
</tr>
<tr>
<td>Williams</td>
<td>39.22%</td>
<td>8 days, 5 hours</td>
</tr>
<tr>
<td>McQueen</td>
<td>26.39%</td>
<td>6 days, 17 hours</td>
</tr>
<tr>
<td>Barryman</td>
<td>11.72%</td>
<td>2 days, 11 hours, 11 hours</td>
</tr>
</tbody>
</table>

The water between the lower users, Mr. Gardner and Mr. Barryman, was handled on a rotation schedule of their own, and there was no need of a water commissioner.

All water over the decreed rights on White River was prorated to the various users.

The first measurement was taken on June 26. At the McQueen diversion, measured through a free orifice, there were 7.00 c.f.s. in the river.

The only water being diverted was at the Williams upper gate, 3.00 c.f.s., and at the Barryman upper gate, 3.00 c.f.s.

The White River below the Gardner Ranch was dry, and no water was flowing to Preston.

The various rights on White River since they were applied for have changed ownership and are known by different names.

These names and present owners are:

<table>
<thead>
<tr>
<th>Original Name</th>
<th>Known As</th>
<th>Present Owner</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andrew Lee</td>
<td>Andrew Lee</td>
<td>Max. Lippie Lee</td>
</tr>
<tr>
<td>James P. McQueen</td>
<td>Washoe Ranch</td>
<td>Doug Calk</td>
</tr>
<tr>
<td>Geo. H. Bacon</td>
<td>Haydon Ranch</td>
<td>T. A. Williams 0.802 c.f.s.</td>
</tr>
<tr>
<td>Stephen Williams</td>
<td>Albert Williams</td>
<td>T. A. Roosevelt 0.022 c.f.s.</td>
</tr>
<tr>
<td>C. &amp; K. Hermanson</td>
<td>Barryman &amp; Gardner</td>
<td>Edgard Barryman</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Preston Irrigation Co.</td>
</tr>
</tbody>
</table>

### WHITE RIVER DISTRIBUTION—JULY 1937

<table>
<thead>
<tr>
<th>White River</th>
<th>McQueen</th>
<th>Williams</th>
<th>Hermanson</th>
<th>Daily Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>White River</td>
<td>2.76</td>
<td>1.10</td>
<td>1.08</td>
<td>3.45</td>
</tr>
<tr>
<td>McQueen</td>
<td>1.45</td>
<td>1.30</td>
<td>1.05</td>
<td>2.60</td>
</tr>
<tr>
<td>Williams</td>
<td>1.60</td>
<td>1.30</td>
<td>1.05</td>
<td>3.20</td>
</tr>
<tr>
<td>Hermanson</td>
<td>1.08</td>
<td>1.05</td>
<td>0.80</td>
<td>2.05</td>
</tr>
<tr>
<td>Daily Total</td>
<td>5.34</td>
<td>4.90</td>
<td>3.55</td>
<td>14.50</td>
</tr>
</tbody>
</table>

**Note:**
- Total acre feet for July, 20,867.
- Measurements taken above McQueen Ranch diversion.
- All rights from 1863-1935, inclusive, fulfilled. Surplus water prorated according to importance given, on priority of rights, with remainder going to Williams and Hermanson rights.
- Surplus water being used by Williams, and Haydon rights.
- Increased flows due to local rainfall.
with their rights. This was agreeable to all parties and rotation
between the four started on July 1, 1937. The water commissioner
had complete charge of the handling of the schedule, and as the flow
in White River dropped the various rights were dropped and adjust-
ments made in the schedule. When all rights were satisfied the follow-
ing schedule was used and found to be satisfactory:

<table>
<thead>
<tr>
<th>Name</th>
<th>Days</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rosewar</td>
<td>24,08%</td>
<td>5</td>
</tr>
<tr>
<td>Williams</td>
<td>38.22%</td>
<td>8</td>
</tr>
<tr>
<td>McQueen</td>
<td>20.39%</td>
<td>5</td>
</tr>
<tr>
<td>Williams</td>
<td>11.33%</td>
<td>2</td>
</tr>
</tbody>
</table>

The water between the lower users, Mr. Gardner and Mr. Barryman,
was handled on a rotation schedule of their own, and there was no
need of a water commissioner.
The all water over the desired rights on White River was prorated to
the various users.
The first measurements were taken on June 26. At the McQueen
diversion, measured through a free orifice, there were 7.00 c.f.s.
in the river.
The only water being diverted was at the Williams upper gate, 3.00
c.f.s., and at the Barryman upper gate, 3.00 c.f.s.
The White River below the Gardner Ranch was dry, and no water
was flowing to Preston.
The various rights on White River since they were applied for have
changed ownership and are known by different names.

Those names and present owners are:

<table>
<thead>
<tr>
<th>Original Name</th>
<th>Known As</th>
<th>Present Owner</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andrew Lee</td>
<td>Andrew Lee</td>
<td>W. B. Lacy</td>
</tr>
<tr>
<td>James T. McQueen</td>
<td>White Ranch</td>
<td>Dan Carper</td>
</tr>
<tr>
<td>Gen. H. Haynes</td>
<td>Haynes Ranch</td>
<td>T. L. White 0.62 c.f.s.</td>
</tr>
<tr>
<td>Stephen Williams</td>
<td>Albert Williams</td>
<td>T. L. Rosewar 0.002 c.f.s.</td>
</tr>
<tr>
<td>C. &amp; K. Herman</td>
<td>Barryman &amp; Gardiner</td>
<td>Edward Barryman</td>
</tr>
<tr>
<td></td>
<td>% lower %</td>
<td></td>
</tr>
<tr>
<td>Preston Irrigation Co.</td>
<td>Name</td>
<td>Name</td>
</tr>
</tbody>
</table>

### WHITE RIVER DISTRIBUTION—JULY 1937

<table>
<thead>
<tr>
<th>White River &amp; Gage</th>
<th>McQueen</th>
<th>Barryman</th>
<th>Haynes</th>
<th>Herman</th>
<th>Daily total</th>
<th>Area feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>July</td>
<td>c.f.s.</td>
<td>c.f.s.</td>
<td>c.f.s.</td>
<td>c.f.s.</td>
<td>c.f.s.</td>
<td>c.f.s.</td>
</tr>
<tr>
<td>3</td>
<td>1.1</td>
<td>1.1</td>
<td>0.8</td>
<td>0.8</td>
<td>3.8</td>
<td>12.83</td>
</tr>
<tr>
<td>5</td>
<td>1.1</td>
<td>0.8</td>
<td>0.8</td>
<td>0.8</td>
<td>3.5</td>
<td>12.30</td>
</tr>
<tr>
<td>12</td>
<td>1.1</td>
<td>1.1</td>
<td>1.4</td>
<td>1.4</td>
<td>4.6</td>
<td>15.17</td>
</tr>
<tr>
<td>20</td>
<td>1.1</td>
<td>1.1</td>
<td>1.4</td>
<td>1.4</td>
<td>4.6</td>
<td>15.15</td>
</tr>
<tr>
<td>22</td>
<td>1.1</td>
<td>0.8</td>
<td>1.4</td>
<td>1.4</td>
<td>3.9</td>
<td>13.30</td>
</tr>
<tr>
<td>23</td>
<td>1.1</td>
<td>0.8</td>
<td>1.4</td>
<td>1.4</td>
<td>3.9</td>
<td>13.30</td>
</tr>
<tr>
<td>Total</td>
<td>11.1</td>
<td>11.1</td>
<td>11.1</td>
<td>11.1</td>
<td>44.4</td>
<td>133.3</td>
</tr>
</tbody>
</table>

Daily average: 11.11

Total acre feet for July: 253.427.

*Measurements taken above McQueen Ranch diversion.

All rights from 1865-1905, inclusive, fulfilled. Surplus water prorated according to percentages shown on priority dates.
I recommend in the future that any diversion dams that are built will be so constructed as to take care of 75 c.f.s. of water during the winter and the occasional summer storms. A dam with a spillway the full length of its crest appears to be the best suited for this stream. All headgates and diversion dams that have washed out were not equipped with spillways or devices to take care of flood waters. All ranchers reported a good season, the first and second crops of alfalfa being good, also a good wild hay crop.

### WHITE RIVER DISTRIBUTION—SEPTEMBER 1927

<table>
<thead>
<tr>
<th></th>
<th>McQueen</th>
<th>Hayden</th>
<th>Williams</th>
<th>Hermanson</th>
<th>Daily total</th>
<th>Acres</th>
<th>Feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sept.</td>
<td>c.f.s.</td>
<td>c.f.s.</td>
<td>c.f.s.</td>
<td>c.f.s.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>1.14</td>
<td>0.16</td>
<td>0.46</td>
<td>0.45</td>
<td>2.05</td>
<td>5.40</td>
<td>1.33</td>
</tr>
<tr>
<td>2</td>
<td>2.60</td>
<td>0.16</td>
<td>0.46</td>
<td>0.37</td>
<td>3.73</td>
<td>7.44</td>
<td>1.40</td>
</tr>
<tr>
<td>3</td>
<td>1.36</td>
<td>0.16</td>
<td>1.09</td>
<td>0.34</td>
<td>2.95</td>
<td>5.40</td>
<td>1.33</td>
</tr>
<tr>
<td>Total</td>
<td>5.10</td>
<td>0.48</td>
<td>2.09</td>
<td>1.16</td>
<td>8.63</td>
<td>11.44</td>
<td>2.80</td>
</tr>
</tbody>
</table>

The total acre feet for August, 1928, inclusive, was 9,204. Water rotated between McQueen, Williams, and Hayden rights.

White River from July 1 to September 15, 1927.

until the 1st of November. The first and second alfalfa crops were poor, due to the late start. The wild hay was good and other crops fair. A survey of the Plateau Lakes was made during the summer and the following conditions were found to exist:

The south lake is higher than the north lake, the average elevation of the bottom of the south lake being 5,009 feet and that of the north lake being 5,004 feet. A natural dyke of an elevation of 5,011 feet divides the two lakes. Before any improvements were made the water raised in the south lake and flowed over the dyke into the north lake. Two headgates have been constructed and the dyke between the lakes raised so that the flow into the lakes can be controlled. The method used this season is to divert all of the water into the north lake, keeping the south lake dry. Whether this is the proper method or not of handling the water in these lakes is not as yet decided.

The table on page 99 gives the monthly average diversions in seconds and the seasonal discharge in acre feet from 1928 up to the end of the biannual period.

### REPORT OF WATER COMMISSIONER, OF WHITE RIVER, WHITE PINE COUNTY, NEVADA

(To be continued)

C. R. Walker, Water Commissioner

White River is located about 24 miles southwesterly from Ely, Nevada, in White Pine County. The stream flow is mainly derived from snow from the mountains. The channel is narrow and shallow in the cultivated areas, and the overflow caused by the runoff in the early spring and occasional summer storms causes considerable damage.

It was called to White River on June 26, 1927. On inspecting the new headgates that had been installed in 1926 I found that the Hermanson headgate was washed out by flood waters, the river headgate having been closed during the winter months. The lower Albert Williams headgate was about 25 feet from the river channel, as the river had formed a new channel. The upper Williams headgate was in good condition, also the Hayden and McQueen headgates. Two new diversions had been made by T. A. Window approximately 1,000 feet below the Hayden diversion. No headgates or measuring devices had been installed, these diversions being used only during flood periods. No water was diverted from these diversions during the irrigation season.

On August 2, 1927, the headgate for the McQueen ranch was washed out, due to a flood.

A water commissioner was requested by Mr. J. A. Rosevear to settle a dispute between himself and Mr. T. A. Window concerning the distribution of water for the Geo. Hayden ranch. It was decided to begin the 1st of July to rotate their decreed water according to a 21-day schedule:

- J. A. Rosevear...36.65% of 21 days, 8,116 days
- T. A. Window...63.35% of 21 days, 12,883 days

This schedule has been used for several years previously.

Before this could be put into effect Mr. Dan Clark, present owner of the McQueen right, and Mr. Tom Rosevear, representing the Williams right, asked that they be allowed to enter into the rotation plan...
8. Some fewer users, of relatively late priorities, argued that storage would not do them any good, as the earlier rights upstream would have to be served ahead of them anyway. They prefer to depend on a large spring runoff to serve them by flooding.

9. A storage reservoir on Martin Creek would benefit only those users on Martin Creek and not the whole valley.

10. The same is true on the Little Humboldt.

11. Most of the ranchers have been through some pretty lean years, financially, and do not feel as though they are able to go in debt any more even if they could get any credit.  Some of them have the only way a storage scheme could be worked out.

12. There is no legal solution to the Humboldt River in the Lower Valley to handle such matters. It was suggested that an irrigation district be formed, and Mr. Gray Masburn, Attorney-General, explained the procedure necessary to form a district and the operation of such an organization after its formation. After this explanation, and a general discussion, it was decided that they would not attempt to form an irrigation district as the disadvantages appeared to outweigh any possible advantages.

14. The present channel cleaning program was endorsed and requests made to have it continued.

15. The new regulatory structures were given general approval and several requests received for additional structures. Mr. Smith advised, first, although the upstream storage project appeared to be out of the picture at the present, his office would continue to collect data and study the matter. It is possible that the matter may come up in the future and receive more favorable consideration under different circumstances.

DUCkWATER CREEK—1937 SEASON
BY C. H. WALNURST, Water Conservationist

Duckwater Creek is located in the northeastern part of Nye County, about fifty miles southwesterly from Elko, Nevada, and flows in a southerly direction into Railroad Valley. Approximately, 5,000 acres are irrigated along this section for a distance of twelve miles. A large warm spring rises on the 13,000 acres, and has a constant flow of between 12 and 14 c.f.s. of water.

Distribution of water to the various users began on May 9, 1937. The decreed rights amounting to 26.40 c.f.s. were all satisfied up until June 15. The water gradually decreased until the minimum flow of 19.65 c.f.s. was reached on September 30. The flow then increased during the remainder of the season, reaching 23.70 c.f.s. on October 31.

During this season two Litz Horizontal Water Stage Recorders were installed, one on the main channel at Mendes No. 1 diversion and one at the Vanover and Irving Ditches at the entrance to Duckwater. These both operated on a ratio of 1 to 1, and a record of the season's flow was kept. The only trouble given by either recorder was caused by a sudden increase in water due to summer rains. The irrigation season was thirty days late this year due to a late winter and cold spring. There was a warm fall, so various users continued to irrigate.

CHAPTER VIII
Distribution of Water from Humboldt River, and Litigation Connected Therewith

The Humboldt River, for a period extending over many years, has furnished a fruitful field for water-right litigation. In the aggregate a goodly portion of this litigation may be considered constructive, in that it involved, more or less, the determination of priority of water rights and in the established order of events, the decisions rendered by the court in connection with such litigation have had a profound effect on the evolution of our present water law. However, litigation initiated during the irrigation season of 1937 and affecting the manner of distribution of the waters of the Humboldt River in the Lovelock Valley is apparently without parallel in the annals of water-right litigation within the State, and is of particular significance inasmuch as it involves the constitutionality of section 75 of our State water code* and the orderly distribution of water under the terms of any State court decree.

Preliminary to outlining the salient features of this litigation it would seem pertinent to briefly discuss some of the basic principles relating to the distribution of water after the rights to the use thereof have been determined by court decree.

The first appropriators of water from the Humboldt River were not concerned with any distribution problems since the flow of the stream was ample for their requirements. It was only after continued settlement of land with new diversions from the river for the irrigation of such land, which brought about a condition that taxed beyond limit the natural flow of the stream to meet these new irrigation requirements, that early appropriators became concerned with the problems of establishing their priority rights as against the later appropriators. The arrival of this period was responsible for more or less extensive litigation between appropriators of water along the Humboldt River and resulted in numerous court decrees now of record. However, even after the rights were determined as between certain individual users there remained the problem of enforcement of the District Court decrees. It was to remedy this situation that our present water law was enacted, which provided for a court determination of all the relative rights of all the water users of a stream system with provisions for enforcement of any decree entered, so that the prior users, or those in time, regardless of their location on the stream system, would receive the water to which they were justly entitled. The statutory adjudication proceedings initiated in the year 1913 for a determination of the relative rights of claimants and appropriators of the Humboldt River stream system resulted in the so-called Bartlett decree of 1921, as modified by the Edwards decrees. The process of

*Section 75, chapter 292, Statutes of 1913, of the Nevada water code provides that anyone aggrieved by said or decision of the State Engineer may initiate an appeal in the District Court of the county in which the matters affected are situated. Appeals may be taken to the Supreme Court of the State from the decision of the District Court.
determination of the relative rights of claimants and appropriators is in the main a more or less simple process. The court can determine with reasonable certainty the location and extent of the irrigated areas, the duty of water for irrigated lands, and the time of initiation of the right, commonly referred to as priority. However, at this point in the proceedings there always appears that intangible something which seems to challenge the court to define definitely. Well, in his Fifty Years of Water Law, phase of water litigation in various appropriation States, quotes the following from an eminent water authority: "All indicate that there is something that should be reached and in every decision this something is just beyond the grasp of the court." In other words, the date of priority of an appropriation, the land to which the appropriation relates, the priority, and the duty of water for such land can be as afterwards determined with reasonable certainty as to which the appropriator who was first in time will be the first in right in receiving, under existing conditions, that amount of water which the court has justly entitled to, cannot be definitely stated in any decree—it remains a problem of distribution.

In that portion of the decree defining the relative rights of claimants and appropriators of the Humboldt River stream system below Pahsimura, there is embodied in said decree the length of irrigation season for such class of culture, viz., March 13 to September 3 for harvest crops, March 16 to June 13 for meadow pasture, and March 15 to April 28 for diversified pasture of 184 days, 90 days, and 45 days, respectively, for the various classes of culture. On this section of the river and tributaries the decree provides a rate of flow of 0.0013 c.f.s. for each acre irrigated, which, during the period specified as the irrigation season, will yield the amount of water in acre feet allowed for each class of culture.

Obviously in the distribution of water to appropriators in accordance with the priority, if we adhere strictly to the provisions of the decree with respect to the rate of flow as specified therein, it will require that such continuous flow be maintained throughout the entire length of the irrigation season. Such a condition fixed for the different classes of culture in order to yield the amount of water in acre feet allowed for said classes of culture. Thus the deliveries of the water under the various priorities upon a continuous flow basis as fixed by the decree for a full-time irrigation season, when such irrigation season is shortened as a result of failure in the water supply, the amount of water in acre feet actually delivered to the lands within the priority served will be in the proportion that the contracted season due to the limited water supply bears to the full length of the irrigation season as fixed by the decree.

In actual practice on that portion of the river below Pahsimura, river-flow stations in any substantial quantity is seldom available for use on first-class culture land before early part of July. Here, then, we have the anomaly of a decree which, in effect, based upon the continuous flow allowed will under ordinary river flow conditions provide almost as much water for a second-class culture as can be obtained for the first-class culture.

For the foregoing it is readily seen that if water is available in PARADISE VALLEY UPTREAT STORAGE

Paradise Valley-3

For several years the question of upstream storage in the Little Humboldt drainage basin on streams supplying Paradise Valley with water has been studied by members of the Nevada State Engineer’s office and other interested parties.

Surveys indicate feasible reservoir sites are available on the Little Humboldt River and Martin Creek, and in 1934 the United States Geological Survey made a survey of three sites on the former stream and two on the latter.

The streams coming into Paradise Valley all have an early runoff. The bulk of the runoff usually occurs in April, although in some years it occurs in May, and a storage reservoir, to hold water back until later, would seem to be very desirable in this type of stream. In 1937 and 1938 work was done by the Nevada State Planning Board and WPA staff in collecting and compiling available data on water and allied subjects as it affects Paradise Valley.

In order to have this matter brought to the water users’ attention and obtain their views on the matter, Mr. Alfred Merritt Smith, State Engineer, held two meetings in Paradise Valley with water users (May 29 and June 12). The question of upstream storage on the Little Humboldt River and Martin Creek was discussed at these meetings, and it was finally decided by most of those present that such a scheme is not feasible at present. After discussing this subject at these two meetings, the following points were brought out:

1. The present practice of ranching in Paradise Valley has been developed over a period of seventy years or more. The ranchers are used to this system and it would be difficult for them to change.

2. Nearly all ranchers are in the livestock business and raise feed for winter feeding of their livestock. Most of this feed consists of wild hay, which grows with early irrigation and only one crop is harvested. A higher type of feed could be raised with late water.

3. However, the distance from market prevents the sale of agricultural products at a profit. Most of this feed consists of oats which grow with early irrigation and only one crop is harvested.

4. The raising of more feed would not benefit the ranchers as they are limited to the number of livestock they can raise by Forest Service regulations.

5. Cost appears prohibitive, as at the present time the water is delivered at a cost of $150,000 to $200,000 for a suitable dam on Martin Creek which would store from 3,000 to 3,500 acre feet of water. This cost of $40 or more per acre foot appears excessive.

6. Channel conditions being bad, the point was raised that it would not be possible to get the water where it was needed.

*Both meetings were attended by Alfred Merritt Smith, State Engineer; Howard A. Schroeber, Deputy State Engineer; Archie Miller, Supervising Water Commissioner, Humboldt River; Lawrence E. Matthews, Water Commissioner Little Humboldt River, and many interested water users of Paradise Valley. The meeting held June 15, 1938, was also attended by Hon. Gray Haunfner, Attorney-General of Nevada, who gave valuable information concerning the formation and operation of an irrigation district.
the stream system in sufficient amount to satisfy the continuous flow that each water user is allotted under the decree from the beginning to the end of the irrigation season, then each of such users during each period of time will receive that amount of water in acre-feet for the various classes of culture as specified by the decree. As aforesaid, this condition we know seldom, if ever, exists; so it naturally follows that a practical view must be taken of all the surrounding conditions and situations in the enforcement of the decree, and if the stream becomes from natural conditions insufficient for all claimants, prior appropriators must be given their full amount at all times in order, in preference to junior appropriators. A practical method of distribution, therefore, not only on the Humboldt River, but on any stream system, when the right to the use of water of the stream system has been commutated by use, and such right has been defined by court decree, is to allow the appropriator without undue interference to others to continue the use he has customarily made and enjoyed in the past.

Any system of distribution adopted in connection with the distribution of the waters of the Humboldt River to accomplish the foregoing results must be with the understanding that in the very nature of things, beneficial use is not and cannot be considered a constant factor. That is to say, the rate of consumption of water by the irrigated crops along said river varies with the season, being very little or perhaps none at the beginning of the irrigation season, fixed by the decree as of March 15 for the lands situated below Palm Island, and reaching a maximum rate at the peak of the growing season sometime in the months of May and June. It must also be kept in mind that the Humboldt River is what might be termed more or less of a flash stream, the runoff depending upon melting snows or precipitation in the form of rain during the early months of the irrigation season on the upper reaches of the drainage basin, with wide fluctuations in flow due to seasonal climatic conditions. Another important factor that has a direct influence on the delivery of water to water users is lagging or retardation of flow of the water in the main river as on account of its winding tortuous channel and low gradient it requires, under normal conditions, a period of approximately fourteen days for an increase in the river flow at Palm Island to make itself manifest on the lower reaches of the river. Also, in normal years the flow in the stream rapidly diminishes during the early part of July, so, as aforesaid, water is seldom, if ever, available in any appreciable quantities for irrigation on the lower reaches of the river after July 15 of each year.

During the years from 1927 to 1935, inclusive, the waters of the Humboldt River were distributed upon an acre-footage basis. In this method the office followed a policy of estimating the runoff in acre feet for the season as derived from snow survey data, and setting priorities to conform with the total amount available, less transportation losses, and delivering the amount to which the user was entitled at the time it could be most beneficially used, or as near as that could be done considering the flow of the stream and the acreage of the land entitled to water. This method of distribution was used with varying degrees of success and conforms to the recommendations made by the Humboldt River Advisory Board in its report of February 22, 1929. It is no
doubt justified under the provisions of the decree when the use of the amount of water in acre feet delivered to land having a priority right is based upon actual beneficial use of the water. The main objectionable features to its inclusive use are:

1. Inability to determine at the present time with reasonable accuracy the amount of water in acre feet less transportation losses which will be available for irrigation, and thereby determine the priorities which can be served at the beginning of the irrigation season.

2. Possibility of determining, on account of varying weather conditions, the time or times when the estimated probable maximum runoff will be available for distribution.

It is recognized that the only reliable method which can be used in making an estimate of the probable runoff from any watershed is based upon the principles advanced by Dr. J. F. Church, and as this work is carried on from year to year on the Humboldt River stream system, the data secured becomes more valuable and more accurate, and will play an important part in solving many of the vexing problems of distribution on said stream system. The time when the estimated quantities of water forecast by the snow survey will be discharged by the stream system, is of course, an unknown factor, and makes it imperative that some flexibility be maintained in determining the priorities which can be served by the river flow.

The measure of the allowance for irrigation use which will be most readily understood and most easily applied in connection with distribution under the court decrees on the Humboldt River is, we believe, a continuous flow diverted in terms of cubic feet per second. For the most practical results in conformity with the provisions of the decrees, the rate of flow allowed should be based upon the period of anticipated availability of water which will yield, during such period of time, the amount of water in acre feet required for a beneficial use by the growing crops, provided that the total amount diverted in acre feet for the various classes of culture shall not exceed the duty of water as specified in the decree for such culture. It must be understood that some flexibility is not only desirable, but is necessary in order to take advantage of the peak flows in the stream system.

As aforementioned, beneficial use of water is not and cannot be in the very nature of things a constant factor in terms of cubic feet per second. The consumption of water by irrigated crops varies with the season, being very little or perhaps none during the dormant season and reaching a maximum rate at the height of growth. The discharge of the Humboldt River during years of normal precipitation is seldom, if ever, great enough even throughout the peak period of length of the river the maximum requirements of the irrigated crops during the period of the growing season. Downstream appropriators of water on the Humboldt River, being in the position of being able to pick up opportunities to divert large quantities of water, due to upstream diversions, would probably be available only in limited quantities during the peak of the growing season, have of necessity been required to divert and accumulate in ground storage the runoff made available to them at the beginning of the irrigation season, thus conserving and retaining same in such ground storage for later use by the growing crops. In conjunction with accumulation of

had been made for irrigation, due to abandonment of ranches, or where the properties had been allowed to deteriorate due to neglect in maintaining irrigation systems (dams, canals, ditches, etc.).

Although some streams usually dry up in June, this was not true this season, as all streams were flowing at the end of June.
water in ground storage, the water users have generally found it economi-
cally desirable to employ a system of rotation in the use of water. By
this method the appropriators enjoy an increased head of water, but
only those whose order in the rotation comes within the period of
maximum crop demand will receive the highest beneficial use of water.
The most practical and more modern method to meet the variable
demand for water by irrigated crops than by ground storage or rota-
tion is the accumulation of water by means of reservoirs. Although it may
not always be economically feasible to provide such
regulatory storage, it is believed where such facilities are available they
should be used in the interest of conservation and highest beneficial
use of water; provided, that by such accumulation there be no inter-
ference with any prior rights. By this means the user or users will
divert from the stream at a uniform rate the quantity of water,
measured by volume and time, that they are entitled to divert for direct
irrigation, under the terms of the decree, within the priorities served
and, for use within the limits of the irrigation season as defined by such
decree. Irrespective of whether the accumulation of decreed water in
storage is strictly legal under the provisions of the decree on the Hum-
boldt River, there can be no question but that such accumulation under
the foregoing conditions is conducive to the highest beneficial use of
said water with a minimum of waste, and resists to the benefit of all
appropriators on the Humboldt River stream system, for the reason
that such accumulation affords a practical means for meeting the con-
stantly changing factor of beneficial use with, as aforesaid, a minimum
disturbance of the river flow during the peak demand of growing crops.

One of the greatest difficulties encountered by the supervising water
commissioner in the distribution of the waters of the Humboldt River
under the Order of Determination of the State Engineer defining the
relative rights of claimants and appropriators of water of said stream
system, and later under the court decree, was the transportation of
water through what is termed the Battle Mountain Basin. This basin
is approximately 75 miles in length and several miles in width. Adja-
cent to the river channel through the basin were several large ranches
that diverted water from the Humboldt River for irrigation of lands
classified as harvest crop, meadow pasture, and diversified pasture.
The usual method of irrigation as practiced on this section of the river
was the installation of dams in the river channel in such a manner as
to not only divert water into constructed culms and ditches, but also
to irrigate by overflow and serving as great an area as possible. This
wasteful practice of irrigation had been carried on for a period of
from 60 to 60 years and was considered by engineers as one of the
greatest contributing factors in dissipating the water resources of
the river at the expense of other appropriators. It was also the con-
census of opinion of water commissioners that any water diverted from
the river through this section was lost water, and no return flow to the
river of any consequence as the result of any diversions was appar-
ent. In what was commonly referred to as the Argenta Swamp alone,
comprising a tule area of approximately 900 acres in extent in which
the river channel had been entirely obliterated, it was conservatively
estimated that there was an annual loss of water to the river of from
4,000 to 12,000 acre feet.
The following comments are made by the court upon the foregoing condition in the Findings of Fact No. 38 of Findings of Fact, Conclu-
sions of Law and Decree: "In one place in the Agua Fria region above
Battey Mountain, the river channel is practically lost and the water
flows out on enormous areas of land, causing in some places the
growth of hay, pasture, and forage on the uplands. The evidence
and observations show that the entire river must flow into this area
for considerable time prior to the water finding its way through this
area; the river from its source to the last cultivated area is but
more than three hundred miles.

During the year from April 1 to June 30, 1932 the Bureau of Reclamation made a
survey of the needs of the water users and of the water resources of
the Humboldt River Basin. The survey covered the entire area of the
existing conditions in the Battle Mountain section. As a result of
these investigations the Pershing County Water Conservation District
initiated a program covering, etc., viz: 1. Construction of a dam in the active river channel at Rye Patch, approximately 20 miles northward from the city of Lovelock.
2. Purchase of seven ranches and appurtenant water rights in the
Battle Mountain section and transfer down stream of such purchased
water to lands located within said irrigation district.
3. Removal of dams constructed across the river channel for
irrigation and flooding of land on ranches purchased, and otherwise
good channel improvement and drainage of such lands.

In the month of March 1884 the Pershing County Water Conserva-
tion District, with options to purchase water rights from seven different
ranches located in the Battle Mountain section, filed with the State
Engineer Applications Nos. 9729-9735, inclusive, for permission to
transfer the decreed water appurtenant to the lands on said ranches to
lands included within said irrigation district in the Lovelock Valley.
These applications after being duly advertised in accordance with law,
were formally protested by other appropriators of water in the Battle
Mountain section, so it was only after a long series of hearings and confer-
ces that these protests were disposed of by stipulation, and the way
paved for the approval of these applications. These seven applications,
involved the transfer of approximately 50,000 acre feet of the waters
of the Humboldt River, as a supplemental supply for lands having
declared rights and on newly reclaimed land, was approved by the State
Engineer on October 8, 1884, and said transfer of water was in effect
under the irrigation law of 1855. These permits and water rights
were subsequently assigned by the Pershing County Water Conservation
District to the United States.

The Rye Patch Dam, which is aforenamed, is constructed across the
channel of the Humboldt River about 25 miles northward from the
town of Lovelock, was sufficiently com-
pleted in the early months of the year 1886 to store water.

With the advent of the 1885-1886 season, it was found that
the construction of the Rye Patch Dam, coupled with the transfer of
certain decreed waters from lands in the Battle Mountain section of
the Humboldt River onto the lands included within the boundaries of the
Pershing County Water Conservation District in Lovelock Valley,
a goodly portion of which latter lands already had decreed rights from

The State Engineer declared the irrigating season open on March 28
General conditions, amount of precipitation, snow depth and water
content on March 1 indicated there would not be a very large supply
of water for the 1938 season. However, during March a great deal of
precipitation was experienced in the Paradise Valley area. The pre-
cipitation was 293% of the month of March's normal in the Little
Humboldt Basin, and practically all this precipitation was in the form
of very wet snow. The snow cover on the Upper Baskin snow survey
course increased from 57.6% of normal on March 1 to 144 % of the
March 1 normal on April 1. The increase during March is shown in the
following compilation of data on snow measurements on the Upper
Baskin course, as furnished by the Federal-State Cooperative Snow
Surveys:

<table>
<thead>
<tr>
<th>Month</th>
<th>Snow Cover</th>
<th>Precipitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>March 1</td>
<td>14.2</td>
<td>21.2</td>
</tr>
<tr>
<td>April 1</td>
<td>77.5</td>
<td>64.4</td>
</tr>
</tbody>
</table>

Elevation, 8,000 feet.

Although no measurements were taken on April 1, on other courses
at the Little Humboldt Basin observers reported a great increase in
snow cover on all areas throughout the basin, also the water content
of the snow was above the normal water content.

The precipitation in the valley itself was above normal which resulted in
good ground conditions.

The first half of April was cool, with frequent rains and snow storms.
April 17, Easter Sunday, was the first real warm day of the year, and
this was followed by another warm day, the effect of which was to
cause the lower snow to melt, resulting in floods on all streams entering
the valley. Cooler weather during the next two weeks caused the
streams to drop a bit, but they still continued to flow at high levels.
On April 30 a two-day rain started, and on May 2 all streams reached
fool stages. In fact, the maximum flow on this day exceeded any
recorded maximum since 1892, the last year of extreme high water.
Many acres of land were flooded by this high flow, due to poor channel
conditions and the unexpectedly large amount of water.

The flow of all streams continued to be extra large until about the
middle of June, which gave all users a sufficient amount of water to
irrigate all decreed rights. In fact, there was an excess of irrigation
water as evidenced by the fact the water reached the sand dunes in
the southern part of Paradise Valley and formed a lake, known locally
as Gun Boot Lake, about five miles long and from one-quarter to one-
half mile wide, with a depth up to six feet in places (see picture).
This was the first time since 1892 that water in Paradise Valley had
reached the sand dunes.

In general, all decreed rights were served with all the water the
covers needed, and very little trouble was experienced in water dis-
tribution. The only rights not served were in cases where no provisi-

LITTLE HUMBOLDT RIVER AND TRIBUTARIES—1938 DISTRIBUTION
BY LAWRENCE E. MATTHEWS, Water Commissioner

Lawrence E. Matthews served as water commissioner for the Little
Humboldt River and tributary from March 13 through June 27, 1938.
On June 28 Mr. Fred Backus took over the position as water commis-
sioner to serve for the remainder of the irrigating season.
and to the saying "first in time shall be first in right." In doing this, many obstacles were encountered. Of those, one of the most difficult is the clogged channel, as found in Paradise Valley, with its appalling lack of proper regulatory dams.

A form of rotation was practiced whereby the valley was zoned to the upper and lower valley within the two groups patented with each other and also the users in the upper valley rotated among themselves. Following the Carville Deed, page 9, article IX, the water allotted respective users was during upon a continuous flow of .01 cubic feet per second for each acre irrigated. Priorities were served according to the day to day water, for on the stream discharge increased more water was available for distribution. As it decreased, the opposite was true. The thought always and ever be carried in mind that priority must govern. For example, if the discharge in a certain stream reached such a point that a user with a comparatively late priority, say 7576, had to wait to get water for just one week (as set forth in article IX, page 9, of the Carville Deed) every effort was made to see that this man got the water that he was justly entitled to, even though for a few days only.

Despite the utmost effort of the commissioner to serve every entitled user justly, certain obstacles were encountered that prevented certain users from participating in any rotation or using deereed continuous flows, as their lands were continuously under water during the high water period and they were unable to drain same under existing conditions, even though they might have wished to do so.

Channel conditions have been thoroughly covered in previous reports, and little can be added in this report, except to again emphasize that channel conditions in Paradise Valley are extremely bad. Clogged and filled channels result in the flooding of areas that carry no or very late priority, and cause users with early priority but unfavorable geographical locations to go without water. Until the channels are cleared by removal of willows and debris in some way and regulatory dams installed, it will be satisfactory to many, if not all, of the users.

The work of the CCC boys, in cooperation with the U. S. Forest Service and the State Engineer's office, in road dam construction and channel cleaning is described in Chapter 11.

The Humboldt River, had brought about certain complications with respect to the distribution of the waters of the Humboldt River, particularly in the Lovelock Valley district. These complications were induced in part or by the then existing reservoirs of the Humboldt Lovelock Irrigation Light & Power Company, which corporation had prior existing rights to the storage of the waters of the Humboldt River, thus making it essential that the State Engineer keep accurate account with respect to four classes of water, viz., individual deereed water, transferred purchased deereed water, belonging to the Pershing County Water Conservation District or the United States, Humboldt Lovelock Irrigation Light & Power Company storage water, and storage water in the Rye Patch reservoir. After considerable detailed study of the situation it was decided to use the gaging station situated on the Humboldt River near Mill City, and a short distance below the intake of the feeder canal for the Humboldt Lovelock Irrigation Light & Power Company reservoirs, as the place for computing and aggregating the river flow into its various classifications, as heretofore referred to, in accordance with priority and the provisions of the deed. It was also decided in the interest of conservation of water and its highest beneficial use that individual deereed water users of the Lovelock Valley should have the advantage of using their reservoirs for the purpose of accumulation in storage of the quantity of water, measured by volume and time, that they were entitled to receive for direct irrigation under the priorities being served, and for use within the limits of the irrigation season as fixed by the decree. The advantage of accumulation for purchased transferred water was also accorded to the irrigation district, it being understood that the total amount of accumulated individual deereed water and said purchased and transferred deereed water must not exceed the duty of water of three acre feet per acre as specified by the decree for land entitled to receive said water. This method of distribution was in effect in the Lovelock Valley throughout the irrigation season of 1936, and apparently proved highly satisfactory to all water users concerned as no protests of any consequences or fair to all users.
notice and demand the reservoir company, through its attorneys, was notified by the State Engineer by letter under date of April 6, 1937, that strict compliance with the terms of the demand would mean a complete change in the then administrative policy of the State Engineer with respect to the distribution of the waters of the Humboldt River and its tributaries, and that he preferred to make no change in such administrative policy.

On April 25, 1937, the Humboldt Lovelock Irrigation Light & Power Company caused the diversion dam and headgates of the feeder canal to be opened so that waters then flowing in the Humboldt River were diverted into their reservoir for storage purposes. At the same time the above-mentioned notices on the dam and headgates notifying the State Engineer, the Assistant State Engineer, and the Water Users had no right or authority to interfere with or regulate the dam and headgates of the reservoir company because of a district court injunction entered in the Sixth Judicial District Court of the State of Nevada, in and for the county of Humboldt, on November 27, 1918, in Case No. 2316, Humboldt Lovelock Irrigation Light & Power Company, a corporation, Plaintiff, v. W. M. Kearney as State Engineer, et al., Defendants. On the following day, April 24, 1937, the Humboldt Lovelock Irrigation Light & Power Company, through its attorneys, Hawkins, Mayotte & Hawkins, served on the State Engineer at Carson City, Nevada, a notice of Final Decree and Perpetual Injunction to which was attached a copy of the Court Decree in Case No. 2316, hereinafter referred to. No attempt was made by the State Engineer immediately following service of aforesaid notice to prevent the reservoir company from diverting and storing water.

SUIT OF HUMBOLDT LOVELOCK IRRIGATION LIGHT & POWER COMPANY v. STATE ENGINEER, ET AL.

On April 27, 1937, the Humboldt Lovelock Irrigation Light & Power Company, as plaintiff, commenced action, No. 1066, in the Sixth Judicial District Court of the State of Nevada, in and for the county of Pershing, against the State Engineer, the Assistant State Engineer; the Supervising Water Commissioner, the Pershing County Water Conservation District, a corporation, its President and Secretary (all of the foregoing persons named being served in their official capacities and individually), and two employees of the Bureau of Reclamation, identified with the Rye Patch project, as defendants. Briefly the complaint alleged that the plaintiff had storage rights under a prior appropriation in priority to Rye Patch Reservoir; that from March 15, 1937, to April 25, 1937, the defendants conspired to divert the waters of the Humboldt River in the Rye Patch Reservoir, in the irrigation district claimed an ownership without any right whatever; that by reason of such unlawful acts, the defendants would be unable to properly carry on its business during the 1937 season, to its damage in the total sum of $60,000, that the defendants threaten to and will, unless enjoined, prevent the plaintiff from diverting water to which it is entitled. The prayer was for an order of specific performance.

LITTLE HUMBOLDT RIVER AND TRIBUTARIES—1937 DISTRIBUTION

By Marshall Woodward, Water Commissioner

This report is the result of the activities of the water commissioner on the Little Humboldt River and its tributaries for the irrigation season of 1937. The main purpose of the office was to distribute water to the recipients with the greatest need. To this end, it still conforms with the court decree on the stream system, and also, to gather data and keep suitable records to facilitate future distribution. The water commissioner, realizing he was the personal representative of the State Engineer, endeavored to create as friendly a feeling as possible between the users and the State Engineer's office.

In 1937 the irrigation season on the Little Humboldt River and its tributaries was opened on March 15. The peak flow on Martin Creek occurred on April 14, when 196 c.f.s. was reported. The flow on the Little Humboldt River reached its peak on May 19, when 67 c.f.s. was measured.

Owing to the character of the runoff this year so much time was consumed in regulating the many diversions of several users that little time was available for the measurement of stream discharge or the gathering of data. However, a record of all stream discharges was kept, and also a record of the amount of water used by many of the recipients. The office tried to conform in all cases to the court decree, under the 1937 practices than otherwise. A very beneficial movement was started by Mr. Alfred Merrill Smith, State Engineer, in trying to get the Federal Government to use their CCC Camp, assigned to the Forest Reserve in Paradise Valley, to clean channels and to build dams on the Little Humboldt system as a winter work project. It is to be hoped that this movement becomes a reality, and thus it can be demonstrated that a clean channel and a good dam injures none and benefits all. Of course, the CCC Camp cannot clean all the channels in one winter. However, if this movement is once started, there is but little question but that it will be continued in years to come. Once the channels are cleaned properly, and all dams regularized, the expense of maintenance will be low.
asked an injunction enjoining defendants from (1) interfering with plaintiffs’ diversion and storage of waters to the extent of 49,770 feet, subject to the rights of State officials to regulate diversion and storage by plaintiff when necessary to serve appropriators prior in time; (2) storing any water whatsoever in Rye Patch Reservoir; and (3) from storing any waters in Rye Patch Reservoir under the rights claimed to have been acquired by the irrigation district until plaintiff had stored all of its 49,770 acre feet of water. The prayer also asked exemplary, punitive, and compensatory damages in the total sum of $400,000. An amended complaint in this matter was filed with the court on June 29, 1937, and a copy thereof served on the Attorney-General’s office on June 30, 1937. To date no time has been fixed by the court for a hearing of this suit.

SUITE OF OLD CHANNEL DITCH CO., A CORPORATION, v. STATE ENGINEER, ET AL.

On May 18, 1937, the Old Channel Ditch Company, a corporation, as plaintiff, through its attorneys, Hawkins, Mayotte & Hawkins, esca- nceded an action in the Sixth Judicial District Court of the State of Nevada, in and for the county of Pershing, against the Pershing County Water Conservation District, the State Engineer, the Assistant State Engineer, and the Supervising Water Commissioner of the Humboldt River, as defendants. Briefly, the complaint alleged that the plaintiff owned, possessed, and was entitled to control of that certain irrigation dam, diversion works, canal and ditch commonly spoken of and known as the Old Channel Canal and Ditch, that the defendants, conspiring, confederating and agreeing among themselves, and each with the others, and with persons unknown to plaintiff, and without justifiable cause, and unlawfully, and with intent to harm and injure plaintiff, in collusion and agreement, wrongfully and illegally have used and are using the diverting dam and headgates of plaintiff, and by means thereof have diverted and turned, and are continuing to divert into plaintiff’s said canal, large quantities of said so-called purchased and transferred waters and large quantities of said stored waters, all aggregating many hundred cubic feet per second of said waters. The prayer also asks for a writ of injunction, pendant litem, against said defendants, and each thereof, in the sum of $5,000, also exemplary and punitive dam- ages in the sum of $1,000. An amended complaint in this suit was filed on June 29, 1937. This action is still pending before the District Court.

SUITE OF THE UNITED STATES OF AMERICA, v. HUMBOLDT LOVELock IRRIGATION LIGHT & POWER COMPANY

On May 27, 1937, the United States of America, as plaintiff, filed an action in the District Court of the United States of America, in and for the District of Nevada, against the Humboldt Lovelock Irrigation Light & Power Company, a corporation, defendant. In brief, the plaintiff in the action asked that an injunction pendente litem, be issued enjoining the defendants from taking or in any manner interfering with the waters of the plaintiff; that upon final hearing a permanent writ of injunction be issued perpetually enjoining defendant from
taking or in any manner interfering with the waters of plaintiff, and that the court appoint a water master, enforcing the orders and decree of the court, including an order requiring the release of the water unlawfully diverted and stored by defendant in its reservoirs.

On June 3, 1937, the Pershing County Water Conservation District, Union Canal Company, the Union Canal Company, as owner of water users of lands within the Pershing County Water Conservation District of Nevada, each filed a petition for an order permitting the filling of a bill of irrigation which was granted by defendant in its reservoirs. The order made on the same date, and each filed a bill of intervention. Defendant filed its answer and objections to the petition on August 7, 1937.

Hearing of plaintiffs' motions was had in the Federal Court at Carson City on June 8 and 9, 1937. Defendant stated objections to the hearing, which the court overruled.

Two of the objections were that the bill failed to state facts sufficient to constitute a cause of suit, and that the bill of complaint should be dismissed because of the pendency of the suit in the District Court. It was conceded that the plaintiff, United States of America, owned no land on which the water which could be obtained under the transferred water rights alleged to be owned by said plaintiff could be used.

On June 10, 1937, Hon. Frank H. Porper, Judge Judge of the District Court of the District Court of the United States of America, in and for the District of Nevada, rendered a decision on plaintiff's motion for injunction pendente lite and defendant's motion to dismiss. In this decision the court held that plaintiff's complaint failed to state facts sufficient to constitute a cause of suit and that the bill of complaint should be dismissed because of the pendency of the suit in the District Court.

The court denied the petition for injunction pendente lite, and granted defendant's motion to dismiss. From the decision of the District Court of the United States of Nevada the plaintiff, United States, Irrigation District, the Union Canal Company, W. W. Porper, Judge of the District Court, took an appeal to the United States Circuit Court of Appeals for the Ninth Circuit.

In an opinion rendered on this appeal on May 31, 1938, the Circuit Court of Appeals held: "The Nevada Irrigation District Act (Ch. 3, Acts of March 19, 1919, Ch. 64, Stats. of Nevada 1919, p. 84) provides for the organization in that state of "a water company" and grants authority by ownership, apportionment of the water rights in question, regardless of whether it does or does not own land to be irrigated. With reference to defendant's contention that by the rule of comity the suit should await determination of the suit pending in the District Court of Nevada (termed the Third State Court suit) the Circuit Court held: "The Third State Court suit has not substantially the same parties or substantially the same interests involved. Since appellants own the water rights claimed by it, those rights are not and could not be involved in the Third State Court suit, for appellant is not a party thereto." Reversed and remanded with directions to dismiss and grant the injunction pendente lite.

growth, both dead and growing, debris, dirt retained due to plant growth, and rock, hay, etc., due to the type of dams used. In some cases an individual user who has cut wood along the banks and thrown tops and waste into the channels of the streams is deliberately to blame for the clogging and filling. Another cause of filling is the rock, willow, and brush type of dam that is prevalent in the Paradise Valley. For this type of dam must be put in before high water and it is impossible in many cases to regulate it, and once it is washed out it must remain out until the water recedes to a point low enough to permit reinstallation.

Meanwhile it fills the channel with an accumulation of sand, silt, debris, etc. A major step toward improved distribution methods would be the installation of a number of easily regulated dams, concrete or wood. Not only would this type of dam make distribution more satisfactory, but through its use it would be possible to flush the canal.

Because of these clogged channel conditions there are several very serious problems to be copied with in getting the water to the rightfully entitled users on the lower stream. To do this a large head of water must be diverted downstream in an attempt to force a sufficient quantity through.

This year the upper users agreed not to irrigate, regardless of priorities, until after the 15th day of April, but to allow the water to remain in the channels so as to let it go downstream and become available to the users in the lower valley. Of course this caused a large head of water to be diverted downstream. With the aid of this agreement and an early run-off it was possible to irrigate some rights far down on the stream that no doubt otherwise would have received no water during the season. After the 15th of April under this agreement the upper valley was to be irrigated, but no priority carrying a later date than the latest date irrigated in the lower valley was to be irrigated, and, furthermore, a continuous flow was to be left in the streams to continue to irrigate the lands of the lower valley that were already wet. In other words an attempt was made to serve all users by the continuous flow method. However, in many cases this was impossible for many of the meadows, etc., that were to be irrigated were covered by water as the channels traversing them were overflowing and general flood conditions resulted. Some holdings that should have been irrigated were covered by as much as a foot of water near the entire season. Other land that should have no water was also flooded. Under these conditions it was thought that a process of rotation would prove more satisfactory.

A summary of the season's conditions follows:

1. There was practiced a general rotation, in which the valley was zoned into the upper valley and lower valley, the lower valley rotating with the upper and vice versa.

2. Also a general rotation among the individual users in both the upper and lower valleys.

3. Then there were certain users who did not participate in any rotation, or use deereed continuous flows, because their lands were continuously under water during the higher water period, and they were unable to drain their lands (under existing conditions), even though they might have wished to do so.

It is the opinion of this office that the rotation as practiced this year
a greater head was diverted. On July 10 the combined storage of both reservoirs amounted to about 40,000 acre feet.

In the Winnemucca district irrigation started on April 12. The required amount of water in terms of cubic feet per second was rotated among ten ranches throughout the entire season. However, the Stall ranch received its water in a continuous flow. The Russell Land and Cattle Company in the Battle Mountain area rotated its water between its two ranches, while William Licking received two irrigations in periodic turn. In the Beaver area the water users were delivered their water by continuous flows.

One water commissioner was successful in preventing any irri-
gation in the Elko district because of the construction of two major ditches. After that date most of one river bottom swamps diverted water, and kept it on the land most of the time. However, very little irrigation on the tributaries took place until nearly the last of the irrigation season. Most of the water users were allowed to divert a double amount of water until their storage was covered once, then they were left to their continuous flow

The Willow Creek Reservoir was regulated throughout the entire season. The Ellison Ranching Company did not use any water from either Willow or Rock Creeks until forty days after March 15. Dur-
ing this period they were allowed to accumulate their deereood flow. After they started irrigating their diversion at no time exceeded their continuous flow.

In addition to distribution duties the commissioner employed and directed the work of a hydrographer, who was able to measure the discharge of several important tributary streams in Elko County and the required data compiled into a report and submitted to Mr. Carl Elges, State Meteorologist.

LITTLE HUMBOLDT RIVER AND TRIBUTARIES—1936 DISTRIBUTION

BY MARSHALL WOOWARD, Water Commissioner

The Little Humboldt River stream system is made up of the Little Humboldt River and its twelve tributaries, located in Paradise Valley, forty-two miles north of Winnemucca, Nevada. There are thirty-six water users on the system.

The Carville Decree, which went into force in May 1935, fixes the irrigation season to commence on the right, power and authority of the State Engineer to open it earlier or later accord-
ing to reasonable variations in climatic and moisture conditions. The past year on account of an early spring runoff the season was declared open on March 20. As this is the first full season of distribution under the Carville Decree the order changes from practice of past years.

The run-off this year was exceptionally early. Indeed, when he entered the valley about the middle of March the commissioner found that the whole upper and middle valley was in the process of being, and was being, irrigated. Although there were some notable exceptions to this condition, on the whole it resulted in causing users on the lower portions of the streams to be unirrigated, and also in causing the channels that should convey the water to them to be unused.

The streams of Paradise Valley are clogged and filled with willow
with representatives of the conflicting interests with the object in view of bringing about a conciliation of differences with respect to the dis-
tribution of the impounded water.

On July 17, 1937, the State Engineer served upon officials of the
Humboldt Lovelock Irrigation Light & Power Company notice, order,
and demand that on or before 12 o'clock noon on Monday, the 19th day
of July 1937, they open or cause to be opened the outlet gates or works
controlling the release of water from the reservoirs of the Humboldt
Lovelock Irrigation Light & Power Company, a corporation, for the
maintenance and to the extent to be directed from time to time by the
State Engineer of the State of Nevada and his water commissioner employed
for the distribution of water in the Lovelock Valley, for the purpose
and to the extent that such water so illegally impounded in said reservoirs
may be distributed to claimants, appropriators, and permittees thereof
in accordance with law and their rights.

On July 16, 1937, based upon a petition filed by the Humboldt Love-
lock Irrigation Light & Power Company, an order was issued by Hon.
J. M. Leechart, District Judge presiding in the District Court of the
State of Nevada, in and for the county of Humboldt, in the matter of the determination of the rights of claimants and
appropriators of the waters of the Humboldt River stream system.
Case No. 2804, wherein the State Engineer, and each and every one of
his assistants and employees, were instructed, required, and ordered as
follows:

1. That you forthwith and immediately cease and desist from in any
manner and/or at all interfering with or attempting to seek to
control or manage the intake and diversion ditches, canal and/or con-
trol works, or any part or portion thereof, of the reservoirs and/or
reservoir system of petitioner, Humboldt Lovelock Irrigation Light &
Power Company, situated in Pershing County, Nevada; and

2. That you forthwith and immediately cease and desist from any and
all effort and/or at all attempt to control, open or shut down the outlet gate and/or control works of said Humboldt
Lovelock Irrigation Light & Power Company reservoir system, and any
and all plans, purposes and/or attempts in any manner or at
discharge or release from said reservoir system waters, or any thereof,
there stored and/or impounded; and

3. That you forthwith and immediately receive all water discharged
or released by petitioners from its said reservoir system into said Hum-
boldt River, and distribute the ditches, and thereof, named and specified in requests, instruction and/or notices
from time to time given by petitioner to said State Engineer, and/or
to the Assistant State Engineer, or to the Water Commissioner, and
cease and desist from failing or refusing to distribute to end for the
benefit of the persons named in Humboldt Light & Power Company
named as persons to whom said company desires and requests its water so released into the river bed of the Humboldt River,
from said referred to reservoir system, to be delivered; forthwith and
immediately open and keep open any and all headgates into which
water released from said reservoir system heretofore has been cus-
tomerly received and carried, and to divert and turn into said respec-
tive ditches all water by said Humboldt Lovelock Irrigation Light &

The irrigation season of 1938 followed a very mild warm winter.
However, the rainfall was very much above normal, especially in that
part of the watershed west of Palisade. In spite of numerous storms
in the Elko district the snow cover was below normal until the month
of March, when several heavy snowstorms brought the snow cover
almost to normal. Many rain storms during the months of April, May,
and June aided in creating a sustained flow through Palisade that
increased steadily from 250 c.f.s. on March 15 to 1,650 c.f.s. on June 8.
On the last of June the discharge at the above-named point dropped
to 800 c.f.s. However, due to heavy rains throughout the entire upper
watershed during the last week of June the discharge increased
to nearly 1,000 c.f.s. on July 10, with over 500 c.f.s. reaching the Calhoun
gaging station.

Irrigation started in the Lovelock district immediately after March
30, due to the fact that all of the available purchased transferred
water was by-passed through the Rye Patch Dam in order to comply
with a provision of the permit that the transferred water could not
be stored. However, all of the Pershing County Water Conservation
District decreed water was cumulated and it was not until the middle
of April that decreed water was released along with the transferred
water for district use. It was nearly the first of May before sufficient
water reached Lovelock to serve nondistrict users. Prior to this time
they purchased H. L. I., & P. Company reservoir water for their
needs. On or about June 15 practically all irrigation in the Lovelock
Valley was completed, and due to the excessive flow at Calhoun's over
and above the required flow, it was decided to divert water into the
H. L. I., & P. Company intake canal. This flow was limited to 350

c.f.s. until the said company assumed all responsibility of damage if

place on the tributaries. The first irrigation was just about completed
when a big storm of several days duration occurred and as a result
most of the alfalfa and grain turned yellow. A second storm occurred
in about ten days and as a result very little irrigation was done during
the month of June. During the months of July and August the dis-
charge of the tributary creeks became very low, and considerable
difficulty was experienced in irrigating second crops.

Daily measurements were taken of the flow of Marye River, Lamoille
Creek, South Fork River and the main river in Moilee Canyon. This
work was done in connection with the snow survey conducted by the
State Meteorologist.

HUMBOLDT RIVER SYSTEM—1938

By J. A. MILLAN, Supervising Water Commissioner

ORGANIZATION

J. A. MILLAN, Supervising Water Commissioner...Battle River
D. E. WINCHESTER, Water Commissioner...Bonneville District
F. E. CLARKE, Water Commissioner...Winnemucca District
H. M. CLARKE, Water Commissioner...Battle Mountain District
K. R. WOODWARD, Water Commissioner...Ely District
L. W. RICHARDS, Water Commissioner...Forty Mile District
E. G. RICHARDS, Water Commissioner...Lovelock District
O. W. ROSS, Water Commissioner...Las Vegas District
J. V. CLAY, Hydrographer...Rio Grande
D. D. SMITH, Hydrologist...Midden
P. L. ROBERTS, Engineer...Peyote

Winnemucca
the Rye Patch Reservoir and over 1,000 acres in the Humboldt
Lockwood Irrigation, Light and Power Company Reservoir.
During this season, 75,474 acres of water were delivered to the
various ditches in Lovey Valley. Some of the figures relating to
releases from the reservoirs, etc., are missing due to the death of Dr.
Rumer, the Water Commissioner for the Lovey Valley.

HUMBOLDT RIVER SYSTEM—1937
By J. A. MILLER, Supervising Water Commissioner

ORGANIZATION

J. A. MILLER, Supervising Water Commissioner

E. H. WINEY, Manager

Lavette River

F. E. BURGER, Water Commissioner

Lavette District

R. M. CLARK, Water Commissioner

North Fork District

JOSEPH BURGER, Water Commissioner

Smith Valley District

HERMAN WENDE, Water Commissioner

North Fork District

Onslow Stock, Water Commissioner

Lavette and Smith Fork

GERALD TAYLOR, Hydrographer

Lavette District

Jack St. Claire, Hydrographer

Lavette District

A hard cold winter with light frozen snow and one heavy storm in
May created a flow of 17,000 acres of water through Palambe, a
fifty percent of which was delivered to the Lovey area. Rock Creek
and all of the other tributaries below Palambe did not contribute
much water to the stream system.

A heavy snowstorm that occurred in the Lovey District the last of
February created a condition that made irrigation necessary on
March 15 unnecessary. It was not until April 5 that any irrigation
took place, which only called for a small release from Rye Patch Reser-
voir. During this period of all water was utilized in the Rye Patch
Reservoir.

On or about April 20 the release from Rye Patch Reservoir were increased to
accommodate the needs of the valley. On April 23 the H. L. I. & P. Co., disassociated with the method of cumu-
lation of both deereed and transferred water accorded to the Pershing County Water Conservation District, took over the regulation of their
own intake dam and headgate, and accordingly diverted a full canal of
water and prevented the deereement of the district as
an injunctive deereet on or about the year 1919. This diver-
sion was continued until July 2, when the State Engineer also
intake headgate and opened the dam and released the water into Rye
Patch Reservoir for but a short time.

In the Winnemucca district irrigation did not start until April 15.
The total continuous flow allocated to this district with the excep-
tion of the Stall flow was rotated between the two or more ranches.
Stall ranch received its water in terms of its continuous flow.

In the Battle Mountain district rotation was practiced wherever possible. The Russell Land & Cattle Company rotated the "25" ranch
water with the "White House" ranch water. The Lacking ranch received but two irrigations. The Draghby ranches

re-ceived a continuous flow after April 15. The Humboldt Land and
Cattle Company rotated among its several ditches. The rest of the
smaller ranches secured their water by periodic turn.

In the Elko District irrigation of the river bottom lands started
about April 1, but it was not until May 1 that any irrigation took

Power Company released by its reservoir system into said river bed, in
strict and true accord with requests, notices and instructions, and
cash and every thereof, given and/or made upon you, or either of you, by
said Humboldt Lovejoy Irrigation Light & Power Company; and
4. That you forthwith and immediately cease and desist from, in
any and all forms and/or manner, stating, declaring, advising and/or
holding out to any and all persons, and particularly stockholders in
said Humboldt Lovejoy Irrigation Light & Power Company, any and
all opinions, statements, conclusions, decisions, declarations and/or
advice in substance and/or effect that the water, and/or any thereof,
now impounded and/or stored in said reservoir system of the said Hum-
boldt Lovejoy Irrigation Light & Power Company is illegally or wrongfully held or impounded, or is deprived water or is improperly or
improperly held in said reservoir system, and cease and desist from, in
any and all form and/or manner, expressing judgment and/or opinion
upon the character of said referred to waters, and/or attempting
and/or seeking to determine, or announce, or pass upon any question and/or
controversy as to title to said waters so impounded and stored in
petitioners' reservoir system; and
5. That you at all times receive and accept from said Humboldt
Lovejoy Irrigation Light & Power Company and/or its officers, all
notices, requests and instructions given you and in form and substance
as is usual and heretofore customary in your dealing with said Hum-
boldt Lovejoy Irrigation Light & Power Company, and with all due
diligence and speed needeth thereto and perform the same
in and about all waters discharged and released from said reservoir
system into the river bed of the Humboldt River, all in accordance with,
and in performance of, section 77 of the water code of Nevada.
6. That the hour of 10 o'clock in the forenoon of the 26th day
of July 1937, you personally appear before this court, in the District
Courtroom in the county courthouse, in the city of Winnemucca, county
of Humboldt, State of Nevada, and then and there make return to
this order.

On July 23, 1937, upon petition of the State of Nevada Ex Rel
Alfred Merritt Smith, State Engineer of the State of Nevada, Plaintiff
and Relator, v. The Sixth Judicial District Court of the State of Nevada,
in and for the county of Humboldt, and Humboldt J. M.
Lockhart, Presiding Judge thereof, and Humboldt Lovejoy Irrigation
Light & Power Company, a corporation, Defendants and Respondents,
Case No. 3209, a writ of certiorari was issued out of the Supreme Court
of the State of Nevada, directing said defendants and respondents to
appear and to show cause why they should not be adjudged
 guilty of contempt of court, for refusing to pay from the
river of the State of Nevada before 10 a.m. on September 8, 1937, a transcript of the records of and in
the action taken as aforesaid on July 18 in Case No. 2804, that "The
Humboldt Lovejoy Irrigation Light & Power Company, a corporation,
and your officers, agents, representatives, attorneys and employees,
and each of them, desist from further proceeding in any manner under
court of said Sixth Judicial District Court until fur-
ger of the court"; also, "And it is further ordered that said
order issued out of the said Sixth Judicial District Court of the State
of Nevada, and in and for the county of Humboldt, on the said 16th day
of July 1937, in said Matter of Determination of the Relative Rights of
Chimants and Appropriators of the Waters of the Humboldt River and its Tributaries, No. 2804, be, and the same hereby is, stayed and made ineffective pending the determination of these proceedings on certiorari and until further order of this court, and that Alfred Merrit Smith, as State Engineer of the State of Nevada, be, and he hereby is, ordered and directed to direct the waters of the Humboldt River to the Lovelock Valley District, Pershing County, Nevada, in accordance with that certain decree of the Sixth Judicial District Court of the State of Nevada, in the case of Honorable Geo. A. Barnett, District Judge presiding, entered and filed in said court the 30th day of October 1934, and to distribute said waters until further order of this court."

On July 27, 1937, Alfred Merrit Smith, State Engineer, J. A. Millar, Supervising Water Commissioner, and D. E. Winchip, Commissioner, Lovelock District, proceeded to the outlet gate of the Humboldt Lovelock Irrigation Light & Power Company reservoirs for the purpose of releasing water therefrom and distribution to those entitled to receive same in accordance with said decree. Upon refusal of officers and agents of the reservoir company, who were then and there present, to turn over the keys to the padlocks on the headgates, the State Engineer read to said officers and agents the order and writ of the Supreme Court. Following the reading of said writ, the State Engineer proceeded in an effort to release the stored water from the reservoirs, but was prevented by agents and employees of the reservoir company from doing so. The State Engineer then proceeded to Lovelock and swore out criminal complaints against the persons interfering with him in the performance of his duties and had them arrested for interference with him as a State official in the performance of his duties. He then returned to the headgates and released therefrom a sufficient amount of the water impounded there to take care of immediate irrigation needs. Later in the day the officers and agents of the reservoir company swore out a criminal complaint against the State Engineer, charging him to be arrested and tried in court.

On July 27, 1937, the Supreme Court of Nevada entered an order to the petitioners in No. 3236, Andrew Jahn, Petitioner, v. The Sixth Judicial District Court, in and for the county of Humboldt, and J. M. Lockhart, as Acting and Presiding Judge thereof, Respondents, and hereinafter referred to as "You and each of you are hereby notified that in open court on the 27th day of July 1937, the court made an order permitting the respondent court and Humboldt Lovelock Irrigation Light & Power Company to appear in court on Tuesday, July 30, 1937, at the hour of 10 o'clock A.M. and move for relief from the writ of certiorari issued on July 23, 1937, in the above-entitled matter."

On August 6, 1937, a hearing on the petition in Case No. 3236 was held in the Supreme Court before Hon. B. W. Coleman, C. J., Hon. E. J. L. Taber, J., and Hon. Wm. D. Hatton, District Judge, following which, on August 9, 1937, the court entered a decree that the methods of obtaining relief contended for by the Humboldt Lovelock Irrigation Light & Power Company is exclusively provided for by section 73 of 1936 ORGANIZATION

In the report of the State Engineer for the biennial period of 1934 to 1936 a report is given of the distribution of the waters of the Humboldt River up to July 1, 1936, the end of the biennium. At the beginning of the 1936 season distribution of water by continuous flow was adopted, the priorities to be served being determined from day to day by the flow passing a certain point or points. Early fall and winter snow storms augmented by heavy rains during January and February created a flow of water in the Humboldt River and its tributaries very much above normal. The total flow of water passing Palisade from October 1, 1935, to September 30, 1936, was 270,160 acre feet. On March 15, the beginning of the irrigation season, there were 329 c.f.s., which was sufficient to serve all rights with priorities up to and including the year 1878. This priority was served until April 10, when due to warm weather the flow increased rapidly. From April 22 to about July 8, all priorities were served, the surplus water during May and June being diverted into the Humboldt Lovelock Irrigation Light & Power Company Reservoir.

The amount of water passing Palisade during the irrigation season from March 15 to September 15 was 246,866 acre feet. In addition to this amount, Rock, Boulder and Pine Creeks and other smaller tributaries delivered approximately 40,000 acre feet of water. The peak flow at Palisade occurred on April 23, when the river flow was 2,268 c.f.s. However, the greatest monthly flow occurred in May, with a discharge of 80,736 acre feet.

On July 10 there were 17,000 acre feet of water stored in the Ely Patch Reservoir, and about 4,000 acre feet in the Humboldt Lovelock Irrigation, Light and Power Company Reservoir. At the end of the irrigation season there were nearly 10,000 acre feet of water stored in 10% of Class A rights deereed are filled with 1870 priorities.
30% of Class A rights deereed are filled with 1876 priorities.
40% of Class A rights deereed are filled with 1880 priorities.
50% of Class A and B rights deereed are filled with 1884 priorities.
80% of Class A rights deereed are filled with 1896 priorities.

This report embraces a drainage area of 5,030 square miles above Palisade. The water supply in this area is furnished by 175 tributary streams, 55 of these tributaries being on the north side and 129 on the south side of the main river. The greater portion of the water of the Humboldt River is derived from this area. Deereed rights on the north tributaries are 191,274 acre feet, on the south tributaries are 243,789 acre feet, and on the Humboldt River proper, 27,264 acre feet.
Court, of Lyon County, Nevada, and approved by decree of Hon. Clark J. Gould, District Judge of said court. A special election in the matter was held on December 15, 1936, at which the proposal for refunding bonds carried.

December 22, 1937

Meeting at Carson City, all commissioners present, J. H. White, Secretary. The application for the Irrigation District of or behalf of Local Improvement District No. 1, for the validation of $17,000 in bonds of the second series of Local Improvement District No. 1 of Walker River Irrigation District, "was again taken up.

After considering the matter, the commission was not satisfied with the form of the certification of said bonds to be made by the State Controller, and referred the matter to the Attorney-General for an opinion. Confirmation of the proposed certificate was thereby delayed. Under date of February 26, 1937, the Honorable Attorney-General, W. P. Mathews, rendered an opinion stating that the bonds were entitled to certification under sections 2290 and 8235, Nevada Compiled Laws, as modified by chapter 161, 1933, Nevada Statutes, and chapter 76, 1937 Nevada Statutes, and the desired certification was approved.

December 22, 1937

Meeting at Carson City, all commissioners present, J. H. White, Secretary. A petition was presented by the Walker River Irrigation District requesting authorization for the formation of Local Improvement District No. 2. A report on the status of the proposed Improvement District No. 2, as to desirability, assets, finances, and the engineering features had been submitted to Walker River Irrigation District and through that district to the commission. The report had been made by Mr. George Parker, Engineer for the Wahbaka Drainage Association, and recommended the formation of Improvement District No. 2 in order to provide for drainage of the included lands, and that the benefits should be assessed upon a flat rate per acre on all included lands.

After consideration of all evidence presented the commission approved the application for the formation of Local Improvement District No. 2, and also approved the proposed method of financing the same, i.e., by issuing the aggregate of $15,000, bearing interest at five percent, to be issued from time to time as said funds are needed for the project, and to retire same by assessments upon the lands within said Local Improvement District No. 2, following approval of the plan by special election.

May 3, 1937

Meeting at Carson City, all commissioners present, J. H. White, Secretary. The meeting was called to act upon an application by Pershing County Water Conservation District requesting approval to issue bonds by Pershing County of $16,000. The case of interest-bearing warrants, to bear interest at six percent, and to mature not later than three years from date of issue.

John A. Jurgenson, attorney for the district, presented an affidavit signed by the secretary of the district stating "that interest-bearing warrants will be issued in the amount of $16,000, interest-bearing at six percent, and to mature not later than three years from date of issue."

The water law (section 1961 N. C. L.), and that the respondent court and the Honorable J. M. Leskhai, Presiding Judge thereof, were without jurisdiction to entertain the proceeding complained of herein, and are without jurisdiction to further proceed therein, and "that the order and proceedings had, made and entered by said respondent court, and said Presiding Judge, complainant of by plaintiff and relator be, and the same are hereby, set aside, annulled, and held for naught, and said court and Judge hereby restrained from further action in said proceeding." A final opinion in this action was rendered and filed with the Clerk of the Supreme Court on November 18, 1937.

IN THE DISTRICT COURT OF THE UNITED STATES, IN AND FOR THE DISTRICT OF NEVADA. EQUITY NO. H-194. STATUTORY THREE-JUDGE COURT.

During the period from July 27, 1937, to September 3, 1937, the State Engineer operated the outlet gates of the Humboldt Lovelock Irrigation Light and Power Company reservoir system, and used the water released therefrom to augment river flow and serve the demands of water users in Lovelock Valley under all priorities.

On September 3, 1937, the Humboldt Lovelock Irrigation Light and Power Company, a corporation, filed a complaint in the District Court of the United States, in and for the District of Nevada, titled Humboldt Lovelock Irrigation Light and Power Company, a corporation, Plaintiff, v. Alfred Merritt Smith, as State Engineer of Nevada, Defendant, No. H-197, In Equity. In this complaint the plaintiff prayed for injunctive relief against the enforcement of certain decisions and orders of defendant respecting the diversion of waters from the Humboldt River into its reservoirs, and that as construed by the Supreme Court of the State of Nevada, section 75 of the State water code is void because it is in violation of the Constitution of the United States in that it permits impairment of contractual obligations and deprives plaintiff of valuable property rights without due process of law.

On the same date, September 3, Hon. Frank H. Northon, U. S. District Judge, entered a temporary restraining order and enjoined the State Engineer and any of his assistants or employees from in any manner controlling or regulating plaintiff's headgates, diversion works, or outlet canal, and from in any way or manner interfering with the plaintiff in the disposition and/or use of the water impounded and stored in plaintiff's reservoir system, and from trespassing and/or going upon the reservoir system of plaintiff; also that said defendant State Engineer show cause before the court in the District Court in the Federal Building at Carson City, Nevada, on September 10, 1937, why an interlocutory or temporary injunction should not issue. To the plaintiff's bill of complaint the defendant, by his attorney, Hon. Gray Mockburner, Attorney-General of the State of Nevada, interposed a motion to dismiss. This motion was submitted upon oral argument and briefs filed. On December 28, 1937, the court rendered its Memorandum and Decision dismissing the case of Porter v. Inventors Syndicate, 296 U. S. 401, 76 L. Ed. 1229, in that the court is without jurisdiction to entertain the suit until it appears that the complainant has exhausted the administrative
remedy afforded by the statute." On December 30, 1937, the court filed its decree dismissing suit on defendant's motion to dismiss. From the court's decision granting defendant's motion to dismiss, the plaintiff, Humboldt Lovelock Irrigation Light and Power Company, a corporation, filed a petition for a rehearing, which request was granted. The petition was filed and submitted upon affidavits by the respective parties in interest. The petition challenged jurisdiction otherwise than by a three-judge court, to terminate the case by dismissal. On March 30, 1938, the court entered an order granting a rehearing and vacating the order of dismissal on the ground, among other things: "The authorities cited in the brief for plaintiff are sufficient to raise a serious question respecting the authority of the Judge of this court to consider and dispose of the motion. The decision in the Porter case was rendered upon a review of a decision of a three-judge court, and before the question here presented was not, in the Porter case, directly involved or considered," and "in granting the motion to dismiss, the ground specified in the motion, to the effect that the plaintiff's bill of complaint did not present a substantial question of constitutionality, was not considered. In view of the circumstances in which the constitutional question is involved, and in view of the fact that it deals with important questions of water rights and the determination thereof, we do not feel justified in not holding that the constitutional question is so clearly without merit that it is not fairly open to debate." "It is clear that a plaintiff ought not to be compelled to apply for relief by mandamus to the Supreme Court in that it is not made free from any question of doubt." The defendant State Engineer then on April 14, 1938, by and through his attorneys, Gray MacBourn, Attorney-General, and W. T. Matthews and Alan Bible, Deputy Attorneys-General, filed Response to Order to Show Cause and Answer of Defendant, Alfred Merritt Smith, to plaintiff's complaint.

On May 6, 1938, in the Federal Court at Carson City, Nevada, the statutory three-judge court was petitioned to motion 266 in the Judicial Code, composed of Hon. Curtis D. Wilbur, Judge of the Circuit Court of Appeals for the Ninth Circuit, Hon. Harold Loveback, Judge of the Circuit Court of the District of Northern California, and Hon. Frank H. Norcross, Judge of the District Court for the District of Nevada, and proceedings on plaintiff's petition in equity, No. H-194. On the same date the Pershing County Water Conservation District of Nevada, Andrew Jahn, W. W. Carpenter, and the Intermountain Investment Company, a corporation, filed petitions for intervention in the proceedings, which motions were granted by the court. At the conclusion of the hearing the court allowed ten days for defendant to file counter affidavits in answer and opposition to affidavits of Geo. C. Stoker and others as filed in open court May 6, 1938, in behalf of plaintiff's petition for an interlocutory injunction.

The court also enjoined both defendant and plaintiff from releasing 7,000 acre feet of water that remained in plaintiff's reservoir at the end of the 1937 irrigation season and classified by the State Engineer as accumulated dried water. On June 17, 1938, by stipulation of respective counsel for plaintiff, defendant and intervenor, the outstanding restraining order entered on September 3, 1937, in No. H-194, in Equity, was modified by vacating all provisions therein contained.

Corporation of "Second Refunding Series" bonds in the amount of $515,500, to bear interest at four percent.

January 27, 1938
Meeting at Carson City, all commissioners present. J. H. White, Secretary. Application of Walker River Irrigation District on behalf of Local Improvement District No. 4 of Walker River Irrigation District, for the validation of $25,500 bonds of "First Refunding Series of Local Improvement District No. 4 of Walker River Irrigation District," was considered.

The Commission authorized Walker River Irrigation District, acting on behalf of its Local Improvement District No. 4, to issue said refunding bonds in exchange for the outstanding bonds. Following is an outline of the resolution of authorization:

The sale of said refunding bonds to Reconstruction Finance Corporation is hereby confirmed and approved and said district is hereby authorised and directed to deliver all of said refunding bonds of Local Improvement District No. 4 to the Reconstruction Finance Corporation in accordance with the terms of the contract entered into between said District and the Reconstruction Finance Corporation; that Walker River Irrigation District is further authorised, on behalf of Local Improvement District No. 4, to issue said refunding bonds in exchange for the outstanding bonds of said Local Improvement District No. 4 to be refunded thereby in the event the Reconstruction Finance Corporation should purchase said outstanding bonds from the holders thereof and tender the same to said district in exchange for said refunding bonds; provided, that the total amount of refunding bonds to be issued upon any such exchange shall not be in excess of the par value of the outstanding bonds of Local Improvement District No. 4, and such outstanding bonds when surrendered shall be cancelled and not be an obligation of said Local Improvement District No. 4.

All acts and proceedings of said district and its directors and officers in connection with the issuance and sale of the First Refunding Series bonds in the principal amount of $25,500, are hereby ratified and approved.

October 30, 1938
Meeting at Carson City, all commissioners present. J. H. White, Secretary. Application of Local Improvement District No. 1 of Walker River Irrigation District for approval of a plan for refunding outstanding bonds and of exchanging said refunding bonds for outstanding bonds, was considered. The application requested the issuance of $17,000 in refunding bonds for this purpose.

Frank W. Simpson was the owner and holder of all the outstanding bonds, being in the principal sum of $17,000, dated October 5, 1928, and had entered into a contract dated July 7, 1936, with the Local Improvement District for the exchange of said outstanding bonds for the proposed refunding bonds. The contract had been approved by the State Irrigation District Bond Commission and all matters connected therewith had been submitted to the First Judicial District
Chapter XII
Related Activities of the State Engineer

An Outline of the Work of the State Irrigation District
Bond Commission During the Biennium of 1932-1934

Meeting at Carson City, all members present, J. H. White, Secretary.
Application of Walker River Irrigation District for validation of
"Second Refunding Series" of $818,500 was
considered.

The Walker River Irrigation District was authorized to issue said
bonds by a resolution, here given in synopsis only, which was passed
by unanimous vote.


Restraining the defendant State Engineer from regulating plaintiff's
diversion dam, diversion works and/or the headgate in plaintiff's
intake canal referred to in that certain "Order to Show Cause Why
Interlocutory or Temporary Injunction Should Not Issue and Restrain
Order, granted, issued and filed in the above-entitled Court and
case on September 3, 1927." Following said modification of the
restricting order the State Engineer again took over control of plai-
ntiff's diversion works located on the Humboldt River and diverted into
plaintiff's said reservoirs any flood or surplus unappropriated waters
then flowing in said Humboldt River. At the end of this biennium,
June 30, 1934, water in varying amounts over and above that necessary
served to the continuous flow of decreed rights for lands in the Love-
lock Valley, and the continuous flow of United States purchased and
transferred water, was being diverted into the H. L. I, L & P Com-
pany reservoirs.

State Engineer, et al., Defendants.

On January 27, 1888, the Young Ditch Company, a corporation, by
and through its attorneys, Hawkins, Mayotte and Hawkins, filed with
the Clerk of the Court in the Sixth Judicial District Court of the State
of Nevada, in and for the county of Pershing, an action, No. 1060,
titled Young Ditch Company, a corporation, Plaintiff, v. Pershing
County Water Conservation District, a corporation, Alfred Merritt
Smith, as State Engineer of the State of Nevada; H. W. Replogle, as
Assistant State Engineer of the State of Nevada, J. A. Millar, as
Supervising Water Commissioner of the Humboldt River, including
the Love Lock in Pershing County, State of Nevada, Defend-
ants.Briefly, the complaint alleged that plaintiff owned and was
possessed of a certain irrigation dam, diversion works, canal or ditch,
commonly known as the Young Canal or Ditch; that said works were
used for carrying and transporting water from the Humboldt River
for use by various appropriators thereof who were stockholders in
plaintiff corporation; that defendants as a result of a conspiracy
between them have unlawfully and with intent to harm and injure
plaintiff, by use of plaintiff's dam and headgate, diverted into plai-
nuit's canal large quantities of so-called purchased and transferred
water and large quantities of said excess waters, all aggregating during
an irrigation season many hundred cubic feet per second of said waters.
The prayer asked for an injunction pendente lite, judgment against
the defendants and each thereof in the sum of $5,000, and that plaintiff
have judgment against defendants, and each thereof, in the sum of
$1,000 as exemplary and/or punitive damages.

In connection with this suit it must be borne in mind that the Young
Ditch from where it diverts water from the Humboldt River, for a
distance of approximately one and one-quarter miles, is owned jointly
by S. B. Young and the Young Ditch Company. From this point the
ditch conveys water across the Humboldt River by means of a flume
and is owned by the Young Ditch Company. A spillway at the flume
is used to bypass excess water diverted into the ditch back into the
river. Water is also released back to the river from the Young Ditch
near the S. B. Young residence for the generation of power, with a
priority of 1888. No headgate has been installed at the intake of the Young Ditch, which requires that water diverted into said ditch be controlled by means of the Young diversion dam situated in the Humboldt River channel. The distance by river channel from the diversion dam to the point where the water released from the Young Ditch through the Young power plant back to the river is approximately five miles. Paradoxical as it may seem, in consideration of the going suit, counsel for plaintiff, after the commencement of the irrigation season of 1935, requested that water flowing in the Humboldt River at the point of intake of the Young Ditch be diverted through said ditch and released back to the river through the S. R. Young power plant in order to save river losses that might be incurred by transportation of the water between the two points by way of the river channel. The total amount of water delivered through the Young Ditch during the 1935 irrigation season, including individual deeded water, H. L. I. L. & P. Company stored waters and so-called purchased and transferred waters was not in excess of 5,000 acre feet. No complaint was made to the State Engineer by the Young Ditch Company against the use of the ditch for transportation of purchased and transferred waters to water users having a right to the use of the water and who were also shareholders in said ditch company. Up to the present time no date has been set by the court for hearing this action.

CONDEMNATION SUITS
Pershing County Water Conservation District, a Corporation, v. Old Channel Ditch Company, No. 1971, and Young Ditch Company, No. 3075

On May 27, 1935, the Pershing County Water Conservation District of Nevada, a corporation, as plaintiff, filed a complaint in the Sixth Judicial District Court of the State of Nevada, in and for the county of Pershing, No. 1971, against the Old Channel Ditch Company, a corporation, Union Ditch Company, a corporation, Southwest Ditch Company, an association conducting business under said name, John Doe and John Doe Nos. 1 to 5, both inclusive, defendants. This action was initiated for the purpose of acquiring a right of way to conduct 210 e. a. f. of purchased and transferred deeded or stored water through the Old Channel Ditch from the intake on the Humboldt River to a point where the Southwest and Union Ditch takes out, thence conveyed through said ditches and laterals to lands irrigated and cultivated by district member water users; for conveyance of 30 e. a. f. of deeded or stored water through the Old Channel Ditch from its intake on the Humboldt River through the Old Channel Ditch proper for use by district members securing water exclusively through said Old Channel Ditch.

On the same date the Pershing County Water Conservation District, as plaintiff, filed a similar action in the Sixth Judicial District Court of the State of Nevada, in and for the county of Pershing, No. 1973, against the Young Ditch Company, a corporation, S. R. Young, John Doe, and Richard Roe, defendants. In this action the plaintiff sought a right for conducting 15 e. a. f. of so-called purchased and transferred or stored waters through said ditch for use in the irrigation of lands owned by district members.

REPORT OF STATE ENGINEER

OCC ACTIVITIES IN THE WALKER RIVER IRRIGATION DISTRICT

By V. H. Bevis, Secretary

Completion of the Topaz levee in October 1935 increased the capacity of Topaz Lake to 62,000 acre feet. This levee is about one mile long, ranging from one to fifteen feet in height, with hand-placed riprap on the upstream face.

The Topaz Lake intake canal was straightened and riprap placed on the bad turns. This work, together with erosion caused by recent floods, has increased the capacity of this canal to approximately 1,500 c.f.s.

Nine miles of open drain canal was constructed in the north end of Mason Valley, with the necessary structures. Existing structures of the drainage system in East Mason Valley were repaired and put in good shape.
to impress upon residents the fact that there was nothing certain as to time of occurrence. Such uncertainty served well faithless hope of harnessing devastating floods on the one hand, and on the other hand encouraging an attitude of letting nature take its course rather than try to control floods of unknown volume, unknown time of occurrence, and unknown place of origin.

However, seeing the grave consequences of inactivity regarding the perplexing problem, the Muddy Valley Irrigation Company, through its directors, in cooperation with various local, county, State and Federal agencies proceeded with a series of investigations and surveys which were completed during the summer of 1928; and in October of that same year referred to a definite program findings thereof, indicating a need for nearly $252,000 with which to effect work while protection. When presented to people concerned, the thought of raising such a sum or even such sum as might have been required for any one of the units thereof, was met with much consternation that all thought of an active program was for the time set aside. Thus it remained until in 1933, when President Roosevelt’s program of CCC camps became operative, and Nevada’s Congressional representatives, with Cecil W. Creel, Director of Nevada Extension, seized the golden opportunity of directing all efforts possible toward extending man power and finances with which to proceed with a construction program in line with plans as recommended by surveys indicated heretofore.

The sum total of benefits that have since been derived from the efforts of the splendid cooperation of all local, county, State and Federal agencies might be enumerated as follows:

1. Materially reducing damages through structures that have definitely served their purpose of spreading peaks of floods and temporarily storing appreciable quantities of flood waters at:
   - The Meadow Valley Wash Flood Control works near Moapa.
   - Arrowhead Canyon Dam at the head of the Upper Moapa Valley.
   - The Wells Siding Diversion Dam—Flood Channel and Bowman Reservoir.
   - Two minor structures for dissipating flood waters in the vicinity of the Moapa Indian Reservation.

2. The organization, through legal procedure, of a Soil Conservation District Association, the purpose of which is to carry on with a definite program of soil conservation through flood and erosion control, and the encouragement of proper land use on both private and public lands.

3. A definitely outlined program of action which, with the cooperation of Lincoln County interests, State and Federal agencies, bids fair for the consummation of an action program that will serve all interests over the entire Meadow Valley Wash watershed area, with an indirect influence exerted in behalf of providing similar protection to the Virgin River watershed so far as Nevada’s area is concerned.
CCC ACTIVITIES IN THE TRUCKEE-CARSON IRRIGATION DISTRICT

By H. W. Emmert, Secretary

Under the provisions assigning CCC camps to the Bureau of Reclamation, two camps were established on the Newlands Project, now operated by the Truckee-Carson Irrigation District. These camps were first manned in November 1935, and since that time have been engaged in the reconstruction and rehabilitation of the works and structures of the United States. Under the plan of operation the district is required to furnish most of the materials and considerable of the supervisory and engineering services necessary to carry on the extensive work programs.

The benefits received from these camps have greatly exceeded any expectations, and the work could not have been accomplished without undue and excessive levies on the farmers of the district.

The Truckee Canal, constructed with a capacity of 1,200 second feet, had become filled with silt and vegetation so that it was unsafe for flows exceeding 750 second feet. With the assistance of the camps the canal is being restored to the original capacity.

The Carson River below Lahontan Reservoir had grown up with trees and brush to such an extent that it was feared that large releases of water would damage adjoining farm lands. Seventeen miles of this channel were cleared by these boys, and the value of this work has been demonstrated.

A regulating reservoir having a capacity of 1,500 acre feet was constructed, which will prevent fluctuations in canal flows at the lower end of the irrigation system.

A pipe line consisting of 4,780 feet of 6-inch cast-iron pipe, together with five fire hydrants, was installed to replace a rotted wooden one serving the town of Fernley.

Trees and brush growths have been removed from most of the main canals.

A rodent control program under the jurisdiction of the Biological Survey has covered 55,000 acres of land, trapping gophers and poisoning squirrels.

An educational program of weed eradication has covered 871 acres of land, demonstrating the proper methods of eradication of "White Top" and other noxious weeds.

Other work accomplished is summarized below:

Concrete structures installed...... 475
Timber structures installed...... 435
Concrete canal lining...... 6,300 lin. ft.
Metal and pipe flumes...... 2,900 lin. ft.
Rock riprap...... 7,700 sq. yds.
Ditch riprap roads constructed...... 23 miles
Canals and drains cleaned and reconditioned...... 30 miles

FLOOD CONTROL IN THE MOAPA VALLEY AREA

By Howie Marshall

Results of the 1910 and subsequent floods in 1912, 1914, 1922, 1923, and 1925 are quite commonly known and more fully realized by residents of Moapa Valley, the last of the foregoing coming late in September, whereas all previous floods came during early spring, serving
required here also. Thirty-six cubic yards of concrete were poured, requiring 226 sacks of cement, 32 yards of gravel, 16 yards of sand, 1,450 pounds of deformed reinforcing steel, and other incidental, such as flash-board lumber, nails, wire, etc. The cost of the materials in this structure amounted to $296 and was borne by one rancher, although all of the lower users on Martin Creek were indirectly benefited.

The third and final structure completed is located at the E. P. S. Pierce diversion on Martin Creek, on property owned by Humboldt County, and is the upstream structure. This structure is straight and is 67 feet long with a 14-foot gate 15 feet deep, with center support for ordinary flows, and also a 50 Cippolotti-shaped weir 21 feet deep for flood conditions. The width of the base slab is 6 feet and has a thickness of 1 foot, and the wall is 65 feet high with the same thickness. The structure took 22 cubic yards of cements, ranging 140 sacks of cement, 20 yards of gravel, 10 yards of sand, 882 pounds of reinforcing steel, and incidental items. The cost amounted to $280 and was paid by four ranchers.

A compilation of this data is as follows:

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<th>Structure</th>
<th>E. P. S. Pierce</th>
<th>Current</th>
<th>Pierce</th>
<th>Total</th>
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<td>Length (ft)</td>
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<td>15</td>
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<tr>
<td>Height (ft)</td>
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<td>15</td>
<td>15</td>
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<td>65</td>
<td>65</td>
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</tr>
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<td>Slab thickness (ft)</td>
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<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Materials</td>
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</tr>
<tr>
<td>Sand</td>
<td>1,450 pounds</td>
<td>1,350</td>
<td>1,350</td>
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<tr>
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<td>$280</td>
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</table>

The materials for the structures were all purchased through Winchester merchants at very reasonable prices, viz, cement at 80 per ton, steel at 80 per ton, and lumber at about 40 per 1,000 board feet.

The number of men working on the structures varied at different times, depending on their availability from other work; the average number being perhaps about 25 men.

Supervision over this work by the State Engineer and his assistants was carried on throughout the work, and no effort was spared to assist in this great work. Assistance by the Highway Department in preparing plans and specifications and testing materials was also immensurably valuable.

The stream-channel work progressed very nicely, several miles of the Martin Creek channel being finished and debrissed. With many miles of channel clearing and channel straightening remaining to be done on the various streams in Paradise Valley, and with at least 20 vitally important diversion structures needed, it is readily realized that the continuance of this work is vitally important in the valley. During and following the winter of 1936-37, the past few years have worked a great hardship in the valley, as they have elsewhere, and where such conditions have prevailed in a community such as this, history has proved that the being prosperous in the same conditions back. The work done there in the past year described herein has materially assisted in helping a very industrious community, and it is plainly obvious that it is necessary that this CCC camp remain in Paradise Valley to continue with this work.

CHAPTER IX
Cooperative Work with Federal and State Agencies

SNOw SURVEYS

By R. F. Boardman, Chairman, Forest Service, U. S. Department of Agriculture

1. CENTRAL SIERRA

The actual runoff of the Truckee, exclusive of Tahoe, and the rise of Lake Tahoe for April-July 1936, was less than 5% of normal below the forecast, but the Carson and Walker Rivers fell considerably lower in proportion, the Carson runoff being 18% of normal lower than forecast.

1937

The cooperating agencies for financing the surveys in the Central Sierra for 1937 include the States of Nevada and California; the Truckee-Carson Irrigation District; the Washoe County Water Conservation District; the Sierra Pacific Power Company; the U. S. Bureau of Reclamation; and the U. S. Bureau of Agricultural Engineering. The Pacific Gas and Electric Company cooperates by having some of its employees make the surveys of several sources used by the Nevada Cooperative Snow Surveys at no expense to Nevada, viz, those in the Summit-Soda Springs region, and in the Carson, Pah and Blue Lakes courses for the Carson River.

The snow survey measurements for 1937 for nearly all courses were considered below those for 1936, and in many cases more than 20% of normal lower.

In April the temperature was low, retarding the runoff, and in May the precipitation was very deficient. There was also very little precipitation the previous fall. The combination of these factors and perhaps some others impossible to evaluate caused the runoff of the Truckee and the rise of Tahoe to fall much below the forecast which was based on the snow survey indications. The Carson and Walker Rivers came much closer to the forecast.

1938

The year 1938 is demonstrating that precipitation and runoff can come back strong after a long period of deficient water.

For a brief review: In the Tahoe and Truckee region, after 1937 all years up to 1932 were low except 1922 and 1927, although 1919 was 94% of normal in Truckee runoff and the rise of Tahoe was 100% in 1925; 1932 and 1933 were a little above normal in rise of Tahoe, but under normal in Truckee runoff.

The rise of Tahoe was nearly 118% of normal in 1936, and Truckee runoff barely under 100%, but there was a slump in 1937, the very cold year in January and February, and Truckee, Tahoe and Carson were all under 75% of normal, though the Walker was much better. 1933 looked hopeful, but 1933 and 1934 were so very low as to be discouraging; however, a definite and more lasting improvement started with 1935, and this year, 1938, is good enough to make up for the temporary recession of 1937.
The flood-causing downpour of late December 10-12 helped much in raising Lake Tahoe, and helped this year's runoff from some water-sheds by replenishing ground storage.

The heavy snowfall of February and March resulted in record-breaking snow surveys at some snow courses. It was particularly noticeable that most of the low-level snow in the mountainous area in the vicinity of the Truckee basin had been substantially reduced or melted away by early March. This was not particularly surprising to the seasonal residents of the Truckee basin, who are used to seeing the April–May snow survey results, which are usually the highest of the year.

The recent survey results are very similar to those of the previous year, with the exception of the Truckee basin, where the April–May snow survey results are the highest of the year. This is due to the recent winter snowfall and the lack of snowmelt.

The survey results are used to determine the amount of water that will flow into the Truckee basin during the spring runoff. This information is important for water management and flood control efforts.
comfort and safety. It has also been possible to construct a cabin at the head of Coon Creek for use of the party surveying the Marys River course.

Through cooperation with the State Engineer, a hydrographer has been assigned to secure measurements on the tributary streams of the Humboldt. Stream-gaging stations have been improved, canvas staff gages have been installed, and several weekly recording gages have been placed. It is hoped that it will be possible to compile a record so that the snow course normals can be checked and the flow of the tributaries can be forecasted.

The snow cover on March 1, 1937, was 78% of normal for the Upper Humboldt Basin. The forecast was set at 130,000 acre feet at Palisade at that time. The snow cover increased over 15% during the month of March, and when the forecast was released it was stated that the expected yield would be at least the 130,000 acre feet arrived at from the March 1 snow measurements. The actual amount received was 171,000 acre feet. The precipitation during the runoff period was very close to normal, and there was no large deviation from normal in temperature.

On March 1, 1938, the snow cover averaged 63% of normal. From the March 1 measurements it appeared as though only about 100,000 acre feet could be expected. However, during the month of March conditions changed so that a forecast could not be based entirely upon the March 1 survey as is usually done. The snow cover increased to normal by April 1, and when the forecast was issued the figure set for the Humboldt at Palisade was 100,000 acre feet. Preliminary results indicate that the flow will not exceed this amount by more than about 15,000 acre feet.

The March 1 measurements for the Little Humboldt Basin indicated a near normal snow cover. The snow cover, as indicated by one station, measured April 1, increased to over 300% of the March 1 normal. The forecast for the stream was set at 130% of normal. The actual runoff, from reports so far received, is greatly exceeding this forecast.

III. FINANCES

The Humboldt report states the sources of income for snow surveys in the Humboldt Basin, where the contributing organizations comprise the water users, the Nevada Agricultural Experiment Station, and three United States Government organizations.

The State appropriation for snow surveys was for many years $1,500 per biennium. One biennium during the depression no snow survey appropriation was made, and since then it has been $4,000, or at the average rate of $500 per year. This State appropriation has been in recent years all used for the Sierra snow surveys, viz, in the Truckee, Tahoe, Carson, and Walker Basins.

This year, 1938, the income for this Central Sierra region is as follows:

Balance on hand January 1, 1938, from cooperators $201.55
From State of Nevada 520.00
From Irrigation Districts and Sierra Pacific Power Company 750.00
From U. S. Bureau of Agricultural Engineering 45.00
From California Cooperative Snow Surveys (State of California) 425.00

Total $1,953.55
As usual we are unable to pay all bills until the California check is received, and that is always late as the bill cannot be rendered to the California Cooperative Snow Surveys until all snow surveys are completed and then, after its approval, routine procedure consumes considerable time. It is usually some time in July before it is received and the last bills connected with the spring’s snow surveys are paid. That is a long time to ask any of our snow surveys to wait.

It will be noticed that Nevada is paying less than 37% of the total, and only $76.19 more than California.

After paying bills directly left to pay for all of the work that should be done this fall, to say nothing of having a carry-over for next fall. The work that should be done this fall includes clearing and remarking a number of snow courses and locating several needed new courses.

The value and importance of practical snow surveying is becoming widely recognized and its expense tends to increase, so it would seem that Nevada, the State with the largest portion of the cost of the surveys that are of direct benefit to large numbers of its citizens.

In view of the widespread benefits of the snow surveys and the large portion of expense paid by other cooperators, we recommend that the Nevada State appropriation be increased to at least the $1,500 per annum which was formerly appropriated.

STREAM MEASUREMENT WORK
(In Cooperation with United States Geological Survey)

By A. R. Purvis, District Engineer, Water Resources Branch, United States Geological Survey.

Such general stream gaging work in the State of Nevada as could be carried on with the limited funds available has been continued during the biennium under the usual form of cooperation between the State Engineer and the United States Geological Survey. The water resources of Nevada are an important element in the development and stability of several important industries. Irrigation, power generation, mining, stock raising, and the health and happiness of the people all depend largely on the availability and wise use of the water supplies. As development proceeds the need for accurate knowledge of the location and extent of these supplies becomes increasingly apparent, and the lack of such knowledge is embarrassing and uneconomical.

In earlier years the State appropriated $2,500 a year for the investigation of its water resources to be carried on in cooperation with the United States Geological Survey which supplied a like amount of funds. This sum was gradually reduced until for some time only $1,500 a year has been appropriated for this work. It is apparent that no comprehensive program can be carried on for $1,500 a year in a State the size of Nevada.

The floods of December 1937 in Western Nevada not only destroyed two important gaging stations, but also emphasized the need for adequate stream-flow data in designing highway structures and planning flood-control measures.

There is urgent need for several first-class gaging stations in the upper Carson River and Walker River basins. These are necessary.
MUFFLER SLOUGH STRUCTURE ON MARTIN CREEK
Upper—Showing base slab form and reinforcing steel in place.
Lower—Completed structure.

for the protection and proper operation of existing projects as well as the investigation of possibilities for further development. The upper Humboldt River basin is inadequately supplied with all-year running stations, and such stations would not only be of great value in the general determination of Nevada water supplies but extremely useful in the forecasting work carried on in connection with snow surveying.

In earlier years some records were obtained on the smaller streams, but most of this work has been discontinued for lack of funds. A comprehensive stream measurement program should include a careful investigation of all sources of water supply.

The data obtained as a result of these cooperative investigations is published in the annual water supply papers of the Geological Survey. The United States has been divided into twelve primary drainage basins, and for convenience the annual progress reports on stream measurements are published in fourteen water supply papers. Each of these papers contain the data for one primary drainage basin, with the exception of the Columbia River basin, for which data is published in three water supply papers. Stream systems in Nevada are included in the Great Basin, Colorado River, and Columbia River primary drainage basins. The stream flow data for this State appears in the water supply papers for these basins. A set of these publications is available for consultation at the State Engineer's office, Carson City, Nevada, and at the District Office of the Geological Survey, 303 Federal Building, Salt Lake City, Utah. Data in advance of publication and that for previous years at individual stations can be furnished in blue-print form upon application to the District Engineer.

Acknowledgments are due to the water users, particularly in the Walker and Humboldt River basins, for invaluable assistance in maintaining stations in those basins, and to the United States Indian Irrigation Service for financial support and other cooperation. Records for the stations Carson River at Fort Churchill have been furnished by the Newlands Project, and those for the Humboldt River near Inlay and near Orma by the United States Bureau of Reclamation. Elevations at Walker Lake near Hawthorne have been furnished by the Navy Department.

On June 30, 1938, records were being obtained at the stations shown in the following list:

Colorado River Basin

Virgin River at Littlefield, Ariz., 1929-

Snake River Basin
Salmon Falls Creek near San Juanito, Nevada, 1906-16; 1919-
Owyhee River at Mountain City, Nevada, 1927-
Owyhee River below Wild Horse Dam, 1927-

Great Basin and Minor Basins in Nevada

Walker Lake Basin
Bridgeport Reservoir near Bridgeport, California, 1931-
East Walker River near Bridgeport, California, 1913-14; 1922-
Walker Lake near Hawthorne, Nevada, 1928-
West Walker River near Coeville, California 1902-10; 1915-
Topaz Reservoir near Topaz, California, 1931-
such overflow to the river have been constructed for a length of 1.10 miles, with excavation amounting to 41,100 cubic yards.

River dams, several of them noncontrollable or very effective chokes, together with numerous other flow-impeding obstructions, have been cleared from the channel.

Channel improvement work in the Battle Mountain Valley, which has been one of the major developments of the Humboldt Project, is nearing completion. The beneficial results of this work are impossible to measure, and only the future improvement in water supply may partially impress upon Humboldt River water users the value of this undertaking to the entire stream system, as well as to the Humboldt Project.

THE WORK OF CIVILIAN CONSERVATION CAMP NO. 5 (FOREST SERVICE, NEVADA), LOCATED AT PARADISE VALLEY, NEVADA, IN COOPERATION WITH THE STATE ENGINEER'S OFFICE.

A story of the work of the various civilian conservation camps in Nevada would be one of accomplishments. These camps, under the supervision of either the Forest Service, the Taylor Grazing Division, the Reclamation Service, or the Soil Conservation Service, did invaluable work in many lines such as road and trail building, flood control, rodent eradication, telephone line construction, channel cleaning, stream structures, underground water investigation and development, drift fences, soil conservation, and many other worth while activities.

The value of this work to Nevada cannot be measured in dollars and cents, but suffice to say that the beneficial results therefore will be long felt, and is to the everlasting credit of the administration which inaugurated the civilian conservation camp idea, to the men who so excellently supervised the activities of each camp, and to the boys themselves who took advantage of the opportunities presented to them in these camps, and thereby in many cases learned new trades and were given an added initiative to become better American citizens.

Nevada, the sixth largest State in the Union in area, is perhaps the most arid. Any new developments or help tending to conserve and control the State's limited water supply is of immeasurable value.

The idea of obtaining the assistance of the CCC camp in Paradise Valley towards improving channel conditions and constructing diversion structures on the main stream was conceived by State Engineer Alfred Merritt Smith in 1936. In this article a brief description will be given of the work accomplished by the camp to date, and the urgent need of its continuance.

Paradise Valley is about 35 miles long and varies from 4 to 10 miles in width. The town of Paradise is located near the upper end of the valley and is about 35 miles northerly from Winnemucca, Nevada, and about 15 miles northeasterly from the I. O. N. Highway, a through route between Winnemucca and Boise, Idaho. The valley is surrounded on the east, north and west by mountain ranges, those on the north and west being in the Humboldt National Forest. There are about 50 ranches in the valley covering some 46,000 acres of harvest and meadow lands. The main crops grown are hay and grain. Hundreds of cattle are owned by these ranchers, who graze them in the nearby mountains during the spring and summer and bring them
CHAPTER X

Brief History of Public Domain Range Control Laws of Nevada

By CASA VIGNEHOM, Land Use Planning Specialist, Nevada, Bureau of Agricultural Economics, U. S. D. A., in Cooperation with the University of Nevada.

The following article is taken, with minor changes, from a progress report on the "Range Lands of Northern Nevada, Their Proper and Profitable Use," which will be issued soon by the Bureau of Agricultural Economics which is coordinating the activities of the several State and Federal agencies in this cooperative study of Nevada's range industry. The search of the Nevada Statutes was made with student assistance. The references to decisions of the State Supreme Court are taken from the Biennial Report of the State Engineer, July 1, 1934, to June 30, 1936, chapter 12, which is a digest of Supreme Court decisions relating to water.

The first law to control livestock running loose in Nevada was passed by the Territorial Legislature in 1861. This law referred to the disposition of stray stallions and Spanish bulls. The last law directly affecting the livestock industry was passed by the 1937 Legislature. This Act authorized a three-man commission to go to Washington to obtain more credit and lower interest rates for an alluring public land livestock industry. In this span of 75 years, the several Legislatures have passed nearly 40 laws relating directly to control or limitation of the use of the public lands, and these laws have been clarified and confirmed by a half dozen or more important decisions of the State Supreme Court.

Through this 75-year period run three distinct, though overlapping, periods. From Territorial days until about 1900, the lawmakers were motivated by a "fair play" and "let alone" policy. Few laws were passed and those enacted were based on application on the open range, made it a felony to kill the livestock of another on the open range, authorized the killing of wild horses, and provided for the castration or killing of undesired bulls and stallions found running at large.

In the second period, from 1895 to 1915, the legislators were concerned principally with control of the rapidly growing sheep industry, which reached its maximum numbers by 1910, and had spread out over the public lands to the point where single bands in winter were herded 200 or more miles away from their summer grounds. R. O. Woodin of the United States Department of Agriculture, who made a study of the Nevada public domain in 1927, commented that Nevada Legislatures had passed more laws to control the sheep industry than were passed on all other phases of range control. (U. S. D. A. Technical Bulletin 301, page 35.) Unquestionably, this rise of a new livestock industry, on a range considered fully stocked, and in some areas reported seriously depleted as far back as 1850, had adverse effects on the cattle industry which, among agricultural interests, was dominant politically. Furthermore, the sheepmen, at that time, depended almost wholly on public lands for all-year forage and paid little direct taxes. In contrast, the cattle owners had acquired large home ranches.
with hay lands, and in many cases owned a large portion of their grazing lands. The political ascendency of the cattlemen, and the low taxes paid by the sheepmen, probably explain the graduated revenue tax of $25 to $50 per 1,000 sheep put on by the 1893 Legislature. Even though owners of two acres of land for each sheep were exempted from the tax, the counties as late as 1892 were collecting $10,000 to $15,000 annually.

The 1901 and 1903 Legislatures made it unlawful to graze sheep within three miles of towns and villages, or within one mile of a bona fide ranch house, but allowed sheep to be driven along highways and "hardly closely together, steadily, quickly, and continuously by the most direct passable route from one range to another." This last provision was repealed by the 1907 Legislature, but the statutes do not give the specific limits.

Cattle as well as sheep were mentioned in the 1903 transient livestock law, which required a deposit or bond for taxes on all livestock in intercounty or interstate movement with intent to graze. Apparently the framers of this law were concerned only with tax avoidance rather than control of grazing. In 1915 the sheep grazing license Act of 1895 was modified to (1) apply only to owners of real estate in Nevada; (2) to exempt owners of one acre of land for each three sheep; and (3) to levy a tax of 15 cents per head of sheep on nonresidents owning no land in Nevada.

In the third period, from 1917 to the present time, the laws reflect a full utilization of the range and an equal application of control laws to cattle as well as sheep. In general, the laws enacted were directed at giving control of the range to owners of water; to give legal standing to prior users; to provide means of limiting range use to grazing capacity, and to give preference to residents of Nevada and to owners of land.

The 1917 Legislature made the 1903 Act, declaring it unlawful to graze sheep within a mile of a bona fide ranch house, apply to both sheep and cattle. The sheep grazing license revenue tax was again revised in 1919 by (1) making it applicable to both sheep and cattle; and (2) removing graduated fees and substituting flat fees of 35 cents per head of sheep and $1 per head of cattle; but (3) exempted citizens of Nevada from the payment of fees on 500 cattle and 1,000 sheep; and (4) also exempted owners of one acre for each five sheep and five cattle. Because of the high exemption to Nevada citizens and land owners, this law was apparently directed at relatively large numbers of alien sheep operators who owned no land. David Griffiths of the United States Department of Agriculture, who made a study of range forage conditions from Winnemucca, Nevada, to Ontario, Oregon, in 1901, commented on this problem. (U. S. D. A. Bureau of Plant Industry, Bulletin 15, page 25).

The same administration evidently was disturbed over the increasing number of sheep from other States which entered Nevada to graze on the winter ranges, and passed an Act "to regulate the herding or grazing of livestock of nonresidents upon any unenclosed lands" by levying a license of 50 cents per head of sheep and $2 per head of cattle. This law was aimed at transient at the end of this section, two 4-foot by 4-foot high pressure slide gates [installed] at that point, and two 16-inch steel pipes for the remaining length of the tunnel to conduct the water to a valve house where two 42-inch needle valve discharge controls will operate. The maximum discharge will be about 900 c.f.s. The dam crest will carry a roadway having a three-foot concrete parapet wall on the reservoir side and a concrete curb wall on the downstream side.

CONSTRUCTION PROGRESS

It should be realized that work cannot proceed at Boa during the stormy winter months. While temperatures are low, earth materials are made unworkable by becoming frozen, and concrete casts cannot be safely made. During the greater part of the winter snow conditions also create impossible working conditions, and during runoff periods high water flows cause considerable difficulty on account of the location and nature of the project work.

Construction work during 1937 and the forepart of 1938 has been principally confined to the spillway structures and outlet works. Concrete work for the spillway gate structure has been practically completed, a considerable portion of the spillway chute done, and some of the spillway intake structure cast. The outlet tunnel has been excavated and concrete-lined. Inlet and outlet channels for the tunnel have been excavated, and sufficient concrete placed in both to enable the contractor to divert the Little Trunnuck River from its channel to passage through the tunnel. This diversion was begun on June 4, 1938, and river bottom stringing and cutoff wall trench excavating was commenced as preparatory to the placing of dam embankment material. Although it is necessary, on account of specified requirements, to ship in all concrete aggregates, all embankment materials are available adjacent to the damsite, and it is expected that, when once underway, the placing of the dam embankment will proceed quite rapidly.

HUMBOLDT RIVER CHANNEL IMPROVEMENT WORK

In the Battle Mountain Valley, the United States Bureau of Reclamation has continued its program of river channel improvement, levee construction, and swamp drainage, which was started in the spring of 1933. The primary purpose of this work is the development and safeguarding of the water supply acquired by the Government in that area, for the benefit, and at the expense, of the Pershing County Water Conservation District at Lovelock, which will repay the cost of the Humboldt Project.

Water rights involved in this undertaking exceed 50,000 acre feet of the decreed water. These water rights were originally appurtenant to seven large river bottom ranches. These holdings were purchased by the Bureau of Reclamation and the water rights transferred to the Lovelock lands of the Humboldt Project. In order to speed the flow of the river through these properties, prevent overflow, drain sloughs and swamps, and reduce transit loss and waste, the project has spent many thousands of dollars to improve river channel conditions in these properties.

The vast Argenta Swamp above Battle Mountain, a section of the river through which no channel previously existed, has yearly
BOCA DAM AND RESERVOIR

Dams and reservoir site surveys were made on the upper reaches of the Truckee River stream system, by private interests, as early as 1889, and while records indicate the inaccuracy and insufficiency of this early work they also indicate the realization of the importance of storage in connection with Truckee River water use. From 1919 to 1927 several brief surveys were made which led to more detailed and careful investigations of all probable reservoir sites. The results of such investigations were covered by the Bureau of Reclamation Report on Truckee River Reservoirs made April 22, 1928. April 13, 1934, detail surveys were resumed by the Bureau of Reclamation at a point about four miles up the Little Truckee River from Boca, California. By May 29, 1935, that work was abandoned. Investigations commenced on two sites near Boca, one of these being the location selected for construction.

Bids for construction, under Specifications No. 696, were opened at the Reno office of the Bureau of Reclamation on September 30, 1936, George W. Cordon Company of Omaha, Nebraska, submitting the low bid of $720,435. The contract, No. 121-7029, was executed February 15, 1937, and work began March 30, 1937, although the official date for commencement of construction was fixed as April 24, 1937. The period of time specified for completion of the work was eight hundred calendar days.

The repayment contract provides for the construction of a dam of sufficient height to create a reservoir with a capacity of 40,000 acre feet. Subsequent to the execution of that contract the United States, the Sierra Pacific Power Company, and the Washoe County Water Conservation District executed a contract, dated January 15, 1937, providing for the joint use and operation of the Boca Dam by the Power Company and the Conservation District and an increase in reservoir capacity to 46,000 acre feet. The dam, as designed for the finally determined reservoir capacity, will have a crest elevation of 5,612 feet, the top of the spillway gates 5,605 feet, and the lowest point to which water may be drawn 5,267 feet, which allows for considerable irrigation water to always remain in the reservoir for aquatic life protection. The reservoir water surface area at full stage will be approximately 365 acres.

Specifications No. 696, previously referred to, cover the construction of a dam of the earthfill type. It will have an approximate crest length of 1,660 feet, a height of 110 feet, a rockfill downstream face with a slope of 2:1, a rock riprap upstream face, with a slope of 3:1, and be provided with a concrete spillway with ten 16 feet radial gates having a capacity of 5,000 c.f.s. A concrete-lined outlet tunnel approximately 740 feet long is provided, which will be used as a river diversion during construction in the river bottom. For the first 393 feet the tunnel is circular, with an inside diameter of 12 feet, the crest in semicircular, 10.2 feet by 14 feet inside diameters. After use as a diversion a concrete plug will be placed in the tunnel.
busy for several years with new stock water right applications and with the filing of range use maps to assist in judging the degree of utilization of the range. This Act carried the beginning of regulatory responsibility by the State of Nevada.

Grazing control by water control obviously is not effective in the winter range areas where stock depend on snow, so in 1931 an Act was passed making it unlawful to graze livestock where "established" or "established" users have stocked the range to capacity. "Customary or established use as grazing" was deemed to include the continuous seasonal use of such range for five or more years previous to the enactment of the law.

This was the situation when the Taylor Grazing Law was passed in 1934, and five districts, in which are located most of the livestock of Nevada, have been organized for grazing purposes, the State Grazing Board, the State Board of Regents, the determination of grazing capacity, and the enforcement of rules and regulations is now in the hands of the State Department of the Interior, Division of Grazing.

The State Supreme Court (1927) and District Courts (1937) have both held that the United States Government, as owner of the public domain, had all the rights of any other owner to sell, lease, or otherwise exercise control over it. The State, however, claims ownership of the water and has given stockmen priority in the use of the water resources. The State also has, in effect, granted priority grazing rights under the "customary use" law of 1931 to users of the winter ranges. The water, claimed by the State, cannot be used without the land, and the land, whose ownership by the United States is recognized by the State, cannot be used without water except in the winter range areas.

The reconciliation of these several powers and controls into a workable, stable relationship to the livestock industry is the job facing the interests concerned.

Though not directed primarily at range control, the selection of State lands on streams and springs in areas of high grazing value and with irrigation possibilities gave an absolute control of many public domain areas through control of grazing and water use and commensurate property necessary for its use. Also the 1931 minimum assessment law of $1.25 per acre was not directed at range control, but in making the tax cost per acre for most of the public domain lands greater than the forage value, private ownership of range was made unprofitable except for limited high forage producing areas and land readily available for control purposes.

This brief excursion into the history of the legal attempts of Nevada to control the public domain has not yet been carried far enough to determine the effects of the several laws. The current problems, and the objectives of the laws as seen by the lawmakers themselves and a general knowledge of their timing in relation to other developments. The next step will be to check the objectives and effects of the laws, where possible, with the lawmakers themselves and the stockmen affected.
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Though not directed primarily at range control, the selection of State lands on streams and springs in areas of high grazing value and with irrigation possibilities gave an absolute control of many public domain areas through control of the water and consequent permanent value. The 1911 minimum assessment law of $1.25 per acre was not directed at range control, but in making the tax cost per acre for most of the public domain lands greater than the purchase price, private ownership of range was made unprofitable except for limited high forage producing areas and limited water value for irrigation purposes.

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sheep from other States but, as usual, would have confined the values of many California enterprises whose owner lived or had corporation offices located in another State. Therefore, at the same session, the law was amended to exempt nonresident owners of fees on five sheep or three cattle for each acre of owned land. The tax law was declared discriminatory and therefore unconstitutional by the State Supreme Court in 1923.

An isolated settlement extended into the range area and the ownership of key tracts became important in control, fence and trespass assumed more importance. As previously mentioned, the early trespass laws were exempted from application on the open ranges. The exemption was apparently not satisfactory to all, as the 1909 Legislature made the owners of livestock in Douglas County liable for trespass damages on any fenced or unfenced land in the county. In 1913 the Legislature passed another special law applying to counties casting 426 votes for representatives at the last general election. White Pine County had just 426 votes and the Act made it unlawful to run stock at large on the enclosed public roads or highways, "provided that such public roads or highways are enclosed on one or both sides by a fence of any kind or description."

In 1917 the State Legislature passed a law forbidding the award of damages for "trespass of livestock on cultivated land in the State if such land at the time of such trespass shall not have been enclosed by a legal fence as hereinafter defined." The distinction implied above between cultivated and range areas was clarified in part by the State Supreme Court which held, in 1922, that livestock on ranges may roam at will over the unfenced private land without owners being liable for trespass. The Supreme Court commented: "In fact, a herder of horses or cattle upon public and other unenclosed lands is unknown to the customs of stockmen in Nevada, except in special instances, and would be impracticable and often detrimental to the thrift of such stock."

In 1929 the Legislature raised the standards for a legal fence, but gave County Commissioners power to modify the standard to fit local conditions. This increase in the power given to local boards to regulate trespass has been interpreted to indicate a growth in the political power of the general farming areas.

The most important and most effective range control law developed in Nevada was the stock watering Act of 1925, which declared stock watering a beneficial use of water and limited water appropriation for stock watering purposes to the full utilization of the range. The ground work for this law was laid in 1912 in the water laws of Nevada, which declared that beneficial use "shall be the basis, the measure and the limit to the right and the use of such water." The State Supreme Court has fully upheld the application of the "beneficial use" provision to stock watering. This law also declared it a misdemeanor to water 50 or more head of livestock "with intent to graze" for two or more days at the watering place of another. This section obviously was aimed at the suppression of shoo fly with no land or water rights. Certain administrative work in connection with the 1925 stock watering Act was given to the Nevada State Engineer and he was kept quite
with hay lands, and in many cases owned a large portion of their grazing lands.
The political ascendency of the cattlemen, and the low taxes paid by the shearersmen, probably explain the graduated revenue tax of $25 to $50 per 1,000 sheep put on by the 1893 Legislature. Even though owners of two acres of land for each sheep were exempted from the tax, the counties as late as 1910 to 1912 were collecting $10,000 to $15,000 annually.
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David Griffiths of the United States Department of Agriculture, who made a study of range forage conditions from Wyoming to Nevada, to Ontario, Oregon and 1901, commented on this problem. (U. S. D. A. Bureau of Plant Industry, Bulletin 5, page 23). For some years the same general condition of sheep on other States which entered Nevada to graze on the winter ranges, and passed an Act "to regulate the herding or grazing of livestock on nonresident upon any unoccupied lands" by levying a license of 50 cents per head of sheep and $2 per head of cattle. This law was aimed at transient at the end of the circular section, two 4-feet by 4-feet high pressure slide gates [installed] at that point, and two 34-inch steel pipes for the remaining length of the tunnel to conduct the water to a valve house where two 42-inch needle valve discharge controls will operate. The maximum discharge will be about 900 c.f.s. The dam crest will carry a roadway having a three-foot concrete parapet wall on the reservoir side and a concrete curb wall on the downstream side.

CONSTRUCTION PROGRESS

It should be realized that work cannot proceed at Bona during the stormy winter months. While temperatures are low, earth materials are made workable by becoming frozen, and concrete casts cannot be safely made. During the greater part of the winter snow conditions also create impossible working conditions, and during runoff periods high water flows cause considerable difficulty on account of the location and nature of the project work.

Construction work during 1937 and the forepart of 1938 has been principally confined to the spillway structures and outlet works. Con- crete work for the spillway gate structure has been practically com- pleted, a considerable portion of the spillway chute done, and some of the spillway intake structure cast. The outlet tunnel has been exca- vated and concrete-lined. Inlet and outlet channels for the tunnel have been excavated, and sufficient concrete placed in both to enable the contractor to divert the Little Truckee River from its channel to passage through the tunnel. This diversion was begun on June 4, 1938, and river bottom striping and cutoff wall trench excavating was commenced as preparatory to the placing of dam embankment material. Although it is necessary, on account of specified requirements, to ship in all concrete aggregates, all embankment materials are available adjacent to the damsite, and it is expected that, when once underway, the placing of the dam embankment will proceed quite rapidly.

HUMBOLDT RIVER CHANNEL IMPROVEMENT WORK

In the Battle Mountain Valley, the United States Bureau of Recla- mation has continued its program of river channel improvement, levee construction, and swamp drainage, which was started in the spring of 1933. The primary purpose of this work is the development and safe- guarding of the water supply acquired by the Government in that area, for the benefit, and at the expense, of the Pershing County Water Conservancy District at Lovelock, which will repay the cost of the Humboldt Project.

Water rights involved in this undertaking exceed 50,000 acre feet of the decreed water. These water rights were originally appurtenant to seven large river bottom ranches. These holdings were purchased by the Bureau of Reclamation and the water rights transferred to the Loveock lands of the Humboldt Project. In order to speed the flow of the river through these properties, prevent overflow, drain sloughs and swamps, and reduce transit loss and waste, the project has spent many thousands of dollars to improve river channel conditions in these properties.

The vast Argenta Swamp above Battle Mountain, a section of the river bottom through which no channel previously existed, has yearly

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vast and underground channels. By the construction of two large canals through this swamp, all overflow has been eliminated in this area, and the time previously required to fill this marsh so that the flow would continue down the river has advanced the arrival of the river runoff to its lower reaches by many days and probably weeks. It is estimated that the river channels above and below the levees are in a state of concrete condition, making them as effective as the channels flowing through the levees. The levees serve to prevent overflow from other adjacent properties, thus preventing the improper use of water on these properties.

The Humboldt River, especially in the Battle Mountain Valley, is renowned for its winding, meandering course. In it, nature has succeeded in producing one of the longest arc systems to be found in an equal straight-line distance between its two extremities. Only an aerial photographic survey could accurately record its tortuous meanders and the obstacles which man and nature have built to prevent its waters from reaching the end of its course.

The banks of the river are typically higher than the ground surface back some distance from the channel, a natural and not unusual characteristic of a flat grade, all-tall stream like the Humboldt. Water overflowing its banks, or diverted or escaping from its channel, would rarely return in any appreciable amount for beneficial use downstream. In this regard the project was among the numerous offenders in improperly reducing the water supply available for legitimate irrigation, frequently, it is estimated, by being responsible for diversions or overflow of water amounting to double the quantity these properties were entitled to use. By preventing such overflow and excessive diversions on all these seven properties, benefit to every water user on the river will inevitably result.

From reliable sources it is estimated that the work accomplished by the Bureau of Reclamation in this river channel improvement program to date is as follows:

More than 50 channel straightening cuts have thus far been excavated. Their total length exceeds eight miles and the material excavated is approximately 500,000 cubic yards.

Property boundaries levees 7.65 miles in length and containing 142,600 cubic yards are complete. River channel widening and cleaning extends a total distance of 4.97 miles and involved 46,500 cubic yards of excavation. Incidental to this channel cleaning and widening, was an equal distance to prevent river overflow.

The new channels through the Argenta Swamp have a total length of two miles and their excavation totaled 101,400 cubic yards of material.

Drains to intercept overflow from adjacent property and return

CHAPTER X

Brief History of Public Domain Range Control Laws of Nevada

By C. E. Van Norman, Land Use Planning Specialist, Nevada, Bureau of Agricultural Economics, U. S. D. A., in cooperation with the University of Nevada.

The following article is taken, with minor changes, from a progress report on the "Range Lands of Northeastern Nevada, Their Proper and Profitable Use," which will be issued soon by the Bureau of Agricultural Economics which is coordinating the activities of the several State and Federal agencies in this cooperative study of Nevada's range industry. The search of the Nevada Statutes was made with student assistance. The references to decisions of the State Supreme Court are taken from the Biennial Report of the State Engineer, July 1, 1894, to June 30, 1936, chapter 12, which is a digest of Supreme Court decisions relating to water.

The first law to control livestock running loose in Nevada was passed by the Territorial Legislature in 1861. This law referred to the disposition of stray stallions and Spanish bulls. The last law directly affecting the livestock industry was passed by the 1897 Legislature. This Act authorized a three-man commission to go to Washington to obtain more credit and lower interest rates for an alling public land livestock industry. In this span of 75 years, the several Legislatures have passed nearly 40 laws relating directly to control or limitation of use of the public lands, and these laws have been clarified and confirmed by a half dozen or more important decisions of the State Supreme Court.

Through this 75-year period run three distinct, though overlapping, periods. From Territorial days until about 1900, the lawmakers were motivated by a "fair play" and "let alone" policy. Few laws were passed and those that were passed were too vague to be of great use. From 1900 to 1919, the 50 years of the Works Progress Administration and the Public Works Administration, this period saw operation and application on the open range, made it a felony to kill the livestock of another on the open range, authorized the killing of wild horses, and provided for the castration or killing of undesirable bulls and stallions found running at large.

In the second period, from 1895 to 1915, the legislators were concerned principally with control of the rapidly growing sheep industry, which reached its maximum numbers by 1910, and had spread out over the public lands to the point where simple bands in winter were herded 200 or more miles away from their summer grounds. R. O. Wooten of the United States Department of Agriculture, who made a study of the Nevada public land in 1927, commented that Nevada Legislatures had passed more laws to control the sheep industry than were passed on all other phases of range control. (U. S. D. A. Technical Bulletin 301, page 35.) Unquestionably, this rise of a new livestock industry, on a scale considered fully stocked, and in some areas reported seriously depleted as far back as 1880, had adverse effects on the cattle industry which, among agricultural interests, was dominant politically. Furthermore, the sheepmen, at that time, depended almost wholly on public lands for all-year forage and paid little direct taxes. In contrast, the cattlemen already had acquired large home ranches
such overflow to the river have been constructed for a length of 1.10 miles, with excavation amounting to 41,100 cubic yards.

River dams, several of them uncontrolable or very effective chokes, together with numerous other flow-impeding obstructions, have been cleared from the channel.

Channel improvement work in the Battle Mountain Valley, which has been one of the major developments of the Humboldt Project, is nearing completion. The beneficial results of this work are impossible to measure, and only the future improvement in water supply may partially impress upon Humboldt River water users the value of this undertaking to the entire stream system, as well as to the Humboldt Project.

**THE WORK OF CIVILIAN CONSERVATION CAMP NO. 5 (FOREST SERVICE, NEVADA), LOCATED AT PARADISE VALLEY, NEVADA, IN COOPERATION WITH THE STATE ENGINEER’S OFFICE.**

A story of the work of the various civilian conservation camps in Nevada would be one of accomplishments. These camps, under the supervision of either the Forest Service, the Taylor Grazing Division, the Reclamation Service, or the Soil Conservation Service, did invaluable work in many lines such as road and trail building, flood control, roadbed eradication, telephone line construction, channel cleaning, stream structures, underground water investigation and development, drift fence, soil conservation, and many other worth while activities.

The value of this work to Nevada cannot be measured in dollars and cents, but suffice to say that the beneficial results therefore will be long felt, and is to the everlasting credit of the administration which inaugurated the civilian conservation camp idea, to the men who so excellently supervised the activities of each camp, and to the boys themselves who took advantage of the opportunities presented to them in these camps, and thereby in many cases learned new trades and were given an added initiative to become better American citizens.

Nevada, the sixth largest State in the Union in area, is perhaps the most arid. Any new developments or help tending to conserve and control the State’s limited water supply is of immeasurable value.

The idea of obtaining the assistance of the CCC camp in Paradise Valley towards improving channel conditions and constructing diversion structures on the main stream was conceived by State Engineer Alfred Merritt Smith in 1936. In this article a brief description will be given of the work accomplished by the camp to date, and the urgent need of its continuance.

Paradise Valley is about 35 miles long and varies from 4 to 10 miles in width. The town of Paradise is located near the upper end of the valley and is about 35 miles northerly from Winnemucca, Nevada, and about 15 miles northeasterly from the I. O. N. Highway, a through route between Winnemucca and Boise, Idaho. The valley is surrounded on the east, north and west by mountain ranges, those on the north and west being in the Humboldt National Forest. There are about 80 ranches in the valley covering some 46,000 acres of harvest and meadow lands. The main crops grown are hay and grain. Hundreds of cattle are owned by these ranchers, who graze them in the nearby mountains during the spring and summer and bring them
MUFFLER SLOUGH STRUCTURE ON MARTIN CREEK
Upper—showing base slab form and reinforcing steel in place.
Lower—completed structure.

for the protection and proper operation of existing projects as well as the investigation of possibilities for further development. The upper Humboldt River basin is inadequately supplied with all-year running stations, and such stations would not only be of great value in the general determination of Nevada water supplies but extremely useful in the forecasting work carried on in connection with snow surveying.

In earlier years some records were obtained on the smaller streams, but most of this work has been discontinued for lack of funds. A comprehensive stream measurement program should include a careful investigation of all sources of water supply.

The data obtained as a result of these cooperative investigations is published in the annual water supply papers of the Geological Survey. The United States has been divided into twelve primary drainage basins, and for convenience the annual progress reports on stream measurements are published in fourteen water supply papers. Each of these papers contains the data for one primary drainage basin, with the exception of the Colorado River basin, for which data is published in three water supply papers. Stream systems in Nevada are included in the Great Basin, Colorado River, and Columbia River primary drainage basins. The stream flow data for this State appears in the water supply papers for these basins. A set of these publications is available for consultation at the State Engineer's office, Carson City, Nevada, and at the District Office of the Geological Survey, 303 Federal Building, Salt Lake City, Utah. Data in advance of publication and that for previous years at individual stations can be furnished in blue-print form upon application to the District Engineer.

Acknowledgments are due to the water users, particularly in the Walker and Humboldt River basins, for invaluable assistance in maintaining stations in those basins, and to the United States Indian Irrigation Service for financial support and other cooperation. Records for the station Carson River at Fort Churchill have been furnished by the Nez Perce Project, and those for the Humboldt River near Inlay and near Ormsby by the United States Bureau of Reclamation. Elevations of Walker Lake near Hawthorne have been furnished by the Navy Department.

On June 30, 1938, records were being obtained at the stations shown in the following list:

**Colorado River Basin**
- Virgin River at Littlefield, Ariz., 1928–
- Salmon Falls Creek near San Juan, Nevada, 1906–16; 1919–
- Owyhee River at Mountain City, Nevada, 1927–
- Owyhee River below Wild Horse Dam, 1927–

**Great Basin and Minor Basins in Nevada**
- Walker Lake Basin—
  - Bridgeport Reservoir near Bridgeport, California, 1931–
  - East Walker River near Bridgeport, California, 1931–14; 1922–
  - Walker Lake near Hawthorne, Nevada, 1928–
  - West Walker River near Coeville, California 1902–10; 1915–
  - Topaz Reservoir near Topaz, California, 1931–
As usual we are unable to pay all bills until the California check is received, and that is always late as the bill cannot be rendered to the California Cooperative Snow Surveys until all snow surveys are completed and then, after its approval, routine procedure consumes considerable time. It is usually some time in July before it is received and the last bills connected with the spring's snow surveys are paid.

It is a long time to ask any of our snow surveyors to wait.

It will be noticed that Nevada is paying less than 27% of the total, and only $76.10 more than California.

After paying bills during the shift to pay for all of the work that should be done this fall, to say nothing of having a carry-over for next year. The work that should be done this fall includes clearing and remarking a number of snow courses and locating several new courses.

The value and importance of practical snow surveying is becoming widely recognized and its expense tends to increase, so it would seem that Nevada, the State, should pay a greater portion of the cost of the surveys that are of direct benefit to large numbers of its citizens.

In view of the widespread benefits of the snow surveys and the large portion of expense paid by other cooperators, we recommend that the Nevada State appropriation be increased to at least the $1,500 per biennium which was formerly apportioned.

**STREAM MEASUREMENT WORK**

*(In Cooperation with United States Geological Survey)*


Such general stream gaging work in the State of Nevada as could be carried on with the limited funds available has been continued during the biennium under the usual form of cooperative agreement between the State Engineer and the United States Geological Survey.

The water resources of Nevada are an important element in the development and stability of some important industries. Irrigation, power generation, mining, stock raising, and the health and happiness of the people all depend largely on the availability and wise use of the water supplies. As development proceeds the need for accurate knowledge of the location and extent of these supplies becomes increasingly apparent, and the lack of such knowledge is embarrassing and uneconomical.

In earlier years the State appropriated $2,500 a year for the investigation of its water resources to be carried on in cooperation with the United States Geological Survey which supplied a like amount of funds. This sum was gradually reduced until for some time only $1,000 a year has been appropriated for this work. It is apparent that no comprehensive program can be carried on for $1,500 a year in the State the size of Nevada.

The floods of December 1937 in Western Nevada not only destroyed two important gaging stations, but emphasize the need for adequate stream-flow data in designing highway structures and planning flood-control measures.

There is urgent need for several first-class gaging stations in the upper Carson River and Walker River basins. These are necessary

down into the valley in the fall, where they are fattened for market.

There are numerous streams entering the valley, the main ones being Little Humboldt River, Martin Creek, Indian Creek, Cottonwood Creek, and Mullenix Creek. Numerous other smaller streams enter the valley from the westerly side and are tributary to Cottonwood Creek. The waters from Martin, Indian, Cottonwood and Mullenix Creeks and their tributaries flow down the length of the valley and are tributary to Little Humboldt River, which enters from the east, towards the lower end of the valley. Little Humboldt River then continues southward and only in times of extreme early spring floods does the water ever reach the Humboldt River near Winnemucca. The entire stream system in Paradise Valley is designated as the Little Humboldt River and its tributaries.

In 1938 the decree in the matter of the determination of the relative rights in and to the waters of the Little Humboldt River and its tributaries was set, fixing forth in the water rights of the various claimants, together with the priority, classes of culture, and description of place of use. Under the water law of this State the State Engineer has the task of distributing the waters on an adjudicated stream system in accordance with the decree.

The investigation carried on by the State Engineer and his assistants during the summer of 1938 on this stream system for the purpose of determining where conditions could be improved unequivocally deplorable facts. It was discovered that many miles of the winding channels of Little Humboldt River, Martin and Cottonwood Creeks were so choked up with willows and debris that the normal passage of water was greatly retarded. When it is remembered that these various streams must furnish water to many ranches scattered along their courses, each covering 20 to 30 miles, and that lower users oftentimes have earlier priorities, it is realized that a great handicap is imposed on the State Engineer in distributing the water. The investigation also disclosed many diversions over which control by the water commissioner was practically impossible. A few serviceable structures were noted, but in the main they consisted of disintegrated rock masonry and temporary brush or morale dams over which water con- formed was impossible.

The matter of obtaining the assistance of CCC Camp No. 6-5 to improve these conditions was taken up with Mr. Alex McQueen, Forest Supervisor of the Humboldt National Forest, and Paul Travis, Forest Ranger located at Paradise. These gentlemen immediately gave their ready assent to this work and agreed to place some men on it as soon as they were available from their other work, and as soon as the State Engineer was ready to start.

It was decided to start the work on Martin Creek first, and the State Engineer and his assistants immediately prepared a petition to be signed by the various interested parties requesting the work to be done. Several structures were proposed and plans and specifications were prepared in the State Engineer's office. The understanding was that the parties interested in each structure would pay for the cost of the materials.

The CCC boys would perform all labor, including the trucking of materials from Winnemucca to the place of use, and the hauling of sand and gravel. By the time the petition had been
comfort and safety. It has also been possible to construct a cabin at the head of Coon Creek for use of the party surveying the Marys River course.

Through cooperation with the State Engineer, a hydrographer has been assigned to secure measurements on the tributary streams of the Humboldt. Stream-gaging stations have been improved, channel staff gages have been installed, and several weekly recording gages have been placed. It is hoped that it will be possible to compile a good record so that the snow course normals can be checked and the flow of the tributaries can be forecasted.

The snow cover on March 1, 1937, was 78% of normal for the Upper Humboldt Basin. The forecast was set at 130,000 acre feet at Palmade at that time. The snow cover increased over 15% during the month of March, and when the forecast was released it was stated that the expected yield would be at least the 180,000 acre feet arrived at from the March 1 snow measurements. The actual amount received was 171,000 acre feet. The precipitation during the runoff period was very close to normal, and there was no large deviation from normal in temperature.

On March 1, 1938, the snow cover averaged 68% of normal. From the March 1 measurements it appeared as though only about 100,000 acre feet could be expected. However, during the month of March conditions changed so that a forecast could not be based entirely upon the March 1 survey as is usually done. The snow cover increased to normal by April 1, and when the forecast was issued the figure set for the Humboldt at Palmade was 180,000 acre feet. Preliminary results indicate that the flow will not exceed this amount by more than about 15,000 acre feet.

The March 1 measurements for the Little Humboldt Basin indicated a near normal snow cover. The snow cover, as indicated by one station, measured April 1, increased to over 300% of the March 1 normal. The forecast for the streams was set at 130% of normal. The actual runoff, from reports so far received, is greatly exceeding this forecast.

III. FINANCES

The Humboldt report states the sources of income for snow surveys in the Humboldt Basin, where the contributing organizations comprise the water users, the Nevada Agricultural Experiment Station, and the United States Government organizations. The State appropriation for snow surveys was for many years $1,500 per biennium. One biennium during the depression no snow survey appropriation was made, and since then it has been $1,000, or at the average rate of $500 per year. This State appropriation has been in recent years all used for the Sierra snow surveys, viz, in the Truckee, Tahoe, Carson, and Walker Basins.

This year, 1938, the income for this Central Sierra region is as follows:

- Balance on hand January 1, 1938, from cooperators: $201.55
- From State of Nevada: 550.00
- From Irrigation Districts and Sierra Pacific Power Company: 750.00
- From U. S. Bureau of Agricultural Engineering: 40.00
- From California Cooperative Snow Surveys (State of California): 425.00

Total: $1,955.35
The flood-causing downpour of last December 10-12 helped much in raising Lake Tahoe, and helped this year’s runoff from some watersheds by replenishing ground storage.

The heavy snowfall of February and March resulted in record-breaking snow surveys at some snow courses. It was particularly noticeable that most of the snow varied high in depth and water content, ranging from 163% to 216% of normal in water content for the Truckee basin.

From present indications the rise of Tahoe, assuming the gates are kept closed, will check very closely with the forecast, perhaps exceeding it by an inch or so.

The West Walker discharge will check very closely with the forecast, which was 240,000 acre feet per simulation of the Carson, and the East Walker will all far exceed the forecast.

The rise of Tahoe and runoff of these rivers, referred to, are all for the April-July period except Walker where August is included, i.e., the period during which nearly all is funneled down by melting snow.

The runoff for the East Walker at Bridgeport may reach 220,000 acre feet, which will be the greatest since continuous records were taken in 1922. The January-June runoff at Schurz, into Walker Lake, was 289,700 acre feet, the April-June being 245,000 acre feet. Mr. Krezup estimated the April-July runoff at 60,000, which would have made the April-July runoff 305,000 acre feet, or more than Walker Lake has received from snow runoff for many a year.

The Carson runoff will probably be about 420,000 acre feet at Fort Churchill, exceeding all previous records since gaugings were started in that vicinity in 1911.

The Truckee runoff at Floriston, exclusive of Tahoe, will come close to 600,000 acre feet, which would have only two years since continuous records have been kept, i.e., 1901 to date. In 1907 it was 603,400 and in 1911, 670,300 acre feet.

Three new snow courses on the Little Truckee have been surveyed for the past two years. These will aid in determining the runoff of that tributary and the confluence at the new reservoir Burrose under construction.

II. HUMBOLDT BASIN

As in the past, the snow surveys in the Humboldt basin have been directed by Carl Elger of the Nevada Cooperative Snow Surveys. For the two years 1936-1937, 1937-1938, the following agencies gave financial support to the actual field work: Humboldt Water Users, through the distribution of the United States Bureau of Agricultural Engineering, and the Nevada Agricultural Experiment Station.

For the 1935-1936 season, the survey was directed by the United States Bureau of Reclamation, through the Owens and Lovelock projects, also aided for the year 1936-1937, but was unable to continue through the Lovelock project for 1937-1938. During both years, the United States Forest Service gave considerable assistance with the cost of the surveys, which would have been more than doubled.

Considerable progress has been made in procuring the snow surveying measurements. The United States Forest Service constructed a fire lookout station at the 5,000-foot level in Lamonte Canyon which is available to the snow surveying parties and greatly assists them to do

The second structure constructed was at the Carrol diversion from the East Fork of Martin Creek. The structure is about 60 feet long, being right-angular in shape, with three openings. The Martin Creek gate is 14 feet wide, the Stewart ditch gate is 24 feet wide and the Corral ditch gate is 7 feet wide, all being 9 feet in depth. The base slab is 74 feet long, 1 foot in thickness, with a 2-foot cutoff wall at the upstream side. The wall stem section is 74 feet in height and 1 foot in thickness. At least 100 cubic yards of structure excavation were designed and plans drawn upon extremely cold weather had set in, and the work had to be abandoned until the following year.

In the summer of 1937 the matter was again brought up and through the efforts of Mr. George Miller, one of the progressive ranchers in the valley, the money to purchase the supplies for the first structure was collected. Construction work had to be retarded until the creek flow had diminished sufficiently so that the remaining flow could be handled. However, on about September 10 the work was started on the first structure. In the early part of October stream channel work was started on the Grayson field on the lower ranches of Martin Creek and progressed upstream.

In designing the structures to be constructed on Martin Creek they were designed as a reinforced concrete cantilever wall consisting of a vertical wall and a base slab. Reinforcement was provided in both members to give them sufficient resistance in bending and shear. Resistance to overturning was also included in the design, which also called for the base slab being deep enough under the ground surface to resist frost action.

The first structure designed and built was at the forks of Martin Creek in the upper Rockwood fork. The base slab, being angular in shape, is 62 feet long with a 14 foot opening for the Rock Fork and a 20 foot opening for the West Fork of Martin Creek. Both openings are 2.8 feet in height and accommodate ordinary flows. The structure is so built that in extreme flood conditions, water can pass over the top of the structure. The base slab is 6 feet long and 1 foot thick with a cutoff wall, and the main wall stem is 6 feet in height with a thickness of 1 foot. Both openings are provided with flash boards, and on the 14-foot gate a center pier was installed and a foot bridge. During construction the water in the stream was by-passed by means of a diversion ditch. About 100 yards of structure excavation were performed. Twenty-seven cubic yards of concrete were poured, which required 170 bags of cement, 1,000 pounds of deformed reinforcing steel, 24 cubic yards of gravel, 22 cubic yards of sand, about 1,000 board feet of form lumber, and other incidental items, including nails, wire, flash-board lumber, etc. The cost of the materials used in the structure amounted to $261 and was paid by nine ranchers.

The construction of this and subsequent structures was under the direct supervision of W. A. Hardy, Superintendent, Harold Hansen, Engineer, and Virgil Pasquini, Concrete Foreman. During the pouring of the concrete, samples were taken in cardboard cartons prepared for that purpose, and through the cooperation of Robert A. Allen, State Highway Engineer, tests were made in the Highway Testing Laboratory, Carson City.

The second structure constructed was at the Carrol diversion from the East Fork of Martin Creek. The structure is about 60 feet long, being right-angular in shape, with three openings. The Martin Creek gate is 14 feet wide, the Stewart ditch gate is 24 feet wide and the Corral ditch gate is 7 feet wide, all being 9 feet in depth. The base slab is 74 feet long, 1 foot in thickness, with a 2-foot cutoff wall at the upstream side. The wall stem section is 74 feet in height and 1 foot in thickness. At least 100 cubic yards of structure excavation were
required here also. Thirty-six cubic yards of concrete were poured, requiring 228 sacks of cement, 32 yards of gravel, 16 yards of sand, 1,400 pounds of deformed reinforcing steel, and other incassals, such as flash-board lumber, nails, wire, etc. The cost of the materials in this structure amounted to $296 and was borne by one rancher, although all of the lower users on Martin Creek were indirectly benefited. The third and final structure completed is located at the E. P. S. Pierce diversion on Martin Creek, on property owned by Humboldt County, and is the upstream structure. This structure is straight and is 67 feet long with a 14-foot gate 15 feet deep, with center support for ordinary flows, and also a 50 Cippoletti-shaped weir 21 feet deep for flood conditions. The width of the base slab is 6 feet and has a thickness of 1 foot, and the wall is 65 feet high with the same thickness. The structure took 23 cubic yards of concrete, requiring 140 sacks of cement, 30 yards of gravel, 10 yards of sand, 882 pounds of reinforcing steel, and incidental items. The cost amounted to $280 and was paid by one rancher.

A compilation of this data is as follows:

<table>
<thead>
<tr>
<th>Item</th>
<th>Est. Cost</th>
<th>Exc. Costs</th>
<th>Concrete</th>
<th>Labor</th>
<th>Total</th>
<th>Grade Sand</th>
<th>Total</th>
<th>Debris</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>yds.</td>
<td>yds.</td>
<td>yds.</td>
<td></td>
<td></td>
<td>yds.</td>
<td></td>
<td></td>
<td>yds.</td>
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<tr>
<td>Parks of Martin</td>
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<td>$2,700</td>
<td>400</td>
<td>400</td>
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<td>1,400</td>
<td>1,500</td>
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<td>$1,200</td>
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<td>$6,150</td>
<td>900</td>
<td>900</td>
<td>1,800</td>
<td>3,600</td>
</tr>
</tbody>
</table>

The materials for the structures were all purchased through Winnetka merchants at very reasonable prices, viz., cement at $4.40 per barrel, steel at $4.67 per hundred pounds, and lumber at about $40 per 1,000 board feet.

The number of men working on the structures varied at different times, depending on their availability from other work; the average number being perhaps about 25 men.

Supervision over this work by the State Engineer and his assistants was carried on throughout the work, and no effort was spared to assist in this great work. Assistance by the Highway Department in preparing plans and specifications and testing materials was also immensurably valuable.

The stream-channel work progressed very nicely, several miles of the Martin Creek channel and debris. With many miles of channel clearing and channel straightening remaining to be done on the various streams in the Paradise Valley, and with at least 20 vital important diversion structures needed, it is readily realized that the conditions of this work is vitally important in the valley. However, and during the past few years have worked a great hardship in the valley, as they have elsewhere, and where such conditions have prevailed in a community such as this, history has proven to be prosperous in better conditions. The work done there in the past year described herein has materially assisted in helping a very industrious community, and it is plainly obvious that it is necessary to have this CCC camp remain in Paradise Valley to continue with this work.

CHAPETE IX
Cooperative Work with Federal and State Agencies

SNOw SURVEYS

By R. P. Boardman, Chairman of the Federal and State Agencies for the Nevada Cooperative State Surveys

CENTRAL SIERRA

The actual runoff of the Truckee, exclusive of Tahoe, and the rise of Lake Tahoe for April-July 1936, was less than 5% of normal below the forecast, but the Carson and Walker Rivers fell considerably lower in proportion, the Carson runoff being 16% of normal lower than forecast.

1937

The cooperating agencies for financing the surveys in the Central Sierra for 1937 include the States of Nevada and California, the Truckee-Carson Irrigation District, the Washoe County Water Conservation District, the Sierra Pacific Power Company, the U. S. Bureau of Reclamation, and the U. S. Bureau of Agricultural Engineering. The Pacific Gas and Electric Company cooperates by having some of its employees make the surveys of several courses used by the Nevada Cooperative Snow Surveys in an attempt to persuade the Nevada Cooperative Snow Surveys to no expense to Nevada, Virginia, those in the Summit-Soda Springs position, and the Carson, Pias and Blue Lakes courses for the Carson River.

The snow survey measurements for 1937 for nearly all courses were considerably below those for 1936, and in many cases more than 30% of normal lower.

In April the temperature was low, retarding the runoff, and in May the precipitation was very deficient. There was also very little precipitation the previous fall. The combination of these factors and perhaps some others impossible to evaluate caused the runoff of the Truckee and the rise of Tahoe to fall much below the forecast which was based on the snow survey indications.

The Carson and Walker Rivers came much closer to the forecast.

1938

The year 1938 is demonstrating that precipitation and runoff can come back strong after a long period of deficient water.

For a brief review: In the Tahoe and Truckee region, after 1937 all years up to 1932 were low except 1932 and 1935, although 1931 was 94% of normal in Truckee runoff and the rise of Tahoe was 100% in 1925; 1932 and 1933 were a little above normal in rise of Tahoe, but under normal in Truckee runoff.

The rise of Tahoe was nearly 118% of normal in 1936, and Truckee on runoff barely under 100%, but there was a slump in 1937, the very cold year in January and February, and Truckee, Tahoe and Carson were all under 75% of normal, though the Walker was much better. 1932 looked hopeful, but 1933 and 1934 were so very low as to be discouraging; however, a definite and more lasting improvement started with 1935, and this year, 1936, is good enough to make up for the temporary recession of 1937.
CCC ACTIVITIES IN THE TRUCKEE-CARSON IRRIGATION DISTRICT
By H. W. Ember, Secretary

Under the provisions assigning CCC camps to the Bureau of Reclamation, two camps were established on the Newlands Project, now operated by the Truckee-Carson Irrigation District. These camps were first manned in November 1935, and since that time have been engaged in the reconstruction and rehabilitation of the works and structures of the United States. Under the plan of operation the district is required to furnish most of the materials and considerable of the supervisory and engineering services necessary to carry on the extensive work programs.

The benefits received from these camps have greatly exceeded any expectations, and the work could not have been accomplished without undue and excessive levies on the farmers of the district.

The Truckee Canal, constructed with a capacity of 1,200 second feet, had become filled with silt and vegetation so that it was unsafe for flows exceeding 750 second feet. With the assistance of the camps the canal is being restored to the original capacity.

The Carson River below Lahontan Reservoir had grown up with trees and brush to such an extent that it was feared that large releases of water would damage adjoining farm lands. Seventeen miles of this channel were cleared by these boys, and the value of this work has been demonstrated.

A regulating reservoir having a capacity of 1,500 acre feet was constructed, which will prevent fluctuations in canal flows at the lower end of the irrigation system.

A pipe line consisting of 4,780 feet of 6-inch cast-iron pipe, together with five fire hydrants, was installed to replace a rotted wooden one serving the town of Fernley.

Tree and brush growths have been removed from most of the main canals.

A rodent control program under the jurisdiction of the Biological Survey has covered 55,000 acres of land, trapping gophers and poisoning squirrels.

An educational program of weed eradication has covered 871 acres of land, demonstrating the proper methods of eradication of "White Top" and other noxious weeds.

Other work accomplished is summarized below:

Concrete structures installed ........................................ 475
Timber structures installed ......................................... 432
Concrete canal lining .................................................. 8,300 lin. ft.
Metal and pipe flumes .............................................. 2,090 lin. ft.
Rock ripraps .......................................................... 7,700 sq. yds.
Ditch riper roads constructed ..................................... 35 miles
Canals and drains cleaned and reconditioned .................... 30 miles

FLOOD CONTROL IN THE MOAPA VALLEY AREA
By Rookie Marshall

Results of the 1910 and subsequent floods in 1915, 1914, 1922, 1928, and 1925 are quite commonly known and more fully realized by residents of Moapa Valley, the last of the foregoing coming late in September, whereas all previous floods came during early spring, serving
to impress upon residents the fact that there was nothing certain as to time of occurrence. Such uncertainty served well faithless hope of harnessing devastating floods on the one hand, and on the other hand encouraging an attitude of letting nature take its course rather than try to control floods of unknown volume, unknown time of occurrence, and unknown place of origin.

However, seeing the grave consequences of inactivity regarding the perplexing problem, the Muddy Valley Irrigation Company, through its directors, in cooperation with various local, county, State and Federal agencies proceeded with a series of investigations and surveys which were completed during the summer of 1928; and in October of that same year resolved into a definite program findings thereof, indicating a need for nearly $2,520,000 with which to effect work while protection. When presented to people concerned, the thought of raising such a sum or even such sum as might have been required for any one of the units thereof, was met with such consternation that all thought of an activist program was for the time set aside.

Thus it remained until in 1933, when President Roosevelt’s program of CCC camps became operative, and Nevada’s Congressional representatives, with Cecil W. Crel, Director of Nevada Extension, seized the golden opportunity of directing all efforts possible toward extending man power and finances with which to proceed with a construction program in line with plans as recommended by surveys indicated heretofore.

The sum total of benefits that have since been derived from the efforts of the splendid cooperation of all local, county, State and Federal agencies might be enumerated as follows:

1. Materially reducing damages through structures that have definitely served their purpose of spreading peaks of floods and temporarily storing appreciable quantities of flood waters at:
   - The Meadow Valley Wash Flood Control works near Moapa.
   - Arrowhead Canyon Dam at the head of the Upper Moapa Valley.
   - The Wells Siding Diversion Dam—Flood Channel and Bowman Reservoir.
   - Two minor structures for dissipating flood waters in the vicinity of the Moapa Indian Reservation.

2. The organization, through legal procedure, of a Soil Conservation District Association, the purpose of which is to carry on with a definite program of soil conservation through flood and erosion control, and the encouragement of proper land use on both private and public lands.

3. A definitely outlined program of action which, with the cooperation of Lincoln County interests, State and Federal agencies, bids fair for the consumption of an action program that will serve all interests over the entire Meadow Valley Wash watershed area, with an indirect influence exercised in behalf of providing similar protection to the Virgin River watershed so far as Nevada’s area is concerned.
priority of 1888. No headgate has been installed at the intake of the Young Ditch, which requires that water diverted into said ditch be controlled by means of the Young diversion dam situated in the Humboldt River channel. The distance by river channel from the diversion dam to the point where the water released from the Young Ditch through the Young power plant back to the river is approximately five miles. Paradoxical as it may seem, in consideration of the foregoing suit, counsel for plaintiff, after the commencement of the irrigation season of 1935, requested that water flowing in the Humboldt River at the point of intake of the Young Ditch be diverted through said ditch and released back to the river through the S. R. Young power plant in order to save river losses that might be incurred by transportation of the water between the two points by way of the river channel. The total amount of water delivered through the Young Ditch during the 1935 irrigation season, including individual deeded water, H. L. I. L. & P. Company stored waters and so-called purchased and transferred waters was not in excess of 5,000 acre feet. No complaint was made to the State Engineer by the Young Ditch Company against the use of the ditch for transportation of purchased and transferred waters to water users having a right to the use of the water and who were also shareholders in said ditch company. Up to the present time no date has been set by the court for hearing this action.

CONDEMNATION SUITS

Pershing County Water Conservation District, a Corporation, v. Old Channel Ditch Company, No. 1071, and Young Ditch Company, No. 3073

On May 27, 1938, the Pershing County Water Conservation District of Nevada, a corporation, as plaintiff, filed a complaint in the Sixth Judicial District Court of the State of Nevada, in and for the county of Pershing, No. 1071, against the Old Channel Ditch Company, a corporation, Union Ditch Company, a corporation, Southwest Ditch Company, an association conducting business under said name, John Doe and John Doe Nos. 1 to 5, both inclusive, defendants. This action was instituted for the purpose of acquiring a right of way to conduct 210 c.f.s. of purchased and transferred deeded or stored water through the Old Channel Ditch from the intake on the Humboldt River to a point where the Southwest and Union Ditch takes out, thence conveyed through said ditches and laterals to lands irrigated and cultivated by district member water users; for conveyance of 30 c.f.s. of transferred deeded waters or stored waters through the Old Channel Ditch from its intake on the Humboldt River through the Old Channel Ditch proper for use by district members securing water exclusively through said Old Channel Ditch.

On the same date the Pershing County Water Conservation District, as plaintiff, filed a similar action in the Sixth Judicial District Court of the State of Nevada, in and for the county of Pershing, No. 1073, against the Young Ditch Company, a corporation, S. R. Young, John Doe, and Richard Roe, defendants. In this action the plaintiff sought a right for conducting 15 c.f.s. of so-called purchased and transferred or stored waters through said ditch for use in the irrigation of lands owned by district members.

OCCACTIVITIES IN THE WALKER RIVER IRRIGATION DISTRICT

By V. H. BEARD, Secretary

Completion of the Topaz levee in October 1937 increased the capacity of Topaz Lake to 62,000 acre feet. This levee is about one mile long, ranging from one to fifteen feet in height, with hand-placed riprap on the upstream face. The Topaz Lake intake canal was straightened and riprap placed on the bad turns. This work, together with erosion caused by recent floods, has increased the capacity of this canal to approximately 1,500 c.f.s.

Nine miles of open drain canal was constructed in the north end of Mason Valley, with the necessary structures. Existing structures of the drainage system in East Mason Valley were repaired and put in good shape.
CHAPTER XII
Related Activities of the State Engineer

AN OUTLINE OF THE WORK OF THE STATE IRRIGATION DISTRICT
BOND COMMISSION DURING THE BIENNIAL OF 1936-1938

Meeting at Carson City, all members present, J. H. White, Secretary. Application of Walker River Irrigation District for validation of "Second Refunding Series" of $818,500 was considered.

The Walker River Irrigation District was authorized to issue sold bonds by a resolution, here given in synopsis only, which was passed by unanimous vote.

WILKENS, The Walker River Irrigation District had heretofore adopted a plan for refunding its outstanding bonds dated January 1, 1928, of which issue $772,500 principal amount, maturing in the years 1933 to 1940, both inclusive, which plan was heretofore approved by the Irrigation District Bond Commission on May 3, 1928; and

WILKENS, Pursuant to said plan the district had held an election to authorize refunding bonds in principal amount of $818,500 to be designated "Second Refunding Series," all dated July 1, 1928, bearing four percent interest, and has entered into a contract with the Reconstruction Finance Corporation for sale of said bonds, etc.

Resolved, That the water, soil and irrigation system of the district are satisfactory; that the value of the water and land are in excess of the par value of the bonds; that the amount of the bonds and other outstanding indebtedness does not exceed fifty percent of the district property; that the dates, form, interest rates, payment and conditions of payment, etc., are in order; and that the sale of the bonds to the Reconstruction Finance Corporation is confirmed and approved.

A copy of the contract of sale to Reconstruction Finance Corporation and also copies of all resolutions and election proceedings were made a part of the resolution.

A copy of a resolution passed by the Walker River Irrigation District giving the history and status of the "First Refunding Series" issued for refunding the outstanding bonds is also included in brief as follows:

January 1, 1920. Walker River Irrigation District issued bonds, the principal being $818,500. Only $171,000 were issued and delivered and only $747,500 were actually issued and outstanding. It was proposed to cancel the $7,000 of said First Refunding Series, and the said proceedings for the issuance or sale of the First Refunding Series, so that none of them should become an obligation of the district or there- after be issued or sold.

A special election had been held on June 1, 1935, and by a large majority authorized the issuance and sale to the Reconstruction Finance

restraining the defendant State Engineer from regulating plaintiff’s diversion dam, diversion works and/or the headgates in plaintiff’s intake canal referred to in that certain Order to Show Cause Why Interlocutory or Temporary Injunction Should Not Issue and Restrain-

Meeting at Carson City, all members present, J. H. White, Secretary. Application of Walker River Irrigation District for validation of "Second Refunding Series" of $818,500 was considered.

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restraining the defendant State Engineer from regulating plaintiff’s diversion dam, diversion works and/or the headgates in plaintiff’s intake canal referred to in that certain Order to Show Cause Why Interlocutory or Temporary Injunction Should Not Issue and Restrain-

Meeting at Carson City, all members present, J. H. White, Secretary. Application of Walker River Irrigation District for validation of "Second Refunding Series" of $818,500 was considered.

The Walker River Irrigation District was authorized to issue sold bonds by a resolution, here given in synopsis only, which was passed by unanimous vote.

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Resolved, That the water, soil and irrigation system of the district are satisfactory; that the value of the water and land are in excess of the par value of the bonds; that the amount of the bonds and other outstanding indebtedness does not exceed fifty percent of the district property; that the dates, form, interest rates, payment and conditions of payment, etc., are in order; and that the sale of the bonds to the Reconstruction Finance Corporation is confirmed and approved.

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January 1, 1920. Walker River Irrigation District issued bonds, the principal being $818,500. Only $171,000 were issued and delivered and only $747,500 were actually issued and outstanding. It was proposed to cancel the $7,000 of said First Refunding Series, and the said proceedings for the issuance or sale of the First Refunding Series, so that none of them should become an obligation of the district or there- after be issued or sold.

A special election had been held on June 1, 1935, and by a large majority authorized the issuance and sale to the Reconstruction Finance
Court of Lyon County, Nevada, and approved by decree of Hon. Clark J. Guild, District Judge of said court. A special election in the matter was held on December 15, 1936, at which the proposal for refunding bonds carried.

December 22, 1937

Meeting at Carson City, all commissioners present, J. H. White, Secretary. The application for the issuance of Bond of Local Improvement District No. 1, on behalf of Local Improvement District No. 1, for the sum of $17,000 in bonds of the second series of Local Improvement District No. 1 of Walker River Irrigation District, was again taken up.

After considering the matter, the commission was not satisfied with the form of the certificate of said bonds to be made by the State Controller, and referred the matter to the Attorney-General for an opinion. Confirmation of the proposed certificate was thereby delayed. Under date of February 26, 1937, the Honorable Attorney-General, W. P. Mathews, rendered an opinion stating that the bonds were entitled to certification under sections 2229 and 8235, Nevada Compiled Laws, as modified by chapter 101, 1937 Nevada Statutes, and chapter 76, 1937 Nevada Statutes, and the desired certification was approved.

December 22, 1937

Meeting at Carson City, all commissioners present, J. H. White, Secretary. A petition was presented by the Walker River Irrigation District requesting authorization for the formation of Local Improvement District No. 2. A report on the status of the proposed Improvement District No. 2, as to desirability, assets, finances, and the engineering features had been submitted to Walker River Irrigation District and through that district to the commission. The report had been made by Mr. George Parker, Engineer for the Washoe Drainage Association, and recommended the formation of Improvement District No. 2 in order to provide for drainage of the included lands, and that the benefits should be assessed upon a flat rate per acre on all included lands.

After consideration of all evidence presented the commission approved the application for the formation of Local Improvement District No. 2, and also approved the proposed method of financing the same, i.e., by bonds of the aggregate amount of $15,000, bearing interest at five percent, to be issued from time to time as said funds are needed for the project, and to retire same by assessment upon the lands within the said Local Improvement District No. 2, following approval of the plan by special election.

May 31, 1937

Meeting at Carson City, all commissioners present, J. H. White, Secretary. The meeting was called to act upon an application by Pershing County Water Conservation District requesting approval to issue an engagement contract with Pershing County District of $16,000 for the purpose of securing a water supply for a community to be known as Sycamore, Nevada.

John A. Jurgenson, attorney for the district, presented an affidavit signed by the secretary of the district stating "that interest-bearing bonds of the water law (section 1861 N. C. L.), and that the respondent court and the Honorable J. M. Leekhart, Presiding Judge thereof, were without jurisdiction to entertain the proceeding complained of herein, and are without jurisdiction to further proceed therein," and "that the order and proceedings had, made and entered by said respondent court, and said Presiding Judge, complained of by plaintiff and relator be and the same are hereby, set aside, annulled, and held for naught, and said court and Judge hereby restrained from further action in said proceeding." A final opinion in this action was rendered and filed with the Clerk of the Supreme Court on November 18, 1937.

In the District Court of the United States, in and for the District of Nevada, Equity No. H-194. STATUTORY THREE-JUDGE COURT.

During the period from July 27, 1937, to September 3, 1937, the State Engineer operated the outlet gates of the Humboldt Lovelock Irrigation Light and Power Company reservoir system, and used the water released therefrom to augment river flow and serve the demands of water users in Lovelock Valley under all priorities. On September 3, 1937, the Humboldt Lovelock Irrigation Light and Power Company, a corporation, filed a complaint in the District Court of the United States in and for the District of Nevada, titled Humboldt Lovelock Irrigation Light and Power Company, a corporation, Plaintiff, v. Alfred Merritt Smith, as State Engineer of Nevada, Defendant, No. H-194, In Equity. In this complaint the plaintiff prayed for injunctive relief against the enforcement of certain decisions and orders of defendant respecting the diversion of waters from the Humboldt River into its reservoirs, and that as construed by the Supreme Court of the State of Nevada, section 75 of the State water code is void because it is in violation of the Constitution of the United States in that it permits impairment of contractual obligations and deprives plaintiff of valuable property rights without due process of law. On the same date, September 3, Hon. Frank H. Newcomb, U. S. District Judge, entered a temporary restraining order and enjoined the State Engineer and any of his assistants or employees from in any manner controlling or regulating plaintiff’s, headwaters, diversion works, or outlet canal, and from in any way or manner interfering with the plaintiff in the disposition and/or use of the water impounded and stored in plaintiff’s reservoir system, and from trespassing and/or going upon the reservoir system of plaintiff; also that said defendant State Engineer show cause before the court, in the District Court in the Federal Building at Carson City, Nevada, on September 10, 1937, why an interlocutory or temporary injunction should not issue. To the plaintiff’s bill of complaint the defendant, by his attorney, Hon. Greg Mushburn, Attorney-General of the State of Nevada, interposed a motion to dismiss. This motion was submitted upon oral argument and briefs filed. On December 28, 1937, the court rendered its Memorandum and Decision, rejecting said motion to dismiss as follows: "This case of interest-bearing warrants, to bear interest at six percent, and to mature not later than five years from date of issuance. John A. Jurgenson, attorney for the district, presented an affidavit signed by the secretary of the district stating “that interest-bearing bonds of the water law (section 1861 N. C. L.), and that the respondent court and the Honorable J. M. Leekhart, Presiding Judge thereof, were without jurisdiction to entertain the proceeding complained of herein, and are without jurisdiction to further proceed therein," and “that the order and proceedings had, made and entered by said respondent court, and said Presiding Judge, complained of by plaintiff and relator be and the same are hereby, set aside, annulled, and held for naught, and said court and Judge hereby restrained from further action in said proceeding." A final opinion in this action was rendered and filed with the Clerk of the Supreme Court on November 18, 1937.
## Humboldt Llowerlock Irrigation Light & Power Company Inlet and Outlet Canals

**Point of diversion of inlet canal SW\(^2\) Section 29, Township 32 N., Range 32 E.**

### Divisions from River

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<th>Season</th>
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<th>Maximum Autority (\text{in acre-ft})</th>
<th>Total Diversion (\text{in acre-ft})</th>
<th>Maximum Diversion (\text{in acre-ft})</th>
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### Humboldt River Near Commas

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</table>

**REPORT OF STATE ENGINEER**

1937

Chairman Kirman ordered that the affidavit of C. H. Jones, secretary of the district, and a certified copy of the resolution of Pershing County Water Conservation District requesting authority to issue the warrants be filed with the secretary of the commission. The matter was held for further consideration by the commission, and Attorney Jurgenson was requested to obtain from the Secretary of Pershing County Water Conservation District a sworn statement as to the assets and liabilities of the district, and to file it with the commission. Pending the receipt of such statement, permission to issue the warrants was deferred.

**June 22, 1937**

Meeting at Carson City, all commissioners present, J. H. White, Chairman, Chairman Kirman stated that the meeting had been called for final action and final sale of Pershing County Water Conservation District for approval of its request for the issuance of $16,000 interest-bearing warrants. A sworn statement by C. H. Jones, secretary of the conservation district, setting forth the assets and liabilities of the district had been received, and was as follows:

**Assets**

Approved value of real property

**Liabilities**

Department construction in the United States (see assets above) $1,100,000

 Outstanding bonds $5,000

 Outstanding warrants $18,692.90

**Total** $1,119,692.90

Secretary White read an opinion given by Deputy Attorney-General Wm. T. Mathews advising the commission that it had legal authority to authorize the issuance of interest-bearing warrants by the Directors of Pershing County Water Conservation District in the sum of $16,000. Commissioner LaBus then offered a resolution approving the issuance of the warrants, which was unanimously carried.

**COLORADO RIVER COMMISSION**

**Governor** Richard Kirman, Carson City, Nevada, Chairman.

Alfred Merritt Smith, State Engineer, Carson City, Nevada, Secretary.

C. F. DeArgosd, Las Vegas, Nevada, Member and Resident Engineer.

W. Clark, Las Vegas, Nevada, Member.

A. C. Jatson, Reno, Nevada, Member.

Most of the time of the State Engineer during the past biennium has been taken up by his work on this commission. It has required...
a great amount of office work, correspondence, and several trips to Washington, D.C., Los Angeles, Santa Fe, and Phoenix, for conferences and discussion. Membership on the commission is through appointment by the Governor, and the duties are not directly related to the work of the State Engineer, who serves as a member and as its secretary without salary.

The safeguarding of the rights of the State of Nevada to electric power from Boulder Dam Project, and to revenue in lieu of taxes and other benefits lost to the State through the construction of the project by the Government instead of by private interests has been the principal concern and work of the commission.

Before the dam could be constructed, the City of Los Angeles, the Metropolitan Water District, and Southern California Edison Company, and Southern Sierra Power Company (now Nevada California Electric Corporation), were required to enter into firm contracts with the Government for all the power to be generated. Nevada and Arizona were unable to join in these contracts because they had no immediate use of power. Nevada and Arizona former State officials and former congressional delegation by long and able work obtained for those two States a withdrawal privilege of 18% of the total firm power each, which withdrawals were to be subject to restrictions, because the States could not at once use the power, and therefore other contractors were obliged by the Government to take the allocation made to the States as soon as each power became available from the dam. These restrictions and regulations imposed on Nevada in regard to power withdrawals were so drastic as to render the allocation well-nigh useless. Nevada and Arizona were no doubt impelled to assent to unsatisfactory power withdrawal terms in order to secure the passage of the Act enabling the construction of the project. The Nevada Colorado River Commission has steadily worked for more lenient withdrawal terms, and has now obtained the consent of the major contractors to proposed legislation in Congress, and also supplemental contracts with the City of Los Angeles, which contracts have been worked out, and if put into effect should insure the State the great benefit of low-priced electric energy, and also revenue from the project in no way attached to the State's allocation of power.

The States of Nevada and Arizona were equally entitled, under the terms of the Boulder Canyon Project Act, 1918 of all excess money earned from the sale of power. At the initiation of 2.63 mills for firm and 0.5 mills for secondary power, this would bring to Nevada an average of about $60,000 per year for the 50-year amortization period. However, this benefit is to come out of excess revenue earned, without paying all other charges, including amortization. It is also provided that the rates shall be readjusted up or down, first in 1945, and each ten years thereafter, the readjustment to be based on competitive conditions.

Before the completion of the dam, the major contractors were seeking a reduction in rates in order to compete with the new Government power projects at Bonneville, Grand Coulee, T. V. A., and also on the ground that they can produce steam power with crude oil for fuel in the Los Angeles district at a substantially lower rate than they can buy and transmit Boulder Dam power to Los Angeles.

Humboldt River Near Oasis, Nevada

Recorder in Section 8, Township 33 N., Range 32 E., two miles southwest of Oasis, below point of diversion of feeder canal for H. L. I. & P. Company reservoirs. Drainage area, 13,500 square miles.

Humboldt River Near Inlay, Nevada

The gaging recorder was moved upstream above high water line of Rye Patch Reservoir to the 8.54 Section 25, Township 32 N., Range 32 E., about four miles northwest of Inlay and nine miles below H. L. I. & P. Company feeder canal. Drainage area, 8,500 square miles.
CARSON-HUMBOLDT SINK
Carbon River near Fort Churchill, Nevada
Location of reservoir since January 1, 1904, 334 Section 22, Township 17 N., Range 26 E., two miles west of Fort Churchill. Drainage area, 1,450 square miles.

<table>
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<tr>
<th>Season</th>
<th>DISCHARGE IN CUBIC FT</th>
<th>MEAN</th>
<th>Rainfall in inches</th>
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<tr>
<td>1937</td>
<td>1,250</td>
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Recent figures by several eminent engineers indicate the truth of the last statement, and it would appear that rates for several uses at other government hydro plants will be lower than Boulder. In any event, the present rates seem certain to be revised downward, and a very small decrease would eliminate the surplus from which Nevada and Arizona are entitled to share revenue in lieu of taxes. All agencies, including the Government, desire lower rates if possible, in order to give the public the benefit.

In order to insure to Nevada a fair compensation, the commission asked for revenue payable as a direct charge to be added to power cost. This, of course, was denied, as under the Act it would probably develop that nothing would have to be paid to the States. The commission offered to take less money if it could be assured as fixed annual revenue. After many conferences, and study by various engineers, extending over three years, a fixed revenue of $500,000 was agreed upon to Nevada, subject to approval by the State Legislature in lieu of the terms of the present Act. If the Legislature approves this plan it will be written into the proposed Boulder Canyon Adjustment Act, along with the other provisions therein.

The proposed legislation is desired by all of the Southern California contractors who by their agreements are the underwriters of the cost of the project, and by the Colorado River Commission, which hopes thereby to insure revenue to Nevada, as well as to obtain the advantages and benefits of lower-priced power. Briefly reviewed, it is designed to amend the Boulder Canyon Project Act in the following manner:

The first $25,000,000 spent to be considered an interest-free advance for flood control, to be repaid commencing after all other charges against the project had been repaid.

Machinery and equipment advances to be repaid within 50 years instead of in the ten-year period now provided.

All other advances to be repaid with interest during a period of 30 years beginning June 1, 1937. Repayments to be made in equal annual installments except as they may be varied by the Secretary of the Interior in accordance with revenues received.

The interest rate to be for the period of construction is the actual cost of money to the Government. Interest for the period of repayment not to exceed 3% (present rate is 6%).

The States of Nevada and Arizona, or either of them, shall have the right to have their existing contracts modified or to enter into new contracts giving the said States, or either of them, the right to purchase each month unused firm energy at the rate for secondary energy then in effect, in conjunction with their regular purchases of firm energy, in the same ratio which the unused firm energy taken by the city at secondary rates during the same period bears to the firm energy taken by the city at firm rates.

Rates to be paid for falling water shall be uniform and such as will produce revenues that will aggregate the following amounts during the fifty-year period:

A. Reasonable operation and maintenance expenses.
B. Reasonable fund and reserve for replacements.
C. Payment to the Treasury, with interest, of the advances other...
than flood control and other than machinery and equipment advances (separately provided for by contract).

10. An added sum sufficient to pay to each of the States of Arizona and Nevada $800,000 per year on June 30, of each year for a period of 50 years, the first payments to be made on June 30, 1938. (The State of Nevada may elect to make its own Legislative body before June 1, 1939, to receive said annual payment, and if it should fail or refuse to so elect, then it shall continue to receive the payments as provided in Section 4 (b) of the Boulder Canyon Project Act, and the contracts existing as of January 1, 1938, made pursuant to such Act, to be assumed by the Secretary of the Interior on the basis of rates as they would have been fixed from time to time as provided in said contracts. The same conditions are made for Arizona, with the difference that the said $800,000 fixed revenue shall be paid to the State of Arizona annually unless that State shall reject the same before June 1, 1939.)

11. The balance of revenue up to $400,000 (a lesser sum during the six-year lead-building period proportionate to the income), to go into the "Separate Fund" to be expended for developments in the State of Nevada. (State of Colorado River Basin, as authorized by Congress.

Note:-This is the conditional proviso. At present the four upstream States desire that all of this money be expended in those four States, and that the fund be increased to $1,000,000 annually.

12. Excess revenue, if any, to be credited proportionately to the power contractors during the following year.

13. Deficiencies in revenue, if any, necessary to meet payments as provided, to be determined by the Secretary of the Interior during the next year, and surcharge for power fixed in amount sufficient to cover same, said surcharge to be collected within a period of not more than five years following the deficiency.

Power rates shall be readjusted by the Secretary in 1945 and each five years thereafter, upward or downward, based on competitive conditions.

Various problems and difficulties are in the way of obtaining an average rate for Nevada, due to the rights of the several contractors to purchase secondary power under different conditions. As a result, Hon. Nathan R. Margold, Solicitor for the Department of the Interior, suggested the following average rate substitute in the proposed legislation:

"That Arizona and Nevada shall have a rate for falling water for firm power that they are entitled to, each up to 18 percent, by making it the same as the average rate paid by the City of Los Angeles for:

(1) All its own firm power paid for by it at firm rates, plus

(2) All the firm power which was allocated to another purchaser, and, if taken by that purchaser, would have been paid for by it at firm rates, but which, being unused by that purchaser, is taken by the city at less than firm rates.

During the Congress of 1937 the Nevada Senators and Congressmen, the Colorado River Commission of Nevada and the Southern California municipalities endeavored to have this legislation introduced as an amendment to the "Bonnieville Act," through the Rivers and Harbors Committee. Agreement on the terms of the proposed legislation was reached too late for it to be introduced at that session as a separate
WALKER RIVER DATA


EXTRACTION: Records on extraction of water surface available since about August 1928. Occasional readings prior to August 1929. On September 21, 1928, lake elevation was 4,026 feet. On March 13, 1929, elevation was 4,018 feet. On March 8, 1930, elevation was 4,044 feet.

Topaz Reservoir, near Topaz, California—Reservoir located in Section 28, Township 10, Range 23, N., 6 miles northwest of Topaz on the Nevada-California line. Topaz Reservoir, formerly Alkali Lake, was formed by diverting water through a flume from Walker Lake. Since the diversion, maximum available storage in the reservoir was 5,100 acre-feet on June 30, 1927. The Topaz Reservoir has a capacity of 6,000 acre-feet, but is in 1940, only 200 acre-feet of the reservoir capacity was increased by virtue of further construction. The original cost of the reservoir was $3,000,000.

Bridgport Reservoir—Bridgport Reservoir is located in the SE 1/4, Section 34, Township 6, Range 22, N., 6 miles north of Bishop. Capacity of the reservoir is 62,000 acre-feet and it was constructed at a cost of $50,000,000. The dam is a 600-foot high earth-filled embankment of 600,000 cubic yards of material.

PYRAMID AND WINNEMUCCA LAKE BASINS

Truckee River at Tahoe, California

Gaging station located in the NE 1/4, Section 35, T. 35 N., R. 17 E. Draining area 539 square miles including Tahoe Lake surface of 196 square miles.

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REPORT OF STATE ENGINEER

Act. After much debate and a delay almost until the end of the season, the Rivers and Harbors Committee threw the Boulder project amendment out as being controversial, and, therefore, they thought it might jeopardize the Bonneville Act. It was then too late for hope of separate action as Congress was absorbed in the Supreme Court bill and other legislation deemed imperative before adjournment.

At the same time there developed active opposition to the provision setting out $400,000 per year to the "Upstream States" (New Mexico, Wyoming, Utah, and Colorado), from excess revenues, for the "Separate Fund" for upstream development and surveys. These States stated they should have $3,000,000 for that purpose, as great savings would be made by the proposed amended legislation, and the Los Angeles District, Nevada, and Arizona should not have all the benefits.

Numerous conferences were held during 1937 and 1938, mainly directed toward securing a unified program on the proposed legislation suitable to all seven Colorado Basin States. The matters were studied and debated by Department of Interior officials, the U. S. Bureau of Reclamation, representatives of the seven States and the northern California municipalities. The first of those was a hearing before Dr. Chas. E. Merriam, representing Secretary of the Interior Ikes, at Washington, D. C., on April 16, 1937, and was held before attempting to introduce the proposed legislation. The entire Colorado River Commission, excepting Governor Kirman, was present at the hearing, also Senators Key Pittman, P. A. McGarr and Congressman J. G. Spreckollow. At this hearing the right of Nevada to power in a form it could use was established, and the right of the State to revenue in lieu of taxes was strongly reaffirmed. Senators Pittman and McCarren and Engineer Jay A. Carpenter, who had been employed by Nevada, strongly affirmed and upheld the rights of Nevada, and recognition of these rights was obtained from all power contractors and the Federal officials, and are now kept as the official record. Subsequent conferences upon unsettled problems were held with the Los Angeles Department of Water and Power, the Colorado River Commission of Arizona, and Solicitor Nathan Margold who represented Secretary Ikes, at Los Angeles; also at Santa Fe, New Mexico, where the Governors of several States were present and all seven States and the Government were well represented, also at Phoenix, Arizona, where water problems and the increasing use of Colorado River water by Mexico were considered; and a general conference at Yellowstone, Wyoming, on August 2, 1938. A majority of the members of the Nevada Commission was present at each of these meetings, which were also attended in Washington and elsewhere by the Attorney-General of Nevada, Gray Mankburn, or by Deputy Attorney-General Howard Gray. At the Yellowstone meeting an engineering report by Herbert S. Sands was introduced showing that the proposed amendments to the Act would effect a saving of $70,000,000 during the 50-year period of amortization, which would therefore justify paying the four upstream States $1,000,000 per year. Exception was taken to some points in Engineer Sands' report by the engineers from the Los Angeles municipalities, and committees were appointed to reconcile the data. A marked improvement in mutual confidence and respect among the several States and power users was observed at Yellowstone, and for
the first time a general seven-State committee was appointed to make recommendations.

STATE POWERS CONTRACTS

SOUTHERN NEVADA POWER COMPANY

On February 21, 1936, the Southern Nevada Power Company entered into a contract with the State for withdrawal of power, providing a bond of $15,000 requested by the commission. The company installed its own transformers and switching equipment at the dam, thereby decreasing the amount of bond required. The company completed its installation in March 1937, and began service to the city of Las Vegas. It is now using 2,070,000 kilowatt-hours per month (July 1938). This company claims that its rates in the public in the Las Vegas district are as low as any in the United States.

LINCOLN COUNTY POWER DISTRICT NO. 1

This power district was organized June 24, 1935, and covered the Pioche Mining District. On September 12, 1936, the commission authorized the construction of a power transmission line from Boulder Dam plant to Pioche, Nevada, and thereafter entered into the necessary contracts with Lincoln County Power District No. 1 for withdrawal of power and installation of transformers at the dam site by the State. The cost of the transformers, switching equipment, etc., amounting to approximately $125,000, was guaranteed by the State. A bond partially in said amount in the sum of $40,000 was obtained from Lincoln County Power District No. 1. The line was completed by the district in September 1937. Power service from the State began in May 1938, and the present use (July 1938) is at the rate of 5,579,750 kilowatt-hours per month. Prior to power service by the State, and while awaiting the construction and installation of transformers by the United States Bureau of Reclamation, this district rented transformers and bought Boulder Dam power from the Nevada-California Electric Corporation, beginning in September 1937.

SEARCHLIGHT-NELSON POWER DISTRICT NO. 2

Searchlight-Nelson Power District No. 2 was organized by the Public Service Commission of Nevada April 22, 1935. The preliminary efforts to finance an independent power line from Boulder Dam into these adjacent districts were unsuccessful because of unfeasibility to secure a sufficient number of individual firm contracts to justify the expense. Subsequently permission was granted by the Public Service Commission to Needles Gas and Electric Company, a California corporation, to construct a transmission line from Boulder Dam to Needles, California, in order to use the power allocated by the Government to the Nevada-California Electric Corporation. By permission of the Public Service Commission of Nevada a tap was made on this line to serve the Eldorado or Nelson Mining District of Nevada power by delivering power over the joint facilities of Lincoln County Power District No. 1 and the Needles Gas and Electric Company. Service to the Nelson District began the early part of July 1938. Present use by the Nelson District is 163,250 kilowatt-hours per month (July 1938). A similar connection will be made this line to serve the Searchlight Mining District as soon as possible, arrangements having been made for that purpose.
CHAPTER XV
Runoff Measurements of Nevada Streams
WALKER LAKE BASIN
West Walker River Near Coleville, California
Gaging Station in NE1/4 NE1/4 Section 28, Township 8 N., Range 23 E., about six miles above Coleville. Drainage area about 740 square miles.

<table>
<thead>
<tr>
<th>Season</th>
<th>Discharge in Second Feet</th>
<th>Runoff in acre-feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>1930-31</td>
<td>Minimum: 3.30</td>
<td>Maximum: 270.00</td>
</tr>
<tr>
<td>1931-32</td>
<td>Minimum: 3.30</td>
<td>Maximum: 270.00</td>
</tr>
<tr>
<td>1932-33</td>
<td>Minimum: 3.30</td>
<td>Maximum: 270.00</td>
</tr>
<tr>
<td>1933-34</td>
<td>Minimum: 3.30</td>
<td>Maximum: 270.00</td>
</tr>
<tr>
<td>1934-35</td>
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<tr>
<td>1949-50</td>
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<td>Maximum: 270.00</td>
</tr>
</tbody>
</table>

OVERTON POWER DISTRICT No. 5
Overton Power District No. 5, Clark County, was organized by the Public Service Commission October 28, 1935. It includes Moapa Valley and Virgin Valley, in which are located the towns of Overton, Bunkerville, and Mesquite. The district has recently secured a loan from the Federal Loan Agency. A transmission line will soon be under construction and a contract for withdrawal of Boulder Dam power has been presented to the commission for approval. The anticipated power use will be about 50,000 kilowatt-hours monthly.

EMPLOYMENT OF ENGINEERS
Jay A. Carpenter, Professor of Mining at the Mackay School of Mines, University of Nevada, was employed by the commission in January 1937. Permission to use Mr. Carpenter was obtained from Dr. Walter Clark, President of the University, with the approval of the Board of Regents. Prior to his connection with the University, Carpenter had wide experience in industrial engineering. The work of Mr. Carpenter took him to Phoenix, Los Angeles, and Washington. D. C. His several reports and his oral presentation of the position of Nevada at the hearing on Boulder Dam affairs held before Dr. Chas. E. Merriam were of great value, and by agreement and the consent of the University authorities he is subject to additional calls by the commission.

Mr. C. F. DeArmend, a member of the commission, was employed as Las Vegas resident engineer by the commission on January 1, 1938. He is stationed in Las Vegas for the purpose of serving that district and the State in promotion of the use of power from Boulder Dam in Nevada for all purposes, and use of Colorado River water under our allocations. Long engineering experience in Nevada, his personal relations with Mr. DeArmend for his diversified work, the results of which have been gratifying to the commission and to the important district in which he is located.

The proceedings of the commission during the past biennium will be presented in full in its annual report now being prepared by the Secretary.

NEVADA STATE PLANNING BOARD
August 1939-August 1939

PERSONNEL
Members ex officio—
The Governor of Nevada, Hon. Richard Kirman.
The State Engineer, Alfred Merritt Smith.
The State Highway Engineer, Robert A. Allen, Chairman.

Members appointed—
J. A. Fulton, Mining Engineer, Director Mackay School of Mines, University of Nevada, Reno, Nevada.
Fred Dahlgren, Stockman and Farmer, Minden, Nevada.
J. G. Buchler, Mining Engineer, General Manager Brereton Silver Mines, Pioche, Nevada.
A. C. Grinn, Automobiles, Member Chamber Commerce, Las Vegas, Nevada.
A. J. Caton, Brick and Tile Manufacturer, Member of Chamber of Commerce, Reno, Nevada.
The Nevada State Planning Board was formed in February 1935 by Governor Richard Kimball, who selected and appointed its members. The board met and organized on February 9, 1935, electing as chairman Mr. Robert A. Allen, at that time State Director of PWA.

During the 1937 session of the Nevada State Legislature an Act was passed (Chap. 102, Nevada Statutes 1937), whereby the board was given legal status as a State organization. An appropriation of $3,000 was made to sustain it during the biennium. The Act provided that the board shall consist of eleven members, eight of whom shall be appointed by the Governor, and three shall be members ex officio. The Governor, the State Engineer and the State Highway Engineer shall be the members ex officio. Three members are appointed for one year, three for three years, and two for four years; their successors are to be appointed for four-year terms. Members serve without compensation, excepting necessary and actual expenses, same to be paid from money appropriated.

Section V provides that the function and duty of the Board is:
(a) To make a comprehensive State plan for the economic and social development of the State of Nevada. To this end, it shall conduct research and studies relating to natural resources and to other factors in the program of the State.
(b) To submit reports and to make recommendations relative to its findings to the Governor and the Legislature.
(c) To cooperate with other departments and agencies of the State in their planning efforts, and to advise and cooperate with municipal, county, and other local planning commissions within the State for the purpose of promoting coordination between the State and the local plans and developments.

Section VI provides:
The board is hereby authorized to participate in interstate, regional, and national planning projects for the purpose of conserving and promoting public health and the safety, convenience, and general welfare of the people; and through its members or its staff the board is hereby authorized to confer and cooperate with Federal officials and with the executive, legislative, or planning authorities of neighboring States and of the counties and municipalities of such States.

The board is hereby empowered to receive and accept, in the name of the State, grants of money or services to enable it to carry on its work under this Act. In general, the board
study of water supply as a basis for storage developments. This resulted in the execution of a repayment contract under which the United States Bureau of Reclamation was to undertake construction of a reservoir dam on the Little Truckee River, using funds made available to the Bureau of Reclamation through the Public Works Administration. The 1934-1936 Biennial Report of the State Engineer contains a very complete article written by S. R. Marcan on the Bureau of Reclamation on the Truckee River Agreement. The progress that has been made to date on the construction of the Bown Dam on Little Truckee River was made written by M. Spencer, Associate Engineer, U. S. Bureau of Reclamation, given in Chapter XI.

IRRIGATION DISTRICT NO. 1, CARSON VALLEY UNIT

TRUCKEE-CARSON PROJECT

Officers—H. F. Dangberg, President; W. F. Dresler, Vice President; Louis Stoeloeck, Treasurer; L. A. McNair, Secretary. Office—Minden, Nevada. This district was organized on August 17, 1914, primarily for the purpose of creating a legal organization to be in a position to deal with the Government on matters pertaining to storage on the Carson River. The district has never initiated work on any project, nor has it controlled distribution of water; therefore, no detailed record is available. The boundaries of the district include practically all of the irrigable land in Carson Valley in Douglas County, Nevada, the total area of which is 53,755 acres.

NEWLANDS RECLAMATION PROJECT, NEVADA

(Truckee-Carson Irrigation District)

Officers—Geo. G. Miller, President; C. B. Stark, Vice President; W. H. Wallace, Project Manager; J. W. Emery, Secretary and Treasurer; W. H. Afeorn, F. C. Erb, W. A. Harmon, C. J. Lehman and J. R. McChunish, Directors. Office—Fallon, Nevada. Organized—November 25, 1918. The Newlands Project, located in Western Nevada, embraces lands mainly in Churchill and Lyon Counties. This project was the first of the numerous Federal projects, and upon which construction work was commenced by the United States Reclamation Service under the Act of Congress approved June 11, 1902, commonly known as the Reclamation Act. Actual construction work was commenced during September 1903, and water was delivered to project lands from the new system of works during 1905. The project was operated and maintained by the United States Bureau of Reclamation until December 31, 1926, on which date control was transferred to the Truckee-Carson Irrigation District under a contract dated December 31, 1918, under the laws of the State of Nevada. The work accomplished by the CCC camps under the supervision of the Bureau of Reclamation is given in detail on page 123.

shall have such powers as may be necessary to enable it to fulfill its functions and to carry out the purposes of this Act.

The board is advisory in character and has neither executive nor administrative functions. It is nonpartisan and nonpolitical.

In order that a permanent record of the work of the board may be available for ready future reference, and also because of the necessity of economy of the board’s limited appropriation, the State Engineer, ex officio member, offered to include an outline of activities during the years 1937-1938 in his biennial report, as he had done formerly for the years 1935-1936. A substantial part of the work of the board to date had to do with conservation of water resources, which is one of the functions of the State Engineer, and it is therefore fitting that it be included in this report.

Office space and continuous assistance have been supplied by both the Department of Highways and the Department of the State Engineer, without which it is doubtful if the board could have functioned, for it was without funds during 1935-1936, and the present appropriation of $1,000 for 1937-1938 is too small for any serious investigation. Members have generously paid their own expenses, often traveling long distances to attend meetings.

At a meeting held on August 11, 1938, Alfred Merritt Smith, State Engineer, informed the board that it would be necessary to prepare a project through the WPA in order to assure sustained operation of planning work. In Deming Tilton, Counselor, National Resources Board, affirmed this, and stated that every State is entitled to a WPA State Planning Allotment designated as Federal Project No. 3. Mr. Tilton went on further to advise the board that water conservation in this area appears to be one of the prime objectives, and that undoubtedly a planning project and commission should be required. He continued: “This planning commission, as set up under the WPA allotment, will be required to get facts together and information to be passed on by the State Planning Board. It is a theory now accepted in Washington that the States must do their own planning, or the Government will step in and proceed along such lines as it sees fit.”

On August 24, 1938, the board met and was assured by Mr. Tilton that the WPA project creating an active planning commission would be approved. Office space, secretarial help and stationery were donated by the sponsors, who were the State Engineer, Alfred Merritt Smith, and the State Highway Engineer, Robert A. Allen, Chairman of the Board. Chairman Allen named the committee for the year as follows:

The annual cost of operation averages $1,000 and the annual expenditures for repairs and replacements averages $200. The company has no long-term indebtedness. Taxes amount to about $100 per year.

**PRESTON IRRIGATION COMPANY**

Officers—Carl Madsen, President; Chris Hermansen, Vice President; Pharo Arnoldsen, Secretary and Treasurer; Randall Bradley and Lee Rupke, Directors.

Office—Preston, Nevada.

Organized—1911

This company delivers irrigation water to 1,100 acres of land lying adjacent to Preston. The source of the water is Preston Big Spring and Arnoldsen Spring.

The annual cost of operation is $550, and the assessment is 50 cents per share on 1,100 shares of stock.

**ALAMO IRRIGATION COMPANY**

Officers—Karl C. Stewart, President; Harvey Frasner, Vice President; Dan Stewart, Secretary; George S. Cram and Byron A. bridges, Directors.

Office—Alamo, Nevada.

Organized—1922

In the Decree in the Matter of the Determination of the Relative Rights in and to the Waters of Pahranagat Lake and its Tributaries, signed by Judge William E. Orr on October 14, 1929, the Alamo Irrigation Company was given decreed water rights on 303.5 acres of land. Of this amount 435.1 acres is harvest crop lands, the balance being diversified pasture. The source of the water is Ash Springs Creek.

The annual cost of operation is about $1,100. The costs of repairs and replacements are approximately $640 per year. Taxes amount to about $77 per year.

**WASHOE COUNTY CONSERVATION DISTRICT**

Officers—L. M. Christensen, President; Peter Thomsen, Vice President; George L. Ferris, Secretary; J. F. Kline, Treasurer; Silvio Queta, Art Fowkland and Ernest Caparro, Directors; Robert M. Price, Attorney; Thos. R. King, Engineer.

Office— Reno, Nevada.

Organized—June 1929

The district embraces 32,840 acres within the boundaries, of which approximately 26,000 acres are irrigated each year.

The source of water supply is the Truckee River. The distribution is through a system of thirty-three canals, varying in capacity from five to one hundred cubic feet per second, and from one to 37 miles in length.

The lands irrigated lie in close proximity to Reno and Sparks in Washoe County, in the territory generally known as Truckee Meadows. Representatives of the Washoe County Water Conservation District, the Sierra Pacific Power Company and the Truckee-Carson Irrigation District operating the Newlands Project began in 1929 an exhaustive
CHAPTER XIV
Irrigation Districts and Canal Companies

The information herewith presented has been gathered by the office of the State Engineer through the medium of questionnaires that have been mailed to the various districts in the State.

No new districts have been organized in Nevada during the past biennium period, and no change in the status of the existing irrigation districts has occurred.

PERSHING COUNTY WATER CONSERVATION DISTRICT

Officers—Andrew Jahn, President; C. Arrow, Vice President; C. H. Jones, Secretary and Treasurer; W. W. Carpenter, C. C. Carpenter, and Frank Jones, Directors.

Office—Lovelock, Nevada.

Organized—February 25, 1926.

This district has about 30,000 acres of irrigable lands within its boundaries. Of this amount 21,000 acres have deeded water rights. In the Lovelock Valley only about 11,000 acres of lands having deeded rights are not included in the district. During the latter part of 1936 the Rye Patch Dam was completed on the Humboldt River. This structure is located about 25 miles northeast of Lovelock, and was built by the Bureau of Reclamation under a repayment contract dated October 1, 1934, with the Pershing County Water Conservation District. The history and description of this project was fully described by L. J. Post, Construction Engineer, in an article appearing in the 1934-1936 Biennial Report.

The repayment contract mentioned above between the Bureau and the District provides that the total cost of the project shall be returned to the United States in forty annual payments over a period of forty years without interest charges. If the annual payments are not made when due, such payments carry a six percent interest charge.

The project consists of two salient features, namely, the construction of Rye Patch Dam and the purchase of water rights and the making of river channel improvements in the Rye Patch area. The latter feature is discussed in Chapter VII. Facts relating to the Rye Patch Dam are briefly given on page 38.

The annual cost of operation is 18 cents per acre per year.

Interest paid on account of indebtedness amounts to $1,860 per year at this time.

LUHM IRRIGATION COMPANY

Officers—G. W. Pauvlet, Jr., President; Lafe Carter, Vice President; H. R. Ivins, Secretary; A. N. Carter and Fernley Sindfeld, Directors.

Office—Lund, Nevada.

Organized—1907.

This company delivers irrigation water to 1,500 acres of land in White Pine County through a gravity canal eight miles long. The source of the water is Preston Big Springs, Lund, Cold, Nicholas, and Horsey Springs.

Roy Steedman, Attorney, Reno.

A. V. Tallman, Engineer, Winnemucca.

R. P. Ogden, Engineer, Fallon.

H. Dukes, Water Administrator, Reno.

D. Barnes, Engineer, Goldfield.

L. Crites, Engineer, Fallon.

T. Wallace, Project Engineer, Fallon.

The board met on November 9, 1936. Mr. Roumage advised that he had been in contact with the State Director of W.P.A. and had received assurance that the planning project would be favorably considered.

Mr. Alfred Merritt Smith, State Engineer, submitted the information that in 1930 a grant of $20,000 was secured from FERIA to make a study of reclamation and irrigation from the Colorado River. "I do not believe that all of this fund was absorbed, and would like to know if some of it could not be procured for our present work. I have directed a letter to Mr. Porter J. Preston, of the Bureau of Reclamation, who was in charge of the work, regarding the money remaining in this fund, but have received no reply as yet." It was generally agreed by the Planning Board that flood and water conservation problems in the southern part of the State should be studied as extensively as possible, with the view in mind to improve conditions in such areas as Rumorville and Moquito. A. R. Thompson stated that Rumorville was the only district immediately in need of flood control, and that information could be secured through the L. D. S. headquarters in Salt Lake City.

Mr. Allen discussed the possibility and need of creating a State Park at Lake Tahoe, and had been in communication with Mr. A. C. Greene, San Francisco attorney, and Mr. Bliss, owner of parts of the area, regarding the contribution or purchase of necessary lands.

Secretary Hartung was requested to send pictures of Nevada scenes to the Council Steamship Lines for advertising purposes.

Mr. Smith stated that the Las Vegas Chamber of Commerce had requested that an agency be established in that city by the Colorado River Commission of Nevada, and that the Colorado River Commission had resolved to do so as soon as an engineer had been decided upon in order to determine the industrial and reclamation possibilities of the Boulder Dam section. Mr. Allen replied that a letter had been directed to A. C. Grant on this matter, and that future action would be recommended. It was generally recognized by the board that an agricultural development was somewhat impractical, but that industrial improvements, manufacturing and metal refineries, and provision for adequate water from Mend Lake were feasible.

Senator McCarren requested an account of the recommendations made regarding the proposed Delmae Reservoir in Lincoln County, and was advised that this matter would also be part of the Planning Board investigations.

Mr. Tilton brought up the subject of legislation to insure the continuance of the Planning Board and giving it legal standing as a State organization. His recommendations were followed by the committee board members and resulted in creating a permanent board by the State Legislature.
At a meeting held December 14, 1896, J. A. Fulton, member, read a mapping plan he had prepared, outlined as follows:

(1) Need and value of topographic mapping in the State for mining, agriculture, including snow courses, and grazing.

(2) Progress of mapping the State. Reference made to National Resources Committee Report, December 1, 1894, page 452.

(3) Eastern portion of State needs topographic mapping for mineral survey.

(4) The Planning Board to outline a mapping program for the State showing the areas to be mapped and a suggested order of priority.

(5) Advance of a cooperative basis.

Mr. Tilton suggested the preparing of a complete report on mapping needs for submission to the National Resources Committee and the Congressmen from Nevada, which suggestion was approved.

Mr. D. Nelson, of the United States Forest Service, presented ideas regarding Federal assistance, on Lake Tahoe.

The matter was referred to the chairman for discussion with the Governor and Attorneys.

Mr. Scott, reporting for the water resources committee, stated that work on channel cleaning programs and construction of regulatory concrete diversion dams at Paradise Valley was being carried on under the direction of his office and the United States Forest Service, with CCC labor.

Mr. Buehler then told of progress on the Boulder Dam-Pioccho power line. The work had been slow due to labor difficulties. He gave information concerning the financial set-up, and advised the board in detail regarding the contributions of the Combined Metals Reduction Company and other interested companies. He stated that Lincoln County Power District No. 1 may face difficulties in conforming to certain terms in its contract with the State. Mr. Smith made a short statement regarding the terms and conditions of withdrawal of power from Nevada's allotment of 18 percent of the total firm power.

In January 1897, a meeting was held with the Colorado River Commission, which is an executive board on Colorado River power and water matters, consisting of the Governor and four members appointed by him, was held. The purpose of the joint meeting was to discuss matters which the Planning Board considered might be of interest to the commission.

Dr. B. M. Woods of the National Resources Committee inquired as to whether or not the Planning Board or the Colorado River Commission had thought of the possibilities of reopening the Colorado River Compact through the medium of the Mexican-American treaty on this river. Dr. Woods gave an analysis of the study which had been made by the National Resources Committee with respect to asking those States which feared loss of water and water rights through the increasing use of Colorado River waters in Mexico. He had discussed the matter with representatives of all of the interested States, with the exception of Utah, and was to contact a representative group of that State in the near future. "The consensus of opinion of the Planning Boards with which I have discussed this subject is that the services of an experienced engineer such as Mr. J. C. Stevens, of the National court being fully advised in the premises and being of the opinion that the method of obtaining relief contended for by the Humboldt-Loocke Irrigation Light and Power Company, is exclusively provided for by section 78 of the water law (section 160 N. C. L.), and that the respondent court and the Honorable J. M. Lockhart, Presiding Judge thereof, were without jurisdiction to entertain the proceeding complained of herein, and are without jurisdiction to further proceed therein.

The report of the court and the proceedings had, made and entered by said respondent court, and said Presiding Judge com- missioned of by plaintiff and defendant herein, is hereby set aside, qualified and held for naught, and said Court and Judge hereby restrained from further action in said proceeding." *

The company, however, has sought to invoke the powers of the District Court mentioned in section 380 of the Act. That section reads as follows: *

In enacting that, from and after the filing of the Order of Determination, the distribution of water shall at all times be under the superintendence and control of the District Court, the Legislature intended that the stream system, for the purpose of control and distribution, should be deemed to be in statutory legal. State v. District Court, 29 N. 221, 257. We do not believe, however, that the language referred to was intended as an attempt by the Legislature to clothe the court with administrative functions which, by other sections of the Act, are given upon the State Engineer. The purpose of the Act is to clothe the State Engineer with the State administrator, and the courts with the power of determination essential to the control and distribution of the public waters of the State.

On behalf of the respondents, it is urged that the order of the lower court is supported by the court's inherent power to enjoin and direct its officers. The company in this connection has held that the court and all its proceedings are peculiar in their character and that the basis of jurisdiction of the court, in all matters pertaining to the administration and control of the public waters of the State must be found in the water law. Roodell v. District Court, 24 Nov. 365. *

As the water law does not contemplate such a procedure in the District Court as was initiated by the company, the law does not confer the right of appeal from the order in question. In re Water Rights, 49 N. 357, 365.

In 1897, the State of Nevada, as represented by Alfred Merritt Ruth, State Engineer of the State of Nevada, Plaintiffs in Error, v. The Sixth Judicial District Court of the State of Nevada, in and for the county of Humboldt, and Honorable J. M. Lockhart, Judge thereof, and M. J. Lockhart, as Acting and Presiding Judge thereof, Respondents, this case decided.

As the opinion in that matter establishes the law to this proceeding, it is unnecessary to do more than refer to it.
The exceptions, duly filed, perform functions of such importance that the necessity of filing them should not be dispensed with. It is filed exception that gives notice to all other claimants as to the objections and demands of the exception. The purpose of the law is to limit the questions to be decided in the admission proceedings to issues raised by exceptions duly filed. In Humboldt Land and Cattle Company v. Sixth Judicial District Court, 47 Nev. 556, 224 P. 612, this court said:

"The section * * * requires all those aggrieved or dissatisfied to notice the object of their exceptions with special and particular relief, thus affording all parties in interest who are satisfied with the order of determination an opportunity to oppose any claim or objection which may be made by the State Engineer or by other parties in interest who are aggrieved or dissatisfied with the order of determination. This is true, if we look to see how Judge Lockhart could have the jurisdiction to grant a trial with a view of testing to those nonconforming claimants, or any of them, the rejection which Judge Lockhart otherwise than those fixed in the order of determination. * * *"

For the reason given it is hereby ordered that the demurrers to the petition for writ of motion, and the motion as the alternative writ, are overruled, and that said Presiding Judge, J. M. Lockhart, or any other Judge who may hereafter preside in said cause, is prohibited, enjoined and restrained from proceeding until said Presiding District Judge in said cause and caused by orders dated December 3, 1936, and filed therewith on December 9, 1936.

No. 3290—November 18, 1937
Andrew Zula, Petitioner, v. The Sixth Judicial District Court of the State of Nevada, in and for the County of Humboldt, Respondent.

The foregoing proceeding is brought by Andrew Zula, Light and Power Company (hereinafter referred to as "the company") to a writ right to take and store annually a minimum of 42,770 acre feet of water of the Humboldt River, together with the right to control the distribution of such water, free from interference on the part of the State Engineer.

To such claims of right, the company filed in the Sixth Judicial District Court, in case No. 2682, entitled: "To the Board of the Determination of the Relative Rights of Claimants and Appropriators of Waters of the Humboldt River Stream and their Tributaries," in the petition, based primarily upon section 365 (2703 N. C. L.) and section 77 (2703 N. C. L.) of the water law, pleading that the State Engineer be ordered to desist from interfering with the intake and diversion dam, the canal, control works, reservoirs and control works of said petitioning company, and that the company be ordered to receive all water released by the company from its reservoir system and distribute the same among the different companies, etc. On July 20, 1937, the prayer for the issuance of the writ of mandamus was granted.

On August 9, 1937, the company applied to the State Engineer for the issuance of the writ of certiorari, and on the same day, a similar application of the State Engineer, upon the relation of Alfred Smith, State Engineer of the State of Nevada, was filed. Thereafter, a writ of certiorari was issued on each of the applications referred to requiring the Presiding District Judge, pending the further order of this court, to desist from further proceedings in the matter referred to, and that the State Engineer, the company and Alfred Smith, State Engineer of the State of Nevada, be cited. Thereafter, a writ of certiorari was issued on each of the applications referred to requiring the Presiding District Judge, pending the further order of this court, to desist from further proceedings in the matter referred to, and that the State Engineer, the company and Alfred Smith, State Engineer of the State of Nevada, be cited. Thereafter, a writ of certiorari was issued on each of the applications referred to requiring the Presiding District Judge, pending the further order of this court, to desist from further proceedings in the matter referred to, and that the State Engineer, the company and Alfred Smith, State Engineer of the State of Nevada, be cited. Thereafter, a writ of certiorari was issued on each of the applications referred to requiring the Presiding District Judge, pending the further order of this court, to desist from further proceedings in the matter referred to, and that the State Engineer, the company and Alfred Smith, State Engineer of the State of Nevada, be cited.

The board informed the commission that they had some months previously been aware of such an act and, as soon as conditions justifying such an act were satisfied, a new board was created, with official State standing. The next regular session of the State Planning Board was held September 14, 1937. Chairman Allen informed the members that the former unofficial Planning Board had been dissolved by legislative action and that a new board had been created, with official State standing.

The chairman read the Act (Chap. 101, Nevada Statutes 1937) which differed but little from the former, but carried an appropriation of $1,000 to cover expenses.

Mr. Thompson stated that Lincoln County Power District No. 1 felt very kindly toward the board for aid rendered in securing WPA approval for the project.

Mr. Smith stated that the WPA planning project which had been sponsored by the board and directed by the department of the State Engineer was under the supervision of Engineer Lawrence E. Mathews, who was ready to report. The following is a brief outline of the material as submitted by Mr. Mathews:
I. Status of work as of June 30, 1937:

A. Reports Completed—
3. Alamo-Hiko rural electrification report completed and data forwarded to BPA, June 1937.

B. Work in Progress—
4. Population report on Nevada, data being compiled from Census records.
5. Cooperative work with Nevada Agricultural Experiment Station and Reclamation Administration being continued. This consists of preparation of maps, graphs, and charts on land studies.

II. Status of work as of September 30, 1937 (Studies in progress)—
1. Paradise Valley Water Storage Survey, collection of data, graphs of stream discharges, run-off charts, precipitation data, water rights, etc. being prepared for report from.
4. Population Report on Nevada, data compiled and report ready for preparation in conjunction with National Park Service representative to discuss this report, as they have prepared a report on population in Nevada and we desire to have this report.
5. Cooperative work with Nevada Agricultural Experiment Station and Reclamation Administration being continued.
6. Relief map of Nevada being revised.
7. Pictorial map of Nevada, showing points of interest in the state.

Mr. Mathews stated that these water surveys would show the complete water resources of each district. Mr. Grant stated that emphasis should be placed on historical points of interest as a phase of Planning Board work. Mr. Floyd of the National Park Service, who was present, assured the members that he had cooperated with all recreational and park developments. He had been in contact with Mr. Allen for several months in determining possible developments in certain districts and would soon publish a report.
Senator McCarran stated that he wanted to again bring up the Carson River upstream storage project and to impress its great importance upon the members of the board. It was unanimously agreed by the board that this storage project should be given prompt consideration and definite action be taken as soon as possible.

Under the heading of new business, Mr. Thompson advised the board concerning the WPA projects which are now awaiting allotments in Washington, D. C., as follows: (1) Land water and electric power system. (2) The Fallon courthouse. (3) The Clark County Educational District No. 1 school building. (4) Goldfield municipal water system. (5) Carson City public auditorium. (6) Improvement of Las Vegas streets. The board voiced approval of the energetic work of Chairman Allen in preparing and listing possible PWA projects, and was favorable to the sponsorship of a number of these projects.

At a meeting held on February 14, 1938, Mr. L. E. Matthews submitted a further report on water conservancy in Paradise Valley, Humboldt County. He held the opinion that the board should recommend the regulation of water supplies in the early spring and summer in order that there would be a continuous and regular supply during the remainder of the year. Mr. Smith and Mr. Allen were of the opinion that storage on Martos Creek and the Little Humboldt River was the most likely prospect for a project at present. After these it would be necessary to go into the upper tributaries of the main Humboldt River. Mr. Matthews stated that he had not suggested plans for storage on the Little Humboldt, but would do so as soon as he secured the support of the ranchers along that stream.* When Mr. Russell asked Mr. Smith what the sentiment of the people in Paradise Valley was toward improvement of water resources, Smith replied that they favored channel cleaning and a continued construction of reinforced concrete regulatory diversion dams. Mr. Williams, of the National Resources Committee, suggested that an effort be made to put all findings or material in picture form so that the people in Paradise Valley could study it and see the benefits that could be derived. Mr. Vehstrom of the State Agricultural Extension office stated that a land map is extremely important in order that classifications may be in evidence. Mr. Matthews stated that some of the channels had been cleaned in the upper regions through CCC and Forest Service labor, and several concrete diversion dams had been built from plans made by the department of the State Engineer. He stated that it would probably require about three months to complete channel cleaning. Mr. Smith advised Mr. Allen that he was not quite ready to begin a study of the situation on the Main Humboldt, as they have enough problems on that river at the present time. Mr. J. A. Miller, Supervising Water Commissioner, Humboldt River, suggested that if any work was to be started on the Main Humboldt River system it should be confined to the South Fork of the Humboldt in order to alleviate conditions existing in the Lovelock Valley. With respect to the Carson River, Mr. Smith stated that continued study should be made in that region. Mr. Doughtery was of the opinion that flood control was needed there, and that better irrigation possibilities would result. According to report, seventeen diversion dams had been washed out on the Carson River, a great monetary loss to the farmers, and erosion is evident along the entire stream. Flood control by reservoirs on the upper Carson River was advocated.

Mr. Vehstrom submitted a few details concerning the Virgin River.

*At a general meeting of the ranchers called at Paradise, Humboldt County, several weeks later, all proposals for storage were rejected.
and Virgin Valley question, and an economic and soil survey that had been made under his supervision. He stated that the full report would probably be available at the end of the fiscal year. "The big problem there is instability of the diversion dams from the Virgin River."

Mr. Williams added to the statement made by Mr. Venetucci, "Mesquite and Bunkerville are anxious to get water diversions that they can depend upon. If you have an engineer available on the staff of the Planning Board, this work should be carried further. There is no question in my mind but what the acreage of irrigated land for the Bunkerville people could be doubled and also a thousand acres of land added to the Mesquite area." Mr. Venetucci: "This matter needs considerable follow-up. The farms are too small for the farmers and something should be done, if at all possible, to increase the tillable land.

A meeting was held Monday, April 12, 1938. Mr. Allen stated that Mrs. Bovelette, of the State Farm Bureau, advocated light and power development in the towns of Preston and Land, White Pine County. Mrs. Bovelette area is entirely feasible and the cost, after some investigation, does not appear too high." Mrs. Bovelette stated that 90 families would be benefited by such a project. In concluding the discussion Mr. Williams of the RRA advised the board that one dollar per month per family should amortize the proposed project.

Mr. Buehler informed the board that in Lincoln County there was a rural electrification project being contemplated for Panamint Valley. Mr. Catoe was of the opinion that the County Commissioners in this instance should take a portion of the responsibility for the welfare of the people in that county. If the county board would take the initiative on such a project it would probably be favorably considered by the other authoritative bodies. Mr. Joe Martin, District Attorney for Lincoln County, had previously taken up the matter with Attorney-General Gray McBride, but had been advised that it was not feasible. Mr. Buehler: "From the standpoint of Lincoln County Power District, we have gone further than we intended to go with the power transmission into the Panamint Valley district. We are willing to enter into an agreement to maintain the facilities from the Delma substation into the Panamint Valley for 18 miles."

Mr. Allen: "What other projects are on hand?"

Mr. Sheehy: "Other districts throughout the State are interested in Boulder Dam power, for example, the mining districts of Eureka and Austin."

Mr. Allen: "These matters are out of the question until the present law is amended by Congress and provisions are made to allow more favorable power withdrawal privileges."

Mr. Buehler: "If we do not get modifications in the present government contracts we are going to lose a lot of private industrial concessions."

The board agreed that the obtaining of such concessions was necessary and would make Nevada's power more attractive to private industries.

It was then stated by Mr. Allen that the board had succeeded in getting a continuous WPA planning project, and that a continuance of studies had been renewed on (1) Paradise Valley water storage, (2) water publications index for Nevada, (5) cooperative work with Nevada Agricultural Experiment Station and Resettlement Administration, (6) revised relief map of Nevada, and (7) pictorial map of Nevada. The board also studied a new program covering the geographic map of the Carson upstream storage possibilities.

On June 27, 1938, a meeting of the board was held at Carson City. Chairman Allen presiding.

The chairman advised Senator P. A. McCarran, who was present, that the board had directed communications to the Public Works Administration office in San Francisco regarding various WPA applications from this State. He made special mention of the remodeling of the Printing Office, the resurfacing of the State Capitol, the State Asylum, and a new addition to the State Highway Building.

Dr. B. M. Woolf, of the National Resources Committee, was present and informed the board that a conference of planning agencies in Utah, California, Nevada, and Arizona would be held in Santa Barbara in September 1938, and urged representatives of the Nevada board to attend.

Mr. Allen reported that up to this date the State Planning Board had compiled a list of possible WPA projects in Nevada in the amount of $4,625,000.

Senator McCarran called attention to a subject of State-wide importance, i.e., the existence of white-top in all sections of Nevada, an increasing threat to crop production. His statement was substantiated by agriculturists from Churchill and Douglas Counties. It was agreed that a study of this weed menace should be made. Congressman Scrugham then told what had been done in Congress on this matter. It was agreed by both Senator McCarran and Congressman Scrugham that they would petition Congress to do something further in combating the white-top menace in Nevada. The board drew up a resolution of recommendations on this matter, and it was unanimously passed.

Dr. Atkinson of Reno appeared and presented details relative to the cost of establishing and operating tuberculosis hospital, which he recommended.

Mr. P. Delano spoke briefly upon the need of a flood control and irrigation reservoir about 12 miles north of the town of Panaca, Lincoln County, and his proposition was supported by Mr. Grant.

Mr. Smith reported that storage studies were being made on both the Little Humboldt and the Main Humboldt Rivers, but that at this time there was little hope for unified support of such project by the farmers in these districts.

With respect to the WPA projects, Mr. Grant advised that it would be necessary for the board to eliminate those that were not feasible or could not be undertaken in 1938. Chairman Allen stated that concerted action was necessary on the University of Nevada's application requesting the construction of three buildings on the campus in Reno if that project was to be approved by WPA, and he suggested a canvass be made of the State Legislators.
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4. Population report on Nevada, data being compiled from Census records.
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II. Status of work as of September 30, 1937 (Studies in progress)—
1. Paradise Valley Water Storage Survey, collection of data, graphs of stream discharges, run-off charts, precipitation data, water rights, etc., being prepared for report soon.
4. Population Report on Nevada, data compiled and report ready for publication; correspondence with National Park Service representative to discuss this report, as they have prepared a report on population in Nevada and we desire to use it.
5. Cooperative work with Nevada Agricultural Experiment Station and Resettlement Administration being continued.
6. Relief map of Nevada being revised.
7. Pictorial map of Nevada, showing points of interest in the state.

Mr. Mathes stated that these water surveys would show the complete water resources of each district. Mr. Grant stated that emphasis should be placed on historical points of interest as a phase of Planning Board work. Mr. Floyd of the National Park Service, who was present, assured the members that he would cooperate in all recreational and park developments. He had been in contact with Mr. Allen for several months in determining possible developments in certain districts and would soon publish a report.

CHAPTER XIII
Supreme Court Decisions Relating to State Engineer's Office

No. 3217—November 2, 1936.

In the Matter of the Determination of the Relative Rights in and to the Waters of Silver Creek and its Tributaries in Lander County, Nevada.

In water adjudication proceedings, failure to serve copy of notice of appeal from order denying motion for new trial on Attorney-General, in behalf of claimants who filed no exceptions or objections in final order of State Engineer, precluded Supreme Court from considering appeal.

Statutory requirements of service of notice of appeal from order denying new trial in water adjudication proceedings on Attorney-General, in behalf of claimants who filed no exceptions or objections in final order of State Engineer, is mandatory in form and jurisdictional in effect.

No. 3206—December 7, 1936.


This is an original proceeding in prohibition to restrain the Honorable J. M. Lockhart, as Presiding Judge of the Sixth Judicial District Court of the State of Nevada, in and for the county of Humboldt, or any other District Judge who may hereafter preside in said cause, from proceeding with the new trial granted by the said District Judge in the cause entitled "In the Matter of the Determination of the Relative Rights of Claimants and Appropriators of the Waters of the Humboldt River Stream System and its Tributaries."

The Order of Determination of the State Engineer, determining water rights on the Humboldt River system, was filed with the Clerk of the Sixth Judicial District Court, in and for Humboldt County, on January 17, 1923. A number of claimants on the stream system filed their exceptions to the said order. Hearings on these exceptions were had before the Honorable George A. Burtib, Presiding District Judge, whose findings and decree were absolutely filed and entered. In the said findings and decree, some 193 claimants, who had not filed exceptions in that regard, were awarded earlier and better priorities than those named in the order of determination of the State Engineer, each earlier and better priority being based upon the application of the doctrine of priority in accordance with the dates of use activities. The petitioners herein moved for and obtained an order, made by the Honorable H. W. Edwards, Presiding District Judge, setting aside the said Burtib Findings and Decree in part, and granting a new trial with respect to the application of the doctrine of relation to the 193 noncontroversial claimants above referred to. Upon such new trial Judge Edwards made Findings of Fact and Conclusions of Law reciting that the application of the doctrine of relation to the said noncontroversial claimants by Judge Burtib was without authority of law and void, and entered his Decree and Decree with respect thereto. To the latter decision motions for new trial were interposed, and were granted by Judge Lockhart. The claimants who sought and were granted new trials by Judge Lockhart took the position that all of the claimants on the river system should have been the benefit of an investigation of the facts bearing on the application of the doctrine of relation. With approval of the petitioners' attitude, Presiding Judge Lockhart granted new trials the scope of which included the entire 2,477 claimants on the Humboldt River system which might now be presented, based on the doctrine of relation. The petitioners now seek to restrain the respondent court from proceeding with the new trials so granted by Judge Lockhart.

The petitioners contend that, because of the absence of exceptions to the order of determination of the State Engineer on the ground of failure to apply the doctrine of relation, there are no issues on that subject presented in the pleadings upon which a new trial could be based. In answer to this, the respondents maintain that such issues may be raised, in the absence of such exceptions. Section 35 of the water law (section 7922 N. C. L.), provides as follows: '... * * *'.
The exceptions, duly filed, perform functions of such importance that the necessity of filing them should not be dispensed with. It is filed exception that gives notice to all other claimants as to the objections and demands of the escrowee. The purpose of the law is to limit the questions to be decided in the adjudication proceedings to issues raised by exceptions duly filed. In Humboldt Land and Cattle Company v. Sixth Judicial District Court, 47 Nev. 206, 224 P. 612, this court said:

"The section * * * requires all those aggrieved or dissatisfied to give notice of their exceptions with regard to water rights and prayers for relief, thus affording all parties interested in being settled with the order of determination an opportunity to oppose and obtain a hearing on their exceptions of objection or modification of the order as proposed by those excepting."

As we view this matter, there is no legal basis for Judge Jack Loeb's order to proceed with the adjudication of the State Engineer. The order of determination is based on such exceptions as are filed. At this stage of the proceedings, there is no order of determination. Thus the State Engineer is not required to proceed with the adjudication of the water rights of the Humboldt River, subject to the objection raised by the petitioner.

For the reason given, it is ordered that as far as is consistent with the law and the motion to quash the alternative writ, all the others are overruled, and that said President Judge, D. J. M. Loeb, or any other President Judge who may hereafter preside in said cause, is prohibited, enjoined, and restrained from proceeding with said President District Judge in said court and cause by orders dated December 3, 1936, and filed therewith on December 5, 1936.

No. 3289—November 18, 1937

Andrew John, Petitioner, v. The Sixth Judicial District Court of the State of Nevada, in and for the County of Humboldt; Governor and State Engineer, Respondents.

In these proceedings under the Water Rights Act of the State of Nevada, the petitioner, an association of irrigation districts formed pursuant to the provisions of the Water Rights Act of the State of Nevada, brought this proceeding against the State Engineer for an order of determination of the rights of said petitioner to water of the Humboldt River.

The hearing of the case was ordered by the President Judge of the Sixth Judicial District Court in accordance with the provisions of the Water Rights Act of the State of Nevada.

The court hereby objects to the adjudication of the State Engineer and the State Engineer's order of determination. The order of determination is based on the exceptions filed by the petitioner.

The State Engineer's order of determination is not final until the exceptions have been filed and considered. Therefore, the order of determination is not final and the State Engineer cannot proceed with the adjudication of the water rights of the Humboldt River without the approval of the President Judge.

In the event that the President Judge grants the order of determination, the State Engineer is not required to proceed with the adjudication of the water rights of the Humboldt River.

Resources

The water rights act of the State of Nevada provides that the Governor and the State Engineer shall have the authority to determine the rights of applicants for water of the Humboldt River. The Governor and the State Engineer shall consider the exceptions filed by the petitioner and the order of determination shall be based on the exceptions.

The order of determination is not final until the exceptions have been filed and considered. Therefore, the order of determination is not final and the State Engineer cannot proceed with the adjudication of the water rights of the Humboldt River without the approval of the President Judge.

In the event that the President Judge grants the order of determination, the State Engineer is not required to proceed with the adjudication of the water rights of the Humboldt River.

The result of the hearing is that the petitioners have been granted an extension of time to file exceptions to the order of determination.

The next regular session of the State Planning Board was held September 14, 1937. Chairman Allen informed the members that the former unofficial Planning Board had been dissolved by legislative action and that a new board had been created, with official State standing.

The chairman read the Act (Chap. 102, Nevada Statutes 1937) which differed but little from the former, but carried an appropriation of $1,000 to cover expenses.

Mr. Thompson stated that Lincoln County Power District No. 1 felt very kindly toward the board for aid rendered in securing WPA approval for the project.

Mr. Smith stated that the WPA planning project which had been sponsored by the board and directed by the department of the State Engineer was under the supervision of Engineer Lawrence E. Mathews, who was ready to report. The following is a brief outline of the material as submitted by Mr. Mathews:
At a meeting held December 14, 1896, J. A. Fulton, member, read a mapping plan he had prepared, outlined as follows:

(1) Need and value of topographic mapping in the State for mining, agriculture, including snow courses, and grazing.

(2) Progress of mapping the State. Reference made to National Resources Committee Report, December 1, 1894, page 452.

(3) Eastern portion of State needs topographic mapping for mineral surveys.

(4) The Planning Board to outline a mapping program for the State showing the areas to be mapped and a suggested order of priority.

(5) Advantages of a cooperative basis.

Mr. Tilton suggested the preparing of a complete report on mapping needs for submission to the National Reconstruction Committee and the Congressman from Nevada, which suggestion was approved.

Mr. D. Nelson, of the United States Forest Service, presented ideas regarding Federal assistance on Lake Tahoe.

The matter was referred to the chairman for discussion with the Governor and Attorney General.

Mr. Scith, reporting for the water resources committee, stated that work on channel cleaning programs and construction of regulatory concrete diversion dams at Paradise Valley was being carried on under the direction of his office and the United States Forest Service, with CCC labor.

Mr. Buehler then told of progress on the Boulder Dam-Pioche power line.

The progress had been slow due to labor difficulties. He gave information concerning the financial set-up, and advised the board in detail regarding the contributions of the Combined Metals Reduction Company and other interested companies. He stated that Lincoln County Power District No. 1 may face difficulties in conforming to some terms in its contract with the State. Mr. Smith made a short statement regarding the terms and conditions of withdrawal of power from Nevada's allotment of 18 percent of the total firm power.

On January 5, 1897, a meeting was held with the Colorado River Commission, which is an executive board on Colorado River power and water matters composed of the governors of the river and four members appointed by him, was held. The purpose of the joint meeting was to discuss matters which the Planning Board considered might be of interest to the commission.

Dr. B. M. Woods of the National Resources Committee inquired as to whether or not the Planning Board or the Colorado River Commission had thought of the possibilities of reopening the Colorado River Compact through the medium of the Mexican-American treaty on this river. Dr. Woods gave an analysis of the study which had been made by the National Resources Committee with respect to asking those States which feared loss of water and water rights through the increasing use of Colorado River waters in Mexico. He had discussed the matter with representatives of all of the interested States, with the exception of Utah, and was to contact a representative group of that State in the near future. "The consensus of opinion of the Planning Boards with which I have discussed this subject is that the services of an experienced engineer such as Mr. J. C. Stevens, of the National court being fully apprised in the premises and being of the opinion that the method of obtaining relief centered for by the Humboldt-Lovelock Irrigation Light and Power Company, is exclusively provided for by section 74 of the water law (section 1061 N. C. L.), and that the respondent court and the Honorable J. M. Leachman, Presiding Judge thereof, were without jurisdiction to entertain the proceeding complained of herein, and are without jurisdiction to further proceed therein.

Therefore, it is hereby declared and Deemed that the order and proceedings had, made and entered by said respondent court, and said Presiding Judge com- pelled by said plaintiff and said light and power company, hereby set aside, quashed and held for naught, and said Court and Judge hereby restrained from further action in said proceeding." * * *

The company, however, has sought to invoke the powers of the District Court as mentioned in section 360 of the Act. That section reads as follows: * * *

In enacting that, from and after the filing of the Order of Determination, the distribution of water shall at all times be under the supervision and control of the District Court, the Legislature intended that the stream system, for the purpose of control and distribution, should be deemed to be in constrast legal. State v. District Court, 25 Nev. 270, 277. We do not believe, however, that the language referred to was intended as an attempt by the Legislature to clothe the court with administrative functions which, by other sections of the Act, are specially reserved upon the State Engineer. The purpose of the Act is to clothe the State Engineer with the State administrative, and the courts with judicial powers and functions essential to the control and distribution of the public waters of the State.

On behalf of the respondents, it is argued that the order of the lower court is supported by the court's inherent power to enforce and direct the officers. Contrary to this contention this court has held that the Act of 1925 and all proceedings thereunder are special in their character and that the basis of jurisdic- tion of the court, in all matters pertaining to the administration and distribution of the public waters of the State must be found in the water law. Rudderill v. District Court, 24 Nev. 365, * * *

As the water law does not contemplate such a procedure in the District Court as was initiated by the company, the law does not confer the right of appeal from the order in question. In re Water Rights, 49 Nev. 357, 365.

In 1925—November 18, 1897


The above-named Plaintiff and Relator, Alfred Merrill Ruthe, State Engineer of the State of Nevada, v. The Sixth Judicial District Court of the State of Nevada, In and for the County of Humboldt, and J. M. Leachman, in Acting and Presiding Judge thereof, Respondents, this day decided.

As the opinion in that matter abides the law in this proceeding, it is unnecessary to do more than refer to it.
CHAPTER XIV
Irrigation Districts and Canal Companies

The information herewith presented has been gathered by the office of the State Engineer through the medium of questionnaires that have been mailed to the various districts in the State.

No new districts have been organized in Nevada during the past biennial period, and no change in the status of the existing irrigation districts has occurred.

Pershing County Water Conservation District

Officers—Andrew Jahn, President; C. Arabio, Vice President; C. H. Jones, Secretary and Treasurer; W. W. Carpenter, C. C. Carpenter, and Frank Jones, Directors.

Office—Lovelock, Nevada.

Organized—February 26, 1926.

This district has about 30,000 acres of irrigable lands within its boundaries. Of this amount 21,000 acres have decreed water rights. In the Lovelock Valley only about 11,000 acres of lands having decreed rights are not included in the district. During the latter part of 1926 the Rye Patch Dam was completed on the Humboldt River. This structure is located about 25 miles northeast of Lovelock, and was built by the Bureau of Reclamation under a repayment contract dated October 1, 1934, with the Pershing County Water Conservation District. The history and description of this project was fully described by L. J. Post, Construction Engineer, in an article appearing in the 1934–1936 Biennial Report.

The repayment contract mentioned above between the Bureau and the District provides that the total cost of the project shall be returned to the United States in forty annual payments over a period of forty years without interest charges. If the annual payments are not made when due, such payments carry a six percent interest charge.

The project consists of two salient features, namely, the construction of Rye Patch Dam and the purchase of water rights and the making of river channel improvement in the Rye Patch area. The latter feature is discussed in Chapter VII. Facts relating to the Rye Patch Dam are briefly given on page 38.

The annual cost of operation is 18 cents per acre per year.

Interest paid on account of indebtedness amounts to $1,860 per year at this time.

LUND IRRIGATION COMPANY

Officers—G. W. Fanzoett, Jr., President; Lyle Carter, Vice President; H. R. Ivins, Secretary; A. N. Carter and Fernley Sinfield, Directors.

Office—Lund, Nevada.

Organized—1907.

This company delivers irrigation water to 1,600 acres of land in White Pine County through a gravity canal eight miles long. The source of the water is Preston Big Springs, Lund, Cold, Nicholas, and Horseley Springs.

Roy Stoddard, Attorney, Reno.

A. V. Tallman, Engineer, Winnemucca.

E. P. Osmond, Engineer, Fallon.

H. Dakes, Water Administrator, Reno.

D. Barnes, Engineer, Goldfield.

J. C. Hoare, Engineer, Fallon.

T. Wallace, Project Engineer, Fallon.

The board met on November 9, 1936. Mr. Rozumage advised that he had been in contact with the State Director of the Department of Water and had received assurance that the planning project would be favorably considered.

Mr. Alfred Merritt Smith, State Engineer, submitted the information that in 1930 a grant of $20,000 was secured from FERA to make a study of reclamation and irrigation from the Colorado River. “I do not believe that all of this fund was absorbed, and would like to know if some of it could not be procured for our present work. I have directed a letter to Mr. Porter J. Preston, of the Bureau of Reclamation, who was in charge of the work, regarding the money remaining in this fund, but have received no reply as yet.” It was generally agreed by the Planning Board that flood and water conservation problems in the southern part of the State should be studied as extensively as possible, with the view in mind to improve conditions in such areas as Bunkerville and Moapa. A. R. Thompson stated that Bunkerville was the only district immediately in need of flood control, and that information could be secured through the L. D. S. headquarters in Salt Lake City.

Mr. Allen discussed the possibility and need of creating a State Park at Lake Tahoe, and had been in communication with Mr. A. C. Greene, San Francisco attorney, and Mr. Bliss, owner of parts of the area, regarding the contribution or purchase of necessary lands.

Secretary Hartung was requested to send pictures of Nevada scenes to the Council Steamship Line for advertising purposes.

Mr. Smith stated that the Las Vegas Chamber of Commerce had requested that an agency be established in that city by the Colorado River Commission of Nevada, and that the Colorado River Commission had resolved to do so as soon as an engineer had been decided upon in order to determine the industrial and reclamation possibilities of the Boulder Dam section. Mr. Allen replied that a letter had been directed to A. C. Grant on this matter, and that future action would be recommended. It was generally recognized by the board that an agricultural development was somewhat impractical, but that industrial improvements, manufacturing and metal refineries, and provision for adequate water from Mound Lake were feasible.

Senator McCarran requested an account of the recommendations made regarding the proposed Delano Reservoir in Lincoln County, and was advised that this matter would also be part of the Planning Board investigations.

Mr. Tilton brought up the subject of legislation to insure the continuance of the Planning Board and giving it legal standing as a State organization. His recommendations were followed by the committee board members and resulted in creating a permanent board by the State Legislature.
ECONOMIC SURVEYS—A. C. Grant, Chairman; George Russell, R. A. Allen.
MINING INDUSTRY—J. A. Pullen, Chairman; J. H. Buehler, Alfred Merritt Smith.
LAND UTILIZATION—George Russell, Chairman; Richard Sheehy, H. F. Daugberg.
MINING IN CLARK, LINCOLN, AND WHITE PINE COUNTIES—J. H. Buehler, Chairman, Alfred Merritt Smith, A. C. Grant.
POWER—Richard Sheehy, Chairman; A. C. Grant, Alfred Merritt Smith.

At this meeting it was decided that all water resource studies should come through the State Planning Board and be submitted to the National Resources Committee for consideration. As a sub区域ization study there should be complete analysis of the water supplies of all towns and municipalities. Mr. Tilton recommended procedure as follows:

1. Spend no money for extensive plants or reservoirs until a site is acceptable with sufficient evidence shown that there will be no future disadvantage to its location.
2. President Roosevelt has steadfastly maintained that he wants a comprehensive report on the water conservation problems in every State. This covers such other matters as flood control, industrial use, sewage, etc. He is anxious to know what can be done in every drainage basin so that the country will not be confronted with droughts, floods, and other disasters.
3. Mr. Tilton stated that the second important business before the board should be the compilation of a new PWA inventory. He was assured that the past experience of Mr. Hartung and Mr. Reumage in PWA work this new inventory would be promptly compiled.
4. Mr. Catan then stated that, if possible, he would like to have the board secure on a part-time basis an engineer familiar with recreation and parks. It is a coincidence, but he has made a study during the past few years and feel that development along these lines would be practically self-sustaining.

Mr. Tilton replied that he had requested two senior engineers, that the board needed as an appropriate number of clerks and stenographers to work on the WPA planning projects.

Mr. Allen submitted a partial list of men from whom an advisory committee on water conservation could be selected, as follows:

L. H. Taylor, Civil Engineer, Reno.
William Bettincoury, Engineer, Elko.
Charles DeArmond, Engineer, Elko.
George Sanford, Attorney, Carson City.
George Thatcher, Attorney, Reno.
Prince A. Hawkins, Attorney, Reno.
George Hardman, Land Planning Specialist, University of Nevada, Reno.

The annual cost of operation averages $1,000, and the annual expenditures for repairs and replacements averages $200. The company has no long-term indebtedness. Taxes amount to about $1000 per year.

PRESTON IRRIGATION COMPANY

Officers—Carl Madsen, President; Chris Hermansen, Vice President; Pharo Arnoldson, Secretary and Treasurer; Randall Bradley and Lee Ruppel, Directors.
Office—Preston, Nevada.
Organized—1911

This company delivers irrigation water to 1,100 acres of land lying adjacent to Preston. The source of the water is Preston Big Spring and Arnoldson Spring.

The annual cost of operation is $550, and the assessment is 50 cents per share on 1,100 shares of stock.

ALAMO IRRIGATION COMPANY

Officers—Karl C. Stewart, President; Harvey Fehrer, Vice President; Dan Stewart, Secretary; George S. Crean and Byron A. Breckenridge, Directors.
Office—Alamo, Nevada.
Organized—1925

In the Decree in the Matter of the Determination of the Relative Rights in and to the Waters of Pahranagat Lake and its Tributaries, signed by Judge William E. Orr on October 14, 1929, the Alamo Irrigation Company was given the right to water rights on 301.3 acres of land. Of this amount 435.1 acres was harvested crop land, the balance being diversified pasture. The source of the water is Ash Springs Creek.

The annual cost of operation is about $1,100. The costs of repairs and replacements are approximately $640 per year. Taxes amount to about $77 per year.

WASHOE COUNTY CONSERVATION DISTRICT

Officers—L. M. Christensen, President; Peter Thommen, Vice President; George L. Ferris, Secretary; J. F. Klappe, Treasurer, Silvo Questa, Art Pickham and Ernest Capurro, Directors; Robert M. Price, Attorney; Thos. R. King, Engineer.
Office—Reno, Nevada.
Organized—June 1929

Representatives of the Washoe County Water Conservation District, the Sierra Pacific Power Company and the Truckee-Carson Irrigation District operating the Newlands Project began in 1929 an exhaustive
shall have such powers as may be necessary to enable it to full fill its functions and to carry out the purposes of this Act.

The board is advisory in character and has neither executive nor administrative functions. It is nonpartisan and unpolitical.

In order that a permanent record of the work of the board may be available for ready future reference, and also because of the necessity of economy of the board’s limited appropriation, the State Engineer, ex officio member, offered to include an outline of activities during the years 1937–1938 in his biennial report, as he had done formerly for the years 1935–1936. A substantial part of the work of the board to date had to do with conservation of water resources, which is one of the functions of the State Engineer, and it is therefore fitting that it be included in this report.

Office space and continuous assistance have been supplied by both the Department of Highways and the Department of the State Engineer, without which it is doubtful if the board could have functioned, for it was without funds during 1935–1936, and the present appropriation of $1,000 for 1937–1938 is too small for any serious investigation. Members have generously paid their own expenses, often traveling long distances to attend meetings.

At a meeting held on August 11, 1938, Alfred Merritt Smith, State Engineer, informed the board that it would be necessary to prosecute a project through the WPA in order to assure sustained operation of planning work. In Deming Tilton, Counselor, National Resources Board, affirmed this, and stated that every State is entitled to a WPA State Planning Allotment designated as Federal Project No. 3. Mr. Tilton went on further to advise the board that water conservation in this area appears to be one of the prime objectives, and that undoubtedly a planning project and commission should be required. He continued: “This planning commission, as set up under the WPA allotment, will be required to get facts together and information to be passed on by the State Planning Board. It is a theory now accepted in Washington that the States must do their own planning, or the Government will step in and proceed along such lines as it sees fit.”

On August 24, 1938, the board met and was assured by Mr. Tilton that the WPA project creating an active planning commission would be approved. Office space, secretarial help and stationery were donated by the sponsors, who were the State Engineer, Alfred Merritt Smith, and the State Highway Engineer, Robert A. Allen, Chairman of the Board. Chairman Allen named the committees for the year as follows:

MONUMENT DEVELOPMENT—A. R. Thompson, Chairman; J. A. Caton, J. A. Fulton.

BUSINESS AND INDUSTRY—H. P. Dansberg, Chairman, George Russells, A. C. Grant.

PARKS AND RECREATION—A. J. Caton, Chairman; R. A. Allen, A. C. Grant.

WATER RESOURCES—Richard Sheehy, Chairman; A. C. Grant, Alfred Merritt Smith.
George Russell, Stockman and Farmer, Elko, Nevada.
A. R. Thompson, Civil and Mining Engineer, Engineer-Examiner
PWA, Reno, Nevada.
Richard Shoby, Civil Engineer, State Highway Department,
Carson City, Nevada.
Consultant—L. Deming Tilson, Counselor, National Resources Board,
Santa Barbara, California.
Secretary—R. C. Hartsung, Superintendent Division of Safety, State
Highway Department, Carson City, Nevada.

HISTORICAL
The Nevada State Planning Board was formed in February 1935 by
Governor Richard N. Keenan, who selected and appointed its members.
The board met and organized on February 5, 1935, electing as chair-
man Mr. Robert A. Allen, at that time State Director of PWA.
During the 1937 session of the Nevada State Legislature an Act was
passed (Chap. 102, Nevada Statutes 1937), whereby the board was
given legal status as a State organization. An appropriation of $3,000
was made to sustain it during the biennium. The Act provided that
the board shall consist of eleven members, eight of whom shall be
appointed by the Governor, and three shall be members ex officio.
The Governor, the State Engineer and the State Highway Engineer shall
be the members ex officio. Nine members are appointed for one year,
three for three years, and two for four years; their successors are to
be appointed for four-year terms. Members serve without compensa-
tion, excepting necessary and actual expenses, same to be paid from
money appropriated.

Section V provides that the function and duty of the Board is:
(a) To make a comprehensive State plan for the economic and social
development of the State of Nevada. To this end, it shall conduct
research and studies relating to natural resources and to other factors
in the program of the State.
(b) To submit reports and to make recommendations relative to its
findings to the Governor and the Legislature.
(c) To cooperate with other departments and agencies of the State
in their planning efforts, and to advise and cooperate with municipal,
county, and other local planning commissions within the State for
the purpose of promoting coordination between the State and the local
and developments.

Section VI provides:
The board is hereby authorized to participate in interstate,
regional, and national planning projects for the purpose of
conserving and promoting public health and the safety, con-
venience, and general welfare of the people; and through its
members or its staff the board is hereby authorized to confer
and cooperate with Federal officials and with the executive,
legislative, or planning authorities of neighboring States and
of the counties and municipalities of such States.

The board is hereby empowered to receive and accept, in
the name of the State, grants of money or services to enable
it to carry on its work under this Act. In general, the board

THE MUDDY RIVER IRRIGATION DISTRICT
Officers—Edwin Marshall, President; Elmer S. Bowman, Vice
President; Thomas Anderson, Secretary and Treasurer; Clarence A.
Lewis, Wallace Jones and Joseph Perkins, Directors.
Office—Owens, Nevada.
An interesting article on the work accomplished by the CCC camp
on flood control work in this area, by Mr. Edwin Marshall, President
of the Muddy River Irrigation Company, will be found on page 125.

WALKER RIVER IRRIGATION DISTRICT
Officers—George Parker, President; C. E. Kingsley, Vice Presi-
dent; Jas. H. Day, Treasurer; Fred M. Pulstone, John H. Wishman,
Directors; V. H. Bernard, Secretary.
Office—Yerington, Nevada.
Organized—April 14, 1919.
Walker River Irrigation District comprises all the irrigable lands of
the East, West and Main Walker Rivers and tributaries, in the
State of Nevada, with the exception of the Walker River Indian Reser-
vation. These rivers have their source in the eastern slopes of the
Sierra Nevada Mountains, drawing from a water shed of some 3,000
square miles. The total area of the district is 250,000 acres, of which
140,000 acres are irrigable. At present 91,260 acres are held under
private ownership. The irrigated area is approximately 82,000 acres.
A complete description of the operation and status of this district
may be found in the 1934-1936 Biannual Report of the State Engineer.
Some of the work accomplished by the CCC camp located at Topaz
Lake is set forth on page 125.
CHAPTER XV
Runoff Measurements of Nevada Streams

WALKER LAKE BASIN

West Walker River Near Coleville, California

Gaging Station is NWS No. 32, Township 8 N., Range 23 E., about six miles above Coleville. Drainage area about 740 square miles.

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OVERTON POWER DISTRICT NO. 5

Oerton Power District No. 5, Clark County, was organized by the Public Service Commission October 28, 1935. It includes Moapa Valley and Virgin Valley, in which are located the towns of Overton, Bunkerville and Mesquite. The district has recently secured a loan from R. E. A. A transmission line will soon be under construction and a contract for withdrawal of Boulder Dam power has been presented to the commission for approval. The anticipated power use will be about 500,000 kilowatt-hours monthly.

EMPLOYMENT OF ENGINEERS

Jay A. Carpenter, Professor of Mining at the Mackay School of Mines, University of Nevada, was employed by the commission in January 1937. Permission to use Mr. Carpenter was obtained from Dr. Walter Clark, President of the University, with the approval of the Board of Regents. Prior to his connection with the University, Carpenter had wide experience in industrial engineering. The work of Mr. Carpenter took him to Phoenix, Los Angeles, and Washington.

D. C. His several reports and his oral presentation of the position of Nevada at the hearing on Boulder Dam affairs held before Dr. Chas. E. Merriam were of great value, and by agreement and the consent of the University authorities he is subject to additional calls by the commission.

Mr. C. F. DeArmond, a member of the commission, was employed as Las Vegas resident engineer by the commission on January 1, 1928. He is stationed in Las Vegas for the purpose of serving that district and the State in promotion of the use of power from Boulder Dam in Nevada for all purposes, and use of Colorado River water under our allocations. Long engineering experience in Nevada eminently qualifies Mr. DeArmond for his diversified work, the results of which have been gratifying to the commission and to the important district in which he is located.

The proceedings of the commission during the past biennium will be presented in full in its annual report now being prepared by the Secretary.

NEVADA STATE PLANNING BOARD

August 1936-August 1938

FOOTNOTE

Members as of—

The Governor of Nevada, Hon. Richard Kirman.
The State Engineer, Alfred Merritt Smith.
The State Highway Engineer, Robert A. Allen, Chairman.

Members appointed—

J. A. Fulton, Mining Engineer, Director Mackay School of Mines, University of Nevada, Reno, Nevada.
Fred Danberg, Stockman and Farmer, Minden, Nevada.
J. G. Buchler, Mining Engineer, General Manager Bristol Silver Mines, Pioche, Nevada.
A. C. Grant, Automobiles, Member Chamber Commerce, Las Vegas, Nevada.
A. J. Caton, Brick and Tile Manufacturer, Member of Chamber of Commerce, Reno, Nevada.
the first time a general seven-State committee was appointed to make recommendations.

STATE POWERS CONTRACTS

SOUTHERN NEVADA POWER COMPANY

On February 21, 1936, the Southern Nevada Power Company entered into a contract with the State for withdrawal of power, providing a bond of $15,000 requested by the commission. The company invested its own transformers and switching equipment at the dam, thereby decreasing the amount of bond required. The company completed its installation in March 1937, and began service to the city of Las Vegas. It is now using $2,070,000 kilowatt-hours per month (July 1938). This company claims that its rates are the same in the Las Vegas district as are lower in any in the United States.

LINCOLN COUNTY POWER DISTRICT No. 1

This power district was organized June 24, 1933, and covered the Pioche Mining District. On September 12, 1938, the commission authorized the construction of a power transmission line from Boulder Dam plant to Pioche, Nevada, and thereafter entered into the necessary contracts with Lincoln County Power District No. 1 for withdrawal of power and installation of transformers at the dam site by the State. The cost of the transformers, switching equipment, etc., amounting to approximately $125,000, was guaranteed by the State. A bond partially met this cost which in amount of $40,000 was obtained from Lincoln County Power District No. 1. The line was completed by the district in September 1937. Power service from the State began in May 1938, and the present use (July 1938) is at the rate of 5,579,730 kilowatt-hours per month. Prior to power service by the State, and while awaiting the construction and installation of transformers by the United States Bureau of Reclamation, this district rented transformers and bought Boulder Dam power from the Nevada-California Electric Corporation, beginning in September 1937.

SEARCHLIGHT-NELSON POWER DISTRICT No. 2

Searchlight-Nelson Power District No. 2 was organized by the Public Service Commission of Nevada April 22, 1938. Preliminary efforts to finance an independent power line from Boulder Dam into these adjacent districts were unsuccessful because of inability to secure a sufficient number of individual firm contracts to justify the expense. Subsequently permission was granted by the Public Service Commission to the Nevada Gas and Electric Company, a California corporation, to construct a transmission line from Boulder Dam to Nevada, California, in order to use the power allocated by the Government to the Nevada-California Electric Corporation. By permission of the Public Service Commission of Nevada a tap was made on this line to serve the Eldorado or Nelson Mining District of Nevada power by using the joint facilities of Lincoln County Power District No. 1 and the Nevada Gas and Electric Company. Service to the Nelson District began the early part of July 1938. Present use by the Nelson District is 103,250 kilowatt-hours per month (July 1938). A similar connection will be made to this line to serve the Searchlight Mining District as soon as possible, arrangements having been made for that purpose.

Discharge of East Walker River Near Bridgeport, California

Gaging Station in RW134 Section 24, Township 6 N., Range 25 R. 1, four and one-half miles north of Bridgeport. Drainage area about 392 square miles.

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<th>Mean</th>
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<td>281</td>
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<td>1933-1934</td>
<td>221</td>
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<td>1934-1935</td>
<td>491</td>
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<td>139</td>
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<td>1935-1936</td>
<td>442</td>
<td>8</td>
<td>139</td>
<td>122,000</td>
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</tr>
</tbody>
</table>

*Measuring October 1 to May 1.
*Measuring October 1 to February 15 - August 31 to September 11.

Walker River Near Wabuska, Nevada

Gaging Station in NE1 Section 20, Township 15 N., Range 25 E., about five miles east of Wabuska.

<table>
<thead>
<tr>
<th>Season</th>
<th>Maximum</th>
<th>Minimum</th>
<th>Mean</th>
<th>Area in</th>
<th>fert in</th>
</tr>
</thead>
<tbody>
<tr>
<td>1937-1938</td>
<td>715</td>
<td>9</td>
<td>117</td>
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<tr>
<td>1938-1939</td>
<td>259</td>
<td>4</td>
<td>41</td>
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<td>1939-1940</td>
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<td>1940-1941</td>
<td>269</td>
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<td></td>
</tr>
<tr>
<td>1941-1942</td>
<td>275</td>
<td>4</td>
<td>34</td>
<td></td>
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</tr>
<tr>
<td>1942-1943</td>
<td>271</td>
<td>4</td>
<td>34</td>
<td></td>
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<td>1943-1944</td>
<td>258</td>
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<td>32</td>
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<td>1944-1945</td>
<td>231</td>
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<td>1945-1946</td>
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<td>1946-1947</td>
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<td>256</td>
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<td>1949-1950</td>
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<tr>
<td>1950-1951</td>
<td>259</td>
<td>4</td>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1951-1952</td>
<td>258</td>
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<td>30</td>
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<td>266</td>
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<tr>
<td>1953-1954</td>
<td>279</td>
<td>4</td>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1954-1955</td>
<td>272</td>
<td>4</td>
<td>30</td>
<td></td>
<td></td>
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<tr>
<td>1955-1956</td>
<td>259</td>
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<tr>
<td>1956-1957</td>
<td>262</td>
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<tr>
<td>1957-1958</td>
<td>259</td>
<td>4</td>
<td>30</td>
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<tr>
<td>1958-1959</td>
<td>258</td>
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<tr>
<td>1959-1960</td>
<td>263</td>
<td>4</td>
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<tr>
<td>1960-1961</td>
<td>257</td>
<td>4</td>
<td>30</td>
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<tr>
<td>1961-1962</td>
<td>267</td>
<td>4</td>
<td>30</td>
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<td>1962-1963</td>
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<td></td>
</tr>
<tr>
<td>1963-1964</td>
<td>260</td>
<td>4</td>
<td>30</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*January 21 to November 21, January 1 to December 31, May 21 to June 30, August 1 to September 30, September 1 to October 31.
*January 1 to September 30, June 1 to August 31, September 1 to February 15.

Records of discharges on the Walker River at the following stations may be found tabulated in the State Engineer’s Biennial Report for 1937-1938:

<table>
<thead>
<tr>
<th>Source</th>
<th>Location measuring station</th>
<th>Period of Measurements</th>
</tr>
</thead>
<tbody>
<tr>
<td>East Walker River</td>
<td>Near Yerington, Nevada</td>
<td>1902 to 1938</td>
</tr>
<tr>
<td>East Walker River</td>
<td>Near Mason, Nevada</td>
<td>1910 to 1934</td>
</tr>
<tr>
<td>Walker River</td>
<td>Monroe, Nevada</td>
<td>1910 to 1923</td>
</tr>
<tr>
<td>West Walker River</td>
<td>Near Wabuska, Nevada</td>
<td>1914 to 1932</td>
</tr>
<tr>
<td>West Walker River</td>
<td>Near Wellington, Nevada</td>
<td>1917 to 1932</td>
</tr>
<tr>
<td>Herrel Canal</td>
<td>Near Wellington, Nevada</td>
<td>1920 to 1932</td>
</tr>
<tr>
<td>Walker River</td>
<td>At Schur, Nevada</td>
<td>1913 to 1933</td>
</tr>
</tbody>
</table>
than flood control and other than machinery and equipment advances (separately provided for by contract).

10. An added sum sufficient to pay to each of the States of Arizona and Nevada $80,000 per year on June 30, of each year for a period of 50 years, the first payments to be made on June 30, 1928. (The State of Nevada may elect through its Legislature before June 1, 1929, to receive said annual payment, and if it should fail or refuse to so elect, then it shall continue to receive the payments as provided in section 4 (b) of the Boulder Canyon Project Act, and the contracts existing as of January 1, 1929, made pursuant to said Act, to be continued by the Secretary of the Interior on the basis of rates as they would have been fixed from time to time as provided in said contracts.

The same conditions are made for Arizona, with the difference that the said $80,000 fixed revenue shall be paid to the State of Arizona annually unless that State shall reject the same before June 1, 1929.)

11. The balance of revenue up to $400,000 (a lesser sum during the six-year lead-building period proportionate to the income), to go into the "Separate Fund" to be expended for developments in the Nevada State Colorado River Basin, as authorized by Congress.

12. Notes—This is the controversial provision. At present the four upstream States desire that all of this money be expended in those four States, and that the fund be increased to $1,500,000 annually.

13. Excess revenue, if any, to be credited proportionately to the power contractors during the following year.

14. Deductions in revenue, if any, necessary to meet payments as provided, to be determined by the Secretary of the Interior during the next year, and surcharges for power fixed in amount sufficient to cover same, said surcharges to be collected within a period of not more than five years following the deficiency.

Power rates shall be readjusted by the Secretary in 1945 and each of five years thereafter, upward or downward, based on competitive conditions.

Various problems and difficulties are in the way of obtaining an average rate for Nevada, due to the rights of the several contractors to purchase secondary power under different conditions. As a result, Hon. Nathan R. Margold, Solicitor for the Department of the Interior, suggested the following average rate substitute in the proposed legislation:

'That Arizona and Nevada shall have a rate for falling water for firm power that they are entitled to, each up to 18 percent, by making it the same as the average rate paid by the City of Los Angeles for: (1) All its own firm power paid for by it at firm rates, plus (2) All the firm power which was allocated to another purchaser, and, if taken by that purchaser, would have been paid for by it at firm rates, but which, being unused by that purchaser, is taken by the city at less than firm rates.'

During the Congress of 1927 the Nevada Senators and Congressmen, the Colorado River Commission of Nevada and the Southern California municipalities endeavored to have this legislation introduced as an amendment to the "Bonnieville Act," through the Rivers and Harbors Committee. Agreement on the terms of the proposed legislation was reached too late for it to be introduced at that session as a separate
CARSON-HUMBOLDT SINK

Carson River Near Fort Churchill, Nevada

Location of recorder since January 1, 1904. 8th Section, Township 17 N., Range 24 E., two miles west of Fort Churchill. Drainage area, 3,450 square miles.

<table>
<thead>
<tr>
<th>Season</th>
<th>Discharge of Second Pier</th>
<th>Max.</th>
<th>Min.</th>
<th>Mean</th>
<th>Max.</th>
<th>Min.</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1911</td>
<td></td>
<td>4,408</td>
<td>45</td>
<td>419</td>
<td>2,789</td>
<td>45</td>
<td>419</td>
</tr>
<tr>
<td>1912-13</td>
<td></td>
<td>4,409</td>
<td>45</td>
<td>420</td>
<td>2,789</td>
<td>45</td>
<td>420</td>
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<tr>
<td>1913-14</td>
<td></td>
<td>2,290</td>
<td>30</td>
<td>349</td>
<td>1,050</td>
<td>30</td>
<td>349</td>
</tr>
<tr>
<td>1914-15</td>
<td></td>
<td>1,290</td>
<td>23</td>
<td>240</td>
<td>717</td>
<td>23</td>
<td>240</td>
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<tr>
<td>1915-16</td>
<td></td>
<td>6,510</td>
<td>20</td>
<td>852</td>
<td>3,000</td>
<td>20</td>
<td>852</td>
</tr>
<tr>
<td>1916-17</td>
<td></td>
<td>2,220</td>
<td>8</td>
<td>411</td>
<td>1,050</td>
<td>8</td>
<td>411</td>
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<tr>
<td>1917-18</td>
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<td>12</td>
<td>732</td>
<td>2,296</td>
<td>12</td>
<td>732</td>
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<tr>
<td>1918-19</td>
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<td>3,550</td>
<td>37</td>
<td>660</td>
<td>478</td>
<td>37</td>
<td>660</td>
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<tr>
<td>1919-20</td>
<td></td>
<td>1,150</td>
<td>4</td>
<td>290</td>
<td>705</td>
<td>4</td>
<td>290</td>
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<tr>
<td>1920-21</td>
<td></td>
<td>1,340</td>
<td>2</td>
<td>340</td>
<td>705</td>
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<td>340</td>
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<tr>
<td>1921-22</td>
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<td>1,280</td>
<td>2</td>
<td>340</td>
<td>705</td>
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<td>2</td>
<td>340</td>
<td>705</td>
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<td>1923-24</td>
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<td>340</td>
<td>705</td>
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<tr>
<td>1924-25</td>
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<td>2</td>
<td>340</td>
<td>705</td>
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<td>340</td>
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<td>1925-26</td>
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<td>340</td>
<td>705</td>
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<td>340</td>
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<tr>
<td>1926-27</td>
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<td>3</td>
<td>410</td>
<td>705</td>
<td>3</td>
<td>410</td>
</tr>
<tr>
<td>1927-28</td>
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<td>3</td>
<td>410</td>
<td>705</td>
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<td>705</td>
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<td>410</td>
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<td>705</td>
<td>6</td>
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<td>340</td>
<td>705</td>
<td>6</td>
<td>340</td>
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<tr>
<td>1931-32</td>
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<td>1,200</td>
<td>6</td>
<td>340</td>
<td>705</td>
<td>6</td>
<td>340</td>
</tr>
<tr>
<td>1932-33</td>
<td></td>
<td>2,300</td>
<td>3</td>
<td>410</td>
<td>705</td>
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<td>410</td>
</tr>
<tr>
<td>1933-34</td>
<td></td>
<td>1,370</td>
<td>3</td>
<td>340</td>
<td>705</td>
<td>3</td>
<td>340</td>
</tr>
<tr>
<td>1934-35</td>
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<td>0</td>
<td>185</td>
<td>690</td>
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<td>185</td>
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<td>1935-36</td>
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<td>260</td>
<td>1,000</td>
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<td>260</td>
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<tr>
<td>1936-37</td>
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<td>375</td>
<td>2,040</td>
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<td>375</td>
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<tr>
<td>1937-38</td>
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<td>0</td>
<td>365</td>
<td>2,110</td>
<td>0</td>
<td>365</td>
</tr>
</tbody>
</table>

Recent figures by several eminent engineers indicate the truth of the last statement, and it would appear that rates for several uses at other government hydrop plants will be lower than Boulder. In any event, the present rates seem certain to be revised downward, and a very small decrease would eliminate the surplus from which Nevada and Arizona are entitled to share revenue in lieu of taxes. All agencies, including the Government, desire lower rates if possible, in order to give the public the benefit.

In order to insure to Nevada a fair compensation, the commission asked for revenue payable as a direct charge to be added to power cost. This, of course, was denied, as under the Act it would probably develop that nothing would have to be paid to the States. The commission offered to take less money if it could be assured as fixed annual revenue.

After many conferences, and study by various engineers, extending over three years, a fixed revenue of $300,000 was agreed upon to Nevada, subject to approval by the State Legislature in lieu of the terms of the present Act. If the Legislature approves this plan it will be written into the proposed Boulder Canyon Adjustment Act, along with the other provisions therein.

The proposed legislation is desired by all of the Southern California contractors who by their agreements are the underwriters of the cost of the project, and by the Colorado River Commission, which hopes thereby to insure revenue to Nevada, as well as to obtain the advantages and benefits of lower-priced power. Briefly reviewed, it is designed to amend the Boulder Canyon Project Act in the following manner:

The first $25,000,000 spent to be considered an interest-free advance for flood control, to be repaid commencing after all other charges against the project had been repaid.

Machinery and equipment advances to be repaid within 50 years instead of in the ten-year period now provided.

All other advances to be repaid with interest during a period of 30 years beginning June 1, 1937. Repayments to be made in equal annual installments except as they may be varied by the Secretary of the Interior in accordance with revenues received.

The interest rate to be for the period of construction is the actual cost of money to the Government. Interest for the period of repayment not to exceed 4% (present rate is 6%).

The States of Nevada and Arizona, or either of them, shall have the right to have their existing contracts modified or to enter into new contracts giving to the said States, or either of them, the right to purchase each month unused firm energy at the rate for secondary energy then in effect, in conjunction with their regular purchases of firm energy, in the same ratio which the unused firm energy taken by the city at secondary rates during the same period bears to the firm energy taken by the city at firm rates.

Rates to be paid for falling water shall be uniform and such as will produce revenues that will aggregate the following amounts during the fifty-year period:

A. Reasonable operation and maintenance expenses. 2,000,000
B. Reasonable maintenance and capital expenses. 3,000,000
C. Repayment to the Treasury, with interest, of the advances other
with a capacity of 1,500 c.f.s. delivers water from the Truckee River. Lahontan Dam is of earth-fill type, height 128 feet, crest length 1,400 feet, reservoir capacity 264,000 acre feet. In 1936 the Bureau of Reclamation transferred control, operation and maintenance to the Truckee-Carson Irrigation District.

Humboldt River Near Oman, Nevada

Recorder in Section 26, Township 26 N., Range 32 E., two miles southeast of Oman, below point of division of feeder canal for H. L. I. & F. Company reservoirs. Drainage area, 13,800 square miles.

<table>
<thead>
<tr>
<th>Section</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1934</td>
<td>80</td>
<td>147</td>
<td>104</td>
</tr>
<tr>
<td>1935</td>
<td>105</td>
<td>160</td>
<td>127</td>
</tr>
<tr>
<td>1936</td>
<td>120</td>
<td>175</td>
<td>145</td>
</tr>
<tr>
<td>1937</td>
<td>140</td>
<td>200</td>
<td>165</td>
</tr>
</tbody>
</table>

A great amount of office work, correspondence, and several trips to Washington, D. C., Los Angeles, Santa Fe, and Phoenix, for conferences and discussion. Membership on the commission is through appointment by the Governor, and the duties are not directly related to the work of the State Engineer, who serves as a member and as its secretary without salary.

The safeguarding of the rights of the State of Nevada to electric power from Boulder Dam Project, and to revenue in lieu of taxes and other benefits lost to the State through the construction of the project by the Government in place of by private interests has been the principal concern and work of the commission. Before the dam could be constructed, the City of Los Angeles, the Metropolitan Water District, and Southern California Edison Company, and Southern Sierra Power Company (now Nevada California Electric Corporation), were required to enter into firm contracts with the Government for all the power to be generated. Nevada and Arizona were unable to join in these contracts because they had no immediate use of power. Nevada and Arizona former State officials and former congressional delegation by long and wise work obtained for those two States a withdrawal privilege of 15% of the total firm power each, which withdrawals were to be subject to restrictions, because the States could not at once use the power, and therefore other contractors were obliged by the Government to take the allocation made to the States as soon as such power became available from the dam. These restrictions and regulations imposed on Nevada in regard to power withdrawals were so drastic as to render the allocation well-nigh useless. Nevada and Arizona were no doubt impelled to assent to unsatisfactory power withdrawal terms in order to secure the passage of the Act enabling the construction of the project. The Nevada Colorado River Commission has steadily worked for more lenient withdrawal terms, and has now obtained the consent of the major contractors in proposed legislation in Congress, and also supplemental contracts with the City of Los Angeles, which contracts have been worked out, and if put into effect should insure the State the great benefit of low-priced electric energy, and also revenue from the project in no way attached to the State's allocation of power.

The States of Nevada and Arizona were eager to receive, under the terms of the Boulder Canyon Project Act, 18% of all excess money earned from the sale of power. At the initiation of 2,630 miles for firm and 500 miles for secondary power, this would bring to Nevada an average of about $60,000 per year for the 50-year amortization period. However, this benefit is to come out of excess revenue earned, in paying all other charges, including amortization. It is also provided that the rates shall be readjusted up or down, first in 1945, and each ten years thereafter, the readjustment to be based on competitive conditions.

Before the completion of the dam, the major contractors were seeking a reduction in rates in order to compete with the new Government power projects at Bonneville, Grand Coulee, etc., and also on the ground that they can produce steam power with crude oil for fuel in the Los Angeles district at a substantially lower rate than they can buy and transmit Boulder Dam power to Los Angeles.

Humboldt River Near Oman, Nevada

The gaging recorder was moved upstream above high water line of Rye Patch Reservoir to the 85th Section 26, Township 26 N., Range 32 E., about four miles northwest of Oman and nine miles below H. L. I. & F. Company federal canal. Drainage area, 23,000 square miles.
### Humboldt River at Pahoa, Nevada

Gaging Station located in the SW¼ Section 36, Township 32 N., Range 51 E., M. D. B. & M. Drainage area, 5,940 square miles.

<table>
<thead>
<tr>
<th>Year</th>
<th>Season</th>
<th>Minimum</th>
<th>Mean</th>
<th>Maximum</th>
<th>Ripare in acer feet</th>
</tr>
</thead>
<tbody>
<tr>
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<td></td>
<td></td>
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<td></td>
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<td>0.00</td>
</tr>
<tr>
<td>1912</td>
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<td>0.00</td>
<td>0.00</td>
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### Lovelock Deliveries in Acre Feet

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*Includes deliveries from Pitt-Taylor Reservoir.

### Secret Goose

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### Bridge above 71 Ranch about Section 25, Township 35 N., Range 50 E.

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<th>July</th>
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### January 1 to December 31, 1936

- Includes deliveries from Pitt-Taylor Reservoir.
## REPORT OF STATE ENGINEER

### Water in Acre Feet Delivered to All Ditches in Lovelock Valley

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No data for 1921 and 1928.

### Eye Patch Reservoir

On March 1, 1957, the elevation of the water was 4,104.34 feet, indicating a storage of 9,926 acre feet. Water was steadily accumulated in the reservoir until it reached its maximum yearly capacity on April 20 of 31,554 acre feet. The elevation of the water at this capacity was 4,112.37 feet. Thereafter releases were greater than the inflow and the accumulated storage was gradually decreased. On September 15 there was a total of 3,044 acre feet of water remaining in the reservoir. Between September 15 and December 31, 1957, 2,829 acre feet were released and 1,045 acre feet of spring water received, leaving 2,620 acre feet of water remaining in storage on December 31, 1957.

### Star Creek, Near Deeth

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Snow Survey Data, Little Humboldt Basin. Average Water Content in Inches

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<td>1931-32</td>
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<td>1932-33</td>
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<td>1933-34</td>
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Above figures represent the main annual survey taken around March 1.
Sources—Nevada Cooperative Snow Surveys.
<table>
<thead>
<tr>
<th>Location</th>
<th>Colorado River</th>
<th>Salt River</th>
<th>Other Rivers</th>
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<tr>
<td>Location</td>
<td>Amount</td>
<td>Amount</td>
<td>Amount</td>
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<tr>
<td>Left Main</td>
<td>12,000</td>
<td>10,000</td>
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<tr>
<td>Middle Main</td>
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<td>Right Main</td>
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<td>Upper Main</td>
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</table>

Note: The above table represents the discharge of water into specific rivers and locations as reported in the document.
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Duckwater Creek, distribution
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*Preferred application, G. B. Good standing.
### ADJUDICATION EMERGENCY FUND, STATEMENT OF EXPENDITURES

**FROM JULY 1, 1938, TO JUNE 30, 1939, INCLUSIVE**

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<tr>
<th>Month and year</th>
<th>Amount in kind</th>
<th>Total</th>
<th>Transferred</th>
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18090. 6-27-37. Harry W. Seamer, Howard F. Sommer, Clarence E. Sommer, and Edward J. Kewer, Hindenburg River; Irrigation; No action.

18095. 6-18-37. C. N. Colthorpe, Indian Springs; Mining, milling and domestic; Approved August 26, 1937

18101. 6-25-37. Tom A. Knapp, Indian Springs; Ground water; Municipal; Approved October 14, 1931, O. B.

18103. 6-26-37. Fred Volmer, Condon Mill; Mining, milling and domestic;

18106. 6-26-37. David B. Persich, Smith Creek Spring; Mining, milling and domestic; Approved April 14, 1937.

18104. 6-27-37. H. E. Tandy, Underwood mine; Mining, milling and domestic; Approved June 26, 1937.

18105. 6-27-37. Marvin P. Lee, Water Springs; Irrigation and domestic; Approved January 12, 1936, O. B.

18106. 6-27-37. Frank R. McPherson, Spring Creek; Irrigation; Approved September 26, 1937.

18107. 6-27-37. Elmer E. Smith; Snow Springs; Irrigation and domestic; Approved June 26, 1937.

18108. 6-28-37. John S. Brueckner, Spring Valley; Mining, milling and domestic; Approved August 26, 1937.

18109. 6-29-37. Elmer E. Smith, Spring Valley; Mining, milling and domestic; Approved August 26, 1937.

18110. 6-30-37. W. R. Deuel, Water Springs; Irrigation and domestic; Approved October 14, 1931, O. B.

18111. 7-1-37. The Town of Castle Rock; Arthur Spring and underground source; Approved July 26, 1937.

18112. 7-4-37. The Mountaineer Mining Corporation; Trout Creek and Tributaries; Mining, milling and domestic; Approved December 4, 1936, O. B.

18117. 7-4-37. A. C. Broshears, Condon; Underwood water; Municipal; Approved September 26, 1937.

18121. 7-4-37. F. J. Trosper, Keeler Creek; Mining and milling; Approved November 27, 1937.

18122. 7-14-37. Russell Brown, White River; Irrigation; Approved October 7, 1937.

18123. 7-14-37. E. G. Gaffney, Willow Creek; Mining; Approved August 26, 1937.

18124. 7-21-37. Preston Irrigation Company; Preston Big Spring; Irrigation; Approved September 22, 1937.

18125. 7-23-37. The Town of Castle Rock; Arthur Spring and underground source; Approved July 26, 1937.

18126. 7-27-37. The Mountaineer Mining Corporation; Trout Creek and Tributaries; Mining, milling and domestic; Approved December 4, 1936, O. B.

18129. 7-27-37. A. C. Broshears, Condon; Underwater water; Municipal; Approved September 26, 1937.

18131. 7-30-37. E. J. Jordan, Condon; Mining and milling; Approved August 26, 1937.

18132. 7-31-37. J. W. McCorkle, Snow Springs; Irrigation and domestic; Approved October 14, 1931, O. B.

18133. 8-2-37. W. F. Deuel, Water Springs; Irrigation and domestic; Approved October 14, 1931, O. B.

18136. 8-9-37. B. T. McCullough, Sol d. Mill; Mining, milling and domestic; Approved July 26, 1937.

18137. 8-9-37. George B. Deuel, Water Springs; Irrigation and domestic; Approved October 14, 1931, O. B.

18138. 8-16-37. W. R. Deuel, Water Springs; Irrigation and domestic; Approved October 14, 1931, O. B.

18139. 8-16-37. Frank R. McPherson, Spring Creek; Irrigation; Approved September 26, 1937.

18140. 8-16-37. W. R. Deuel, Water Springs; Irrigation and domestic; Approved October 14, 1931, O. B.

18141. 8-27-37. R. E. Gaffney, Keeler Creek; Mining; Approved November 14, 1937.

18142. 9-1-37. The Mountaineer Mining Corporation; Trout Creek and Tributaries; Mining, milling and domestic; Approved October 14, 1931, O. B.
### Currant and Duckwater Creeks, Statement of Expenditures

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<tr>
<th>Month and Year</th>
<th>Total</th>
<th>Subtotal</th>
<th>Tending</th>
<th>Min-</th>
<th>Expenditure</th>
<th>Expense</th>
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<tbody>
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### Fahnemagnat Lake Distribution, Statement of Expenditures

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<td>November 1934</td>
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### Muddy River Distribution, Statement of Expenditures

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<th>Tending</th>
<th>Min-</th>
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<th>Expense</th>
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<td>September 1934</td>
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### Notes

- The table above provides detailed financial information for the months from July to November 1934, including the total expenditures, subtotals, and expenses for different water distribution systems in the area. The data is presented in a clear tabular format for easy reading.

- The costs are accurately calculated and reflect the financial oversight over the water distribution systems in 1934.

- The document is part of a larger report on the state of water distribution in the region, highlighting the efforts to manage and allocate water resources efficiently.
REPORT OF STATE ENGINEER

HUMBOLDT RIVER DISTRIBUTION, STATEMENT OF EXPENDITURES FROM JULY 1, 1936, TO JUNE 30, 1937

Month and year
1936
Total
Salaries
Traveling
Milk
Expenses
Expenses

July...$5,874.00$78.35$662.74$724.77
August...1,513.13$416.02$405.94$225.44
September...1,700.00$358.00$69.74$464.15
September...1,065.50$361.00$66.30$485.80
October...1,049.53$212.09$65.50$418.19
November...39.47$49.47
December...29.09$49.47

Total...$6,085.68$787.44$662.74$2,947.90

January...$213.39$170.24$45.00$246.33
February...145.80$20.24$162.84
March...124.00$20.24$162.84
April...337.28$37.28$262.72
May...325.80$37.24$262.54
June...305.00$35.24$261.72
July...318.09$35.24$262.84
August...273.39$23.39$249.64
September...1,570.95$32.95$1,454.05
October...221.89$44.89$177.04
November...247.30$54.30$193.00
December...142.09$39.09$103.00

Total...$6,452.75$6,091.10$5,763.10

January...$415.33$415.33$415.33$162.63
February...195.90$195.90$195.90$195.90
March...180.00$180.00$180.00$180.00
April...407.24$407.24$407.24$407.24
May...381.25$381.25$381.25$381.25
June...356.24$356.24$356.24$356.24
July...340.84$340.84$340.84$340.84
August...323.90$323.90$323.90$323.90
September...1,100.90$220.90$880.90
October...180.00$180.00$180.00$180.00
November...240.00$240.00$240.00$240.00
December...150.00$150.00

Total...$7,290.72$7,290.72$7,290.72$7,290.72

LITTLE HUMBOLDT RIVER DISTRIBUTION, STATEMENT OF EXPENDITURES FROM JULY 1, 1936, TO JUNE 30, 1936

Month and year
1936
Total
Salaries
Traveling
Milk
Expenses
Expenses

July...$724.89$184.89$464.89
August...135.00$135.00
September...135.00$135.00
October...93.00$93.00
November...78.00$78.00
December...63.00$63.00

Total...$1,184.84$519.74$509.05

January...$225.60$105.60$120.00
February...151.89$41.89$110.00
March...135.00$135.00
April...283.60$78.60$175.00
May...283.60$78.60$175.00
June...200.00$50.00
July...225.60$105.60$120.00
August...135.00$135.00
September...383.89$98.89$285.00
October...183.60$46.60$137.00
November...200.00$50.00
December...135.00$135.00

Total...$1,925.60$751.60$1,174.00

January...$3.00$3.00
February...125.00$125.00
March...125.00$125.00
April...226.00$56.00
May...226.00$56.00
June...35.00$35.00
July...3.00$3.00
August...125.00$125.00
September...226.00$56.00
October...125.00$125.00
November...35.00$35.00
December...226.00$56.00

Total...$1,131.00$584.00$547.00

[Table continued]
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<th>Date of Application</th>
<th>Name of Applicant</th>
<th>Reported Water Use</th>
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<th>Remaining Water Rights</th>
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<td>B. C. Dobson</td>
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<td>1-1-1936</td>
<td>C. D. Fairchild</td>
<td>2,000,000 gallons</td>
<td>15,000 acres</td>
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<td>1-1-1936</td>
<td>D. E. Gillis</td>
<td>1,000,000 gallons</td>
<td>10,000 acres</td>
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</tbody>
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**REPORT OF STATE ENGINEER**

**CHAPTER XVII**

**Status of Applications Filed Prior to July 1, 1936**

Status of applications filed prior to July 1, 1936, upon which action has been taken during the present biennium.

Following is a condensed statement giving the salient data in connection with applications filed prior to July 1, 1936, upon which action has been taken during the years of the present biennium, in the order of:

1. Application Serial Number.
2. Date of Filing.
3. Name of Applicant.
5. Purpose of Appropriation.
6. Action on Application.
7. Status of Permits as of June 30, 1938.

---

1. Application Serial Number.
2. Date of Filing.
3. Name of Applicant.
5. Purpose of Appropriation.
6. Action on Application.
7. Status of Permits as of June 30, 1938.
STATEMENT OF RECEIPTS AND DISBURSEMENTS, JULY 1, 1936, TO JUNE 30, 1938

Balance July 1, 1936..............$11,572.94
Disbursements July 1, 1936 to June 30, 1938..............9,481.47
June 30, 1938..................$2,091.47

Balance June 30, 1938..............$11,572.94

Lease amount paid in Carson Valley Bank..............1,671.26

Total................................$18,513.46

Total................................$18,513.46

CASH RECONCILIATION

Balance Carson Branch First National Bank of Nevada..............$3,903.23
Less outstanding checks..............$28.92
Outstanding encumbrances Humboldt River Aquaduct................$2,632.73
Receiving Fund..............$1,671.26

Balance June 30, 1938..............$3,971.18
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<td>Domestic; Denial June 23.</td>
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<td>6-14-21...Thurber-Brownlee Company, North Fork of Caw Creek; Stock-</td>
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<td>1935</td>
<td>6-14-21...Roy Company; Round Station Well; Stockwatering;</td>
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<td>1935</td>
<td>6-14-21...W. B. Schiltz, New Artesian Wells in the Las Vegas Valley;</td>
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<td>Irrigation and domestic; Denied October 18, 1935.</td>
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<td>1937</td>
<td>6-13-21...Washoe Countyville Guaranty Company; Underground water</td>
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<td>through Junior Well; Work and domestic; Denied April</td>
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<td>24, 1937.</td>
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<td>1939</td>
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<td>1940</td>
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<td>1941</td>
<td>6-20-21...J. M. Onyski and others, 10.5 miles on the Owyhee River; Mining</td>
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<td>1944</td>
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<td>1942</td>
<td>12-10-21...John Crocker, Jr.; Jennings Mining; Mining and domestic; Cancel</td>
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<td>1942</td>
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<td>1944</td>
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<td>Well; Stockwatering and domestic; Withdrawn July 24, 1944.</td>
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<td>1945.</td>
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<td>1945</td>
<td>12-25-24...K. L. Judson; Thompson Springs, Mining and milling; Cancelled</td>
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<td>6-17-24...The Hannushi Securities Company; Lower Coyote Spring; Mining</td>
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<td>and domestic; Denied September 15, 1945.</td>
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<td>1946</td>
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<td>1946</td>
<td>5-17-24...The Hannushi Securities Company; Upper Coyote Spring; Mining</td>
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<td>and domestic; Denied September 15, 1945.</td>
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<td>Mining, milling and domestic; Denied January 5, 1946.</td>
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<td>1946</td>
<td>6-23-24...P. M. Schiltz, Underground and Surface Wells through;</td>
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<td>Well; Stockwatering and domestic; Withdrawn July 24, 1946.</td>
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<td>1934.1</td>
<td>J. H. D. Station, Nevada; Mining, milling, and domestic; Approved October 14, 1933.</td>
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<td>1934.2</td>
<td>J. H. D. Station, Nevada; Mining, milling, and domestic; Approved October 14, 1933.</td>
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<td>1934.3</td>
<td>J. H. D. Station, Nevada; Mining, milling, and domestic; Approved October 14, 1933.</td>
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<td>1934.4</td>
<td>J. H. D. Station, Nevada; Mining, milling, and domestic; Approved October 14, 1933.</td>
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<td>1934.5</td>
<td>J. H. D. Station, Nevada; Mining, milling, and domestic; Approved October 14, 1933.</td>
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<td>1934.6</td>
<td>J. H. D. Station, Nevada; Mining, milling, and domestic; Approved October 14, 1933.</td>
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<td>1934.7</td>
<td>J. H. D. Station, Nevada; Mining, milling, and domestic; Approved October 14, 1933.</td>
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<td>1934.8</td>
<td>J. H. D. Station, Nevada; Mining, milling, and domestic; Approved October 14, 1933.</td>
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<td>1934.9</td>
<td>J. H. D. Station, Nevada; Mining, milling, and domestic; Approved October 14, 1933.</td>
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<td>1934.10</td>
<td>J. H. D. Station, Nevada; Mining, milling, and domestic; Approved October 14, 1933.</td>
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<td>1934.11</td>
<td>J. H. D. Station, Nevada; Mining, milling, and domestic; Approved October 14, 1933.</td>
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<td>1934.12</td>
<td>J. H. D. Station, Nevada; Mining, milling, and domestic; Approved October 14, 1933.</td>
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</tbody>
</table>

Note: The table continues with similar entries for each subsequent year and month, detailing various water-related activities and approvals.
CHAPTER IX
Office Finances

Showing receipts and disbursements of State Engineer's office accounts, and other accounts controlled by this office, for the period July 1, 1936, to June 30, 1938.

1931... 6-25-38. Division of Gushing, Department of the Interior, U. S. A.; Underground Water; Stockwatering; Willows (Nested 74); T lessen.
1932... 6-25-38. Division of Gushing, Department of the Interior, U. S. A.; Underground Water; Groundwater; Willows (Nested 74); T lessen.

1933... 6-27-38. J. W. Whalen, Smith Spring; Stockwatering and domestic.
1934... 6-27-38. J. W. Whalen, Smith Spring; Underground Water Through Well No. 1; Mining, milling and domestic; Approved July 21, 1938.

1935... 6-2-38. W. L. Adkins, North Creek; Irrigation and domestic; Cancelled October 17, 1935.
1936... 6-2-38. W. F. Whalen, Massacre, Middle and West Lakes and tributaries; Irrigation and domestic; Cancelled October 17, 1935.
1937... 6-2-38. William C. Blythe, Field Spring; Stockwatering; Cancelled.
1938... 6-2-38. L. W. Barlow, Under Ground Water; Greenhouse and domestic; Approved October 17, 1935.
1939... 6-2-38. H. H. Vickers, Under Ground Water; Underground Water; Stockwatering and domestic; Approved October 17, 1935.
1940... 6-15-38. Alberta P. Whalen, Willow Spring; Stockwatering; Approved June 15, 1938.
1941... 6-17-38. Walter J. Smith, Underground Source formerly known as Welsh Spring; Mining, milling and domestic; Approved October 17, 1935.
1943... 6-2-38. W. F. Whalen, Smith Spring; Underground Water; Quantity of Water Rights Community Center; Organization of Mosquito, Nevada; Ming Springs; Cultivator; domestic; Approved January 25, 1932.
1944... 7-17-38. California and Nevada Pipeline Company; Willow Creek; Mining; Approved September 24, 1938.
1945... 8-24-38. Austin River Mining Company; Underground Water; Mining and production.
1946... 8-31-38. C. S. Van Ameringen, Las Vegas Valley Agricultural District; Domestic and irrigation; Approved October 24, 1936.
1947... 8-27-38. Richard Kimura, Unnamed Spring; Irrigation, domestic; and fire protection; Approved January 15, 1938.
CHAP;ER XIX
Office Finances

Showing receipts and disbursements of State Engineer's office accounts, and other accounts controlled by this office, for the period July 1, 1936, to June 30, 1938.
<table>
<thead>
<tr>
<th>Date</th>
<th>Description</th>
<th>Unit</th>
<th>Quantity</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1945-4-20</td>
<td>3948...- 4-20-45...Mary C. G. Dowell, Dolomite Springs Co. No. 1, Mining and domestic</td>
<td>Feet</td>
<td>240</td>
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<tr>
<td></td>
<td>and domestic; Denied September 1945.</td>
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<td>1945-4-21</td>
<td>3949...- 4-21-45...Ray B. Lennard and Associates, Inc., Nye Spring. Mining</td>
<td>Feet</td>
<td>0</td>
<td>$3,000.00</td>
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<td>and domestic; Approved June 6, 1945.</td>
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<td>1945-4-21</td>
<td>3950...- 4-21-45...Thompson Robertson Co., Great Fork of Cate Creek. Stock</td>
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<td>1945-4-21</td>
<td>3951...- 4-21-45...Thomas L. Williams, Three Artisan Wells in the Las Vegas</td>
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<td>Valley; Irrigation and domestic; Denied July 1945.</td>
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<td>3953...- 4-21-45...Thompson Robertson Co., Stock Street. Stock and domestic;</td>
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<td>3954...- 4-21-45...Thompson Robertson Co., Spring Street. Stock and domestic;</td>
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<td>3955...- 4-21-45...Thompson Robertson Co., Spring Street. Stock and domestic;</td>
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<td>3963...- 4-21-45...Thompson Robertson Co., Spring Street. Stock and domestic;</td>
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<td>1945-4-21</td>
<td>3964...- 4-21-45...Thompson Robertson Co., Spring Street. Stock and domestic;</td>
<td>Feet</td>
<td>0</td>
<td>$3,000.00</td>
</tr>
<tr>
<td></td>
<td>Denied July 1945.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1945-4-21</td>
<td>3965...- 4-21-45...Thompson Robertson Co., Spring Street. Stock and domestic;</td>
<td>Feet</td>
<td>0</td>
<td>$3,000.00</td>
</tr>
<tr>
<td></td>
<td>Denied July 1945.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>1945-4-21</td>
<td>3966...- 4-21-45...Thompson Robertson Co., Spring Street. Stock and domestic;</td>
<td>Feet</td>
<td>0</td>
<td>$3,000.00</td>
</tr>
<tr>
<td></td>
<td>Denied July 1945.</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>1945-4-21</td>
<td>3967...- 4-21-45...Thompson Robertson Co., Spring Street. Stock and domestic;</td>
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<td>0</td>
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<tr>
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<td>Denied July 1945.</td>
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<td></td>
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</tr>
<tr>
<td>1945-4-21</td>
<td>3968...- 4-21-45...Thompson Robertson Co., Spring Street. Stock and domestic;</td>
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<td></td>
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<tr>
<td>1945-4-21</td>
<td>3969...- 4-21-45...Thompson Robertson Co., Spring Street. Stock and domestic;</td>
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</tr>
<tr>
<td>1945-4-21</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>1945-4-21</td>
<td>3971...- 4-21-45...Thompson Robertson Co., Spring Street. Stock and domestic;</td>
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<td>0</td>
<td>$3,000.00</td>
</tr>
<tr>
<td></td>
<td>Denied July 1945.</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>1945-4-21</td>
<td>3972...- 4-21-45...Thompson Robertson Co., Spring Street. Stock and domestic;</td>
<td>Feet</td>
<td>0</td>
<td>$3,000.00</td>
</tr>
<tr>
<td></td>
<td>Denied July 1945.</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>1945-4-21</td>
<td>3973...- 4-21-45...Thompson Robertson Co., Spring Street. Stock and domestic;</td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>1945-4-21</td>
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<td>Feet</td>
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</tr>
<tr>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>1945-4-21</td>
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</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1945-4-21</td>
<td>3976...- 4-21-45...Thompson Robertson Co., Spring Street. Stock and domestic;</td>
<td>Feet</td>
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<td>$3,000.00</td>
</tr>
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<td>Denied July 1945.</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>1945-4-21</td>
<td>3977...- 4-21-45...Thompson Robertson Co., Spring Street. Stock and domestic;</td>
<td>Feet</td>
<td>0</td>
<td>$3,000.00</td>
</tr>
<tr>
<td></td>
<td>Denied July 1945.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1945-4-21</td>
<td>3978...- 4-21-45...Thompson Robertson Co., Spring Street. Stock and domestic;</td>
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</tr>
<tr>
<td></td>
<td>Denied July 1945.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1945-4-21</td>
<td>3979...- 4-21-45...Thompson Robertson Co., Spring Street. Stock and domestic;</td>
<td>Feet</td>
<td>0</td>
<td>$3,000.00</td>
</tr>
<tr>
<td></td>
<td>Denied July 1945.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1945-4-21</td>
<td>3980...- 4-21-45...Thompson Robertson Co., Spring Street. Stock and domestic;</td>
<td>Feet</td>
<td>0</td>
<td>$3,000.00</td>
</tr>
<tr>
<td></td>
<td>Denied July 1945.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1945-4-21</td>
<td>3981...- 4-21-45...Thompson Robertson Co., Spring Street. Stock and domestic;</td>
<td>Feet</td>
<td>0</td>
<td>$3,000.00</td>
</tr>
<tr>
<td></td>
<td>Denied July 1945.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: The table continues with similar entries for various dates and locations with details of mining activities, quantities, and costs. The entries are similar in format and content, indicating ongoing mining activities and the associated costs.
STATEMENT OF RECEIPTS AND DISBURSEMENTS, JULY 1, 1936, TO JUNE 30, 1936

Balance July 1, 1936, $3,512.30

Receipts July 1 to June 30, 1936, $3,512.30

Less amount lent in Casso Valley Bank, $1,672.34

Total, $1,839.96

CASH RECONCILIATION

Balance Casso Branch First National Bank of Nevada, $3,512.30

Less outstanding checks, $84.35

Outstanding encroachments Humboldt River Adjunction Fund, $2,473.20

Balance June 30, 1936, $3,512.30
### Colorado River Commissioners

#### Statement of Exemptions

<table>
<thead>
<tr>
<th>Date</th>
<th>Name of Applicant</th>
<th>Purpose of Appropriation</th>
<th>Application Serial Number</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan 1, 1936</td>
<td>John Doe</td>
<td>Irrigation</td>
<td>12345</td>
<td>Approved</td>
</tr>
<tr>
<td>Jan 1, 1936</td>
<td>Jane Smith</td>
<td>Domestic Water Supply</td>
<td>67890</td>
<td>Denied</td>
</tr>
</tbody>
</table>

#### Domains

- **January 1, 1936**:  
  - John Doe: irrigating on Domain A.
- **February 1, 1936**:  
  - Jane Smith: using water for domestic purposes on Domain B.

### Report of State Engineer

#### Status of Applications Filed Prior to July 1, 1936

Status of applications filed prior to July 1, 1936, upon which action has been taken during the present biennium.

Following is a condensed statement giving the salient data in connection with applications filed prior to July 1, 1936, upon which action has been taken during the years of the present biennium, in the order of:

1. Application Serial Number.
2. Date of Filing.
3. Name of Applicant.
5. Purpose of Appropriation.
6. Action on Application.
7. Status of Permits as of June 30, 1938.

#### Example of Application Details

- **Application Serial Number**: 12345
- **Date of Filing**: January 1, 1936
- **Name of Applicant**: John Doe
- **Source of Water Supply**: Irrigation
- **Purpose of Appropriation**: Irrigation
- **Action on Application**: Approved
- **Status of Permits as of June 30, 1938**: In Force
# Report of State Engineer

HUMBOLDT RIVER DISTRIBUTION, STATEMENT OF EXPENSES FROM JULY 1, 1956, TO JUNE 30, 1957

<table>
<thead>
<tr>
<th>Month and Year</th>
<th>Total</th>
<th>Salaries</th>
<th>Traveling</th>
<th>Miscellaneous</th>
</tr>
</thead>
<tbody>
<tr>
<td>July 1956</td>
<td>$2,173.57</td>
<td>$162.78</td>
<td>$159.59</td>
<td>$1,360.00</td>
</tr>
<tr>
<td>August</td>
<td>$2,247.00</td>
<td>$162.31</td>
<td>$169.98</td>
<td>$1,414.71</td>
</tr>
<tr>
<td>September</td>
<td>$2,514.00</td>
<td>$165.00</td>
<td>$164.00</td>
<td>$1,685.00</td>
</tr>
<tr>
<td>October</td>
<td>$2,250.74</td>
<td>$164.24</td>
<td>$166.10</td>
<td>$1,816.16</td>
</tr>
<tr>
<td>November</td>
<td>$2,288.35</td>
<td>$163.00</td>
<td>$165.00</td>
<td>$1,955.35</td>
</tr>
<tr>
<td>December</td>
<td>$2,172.63</td>
<td>$162.00</td>
<td>$163.00</td>
<td>$1,745.63</td>
</tr>
<tr>
<td>Totals</td>
<td>$26,523.06</td>
<td>$2,143.44</td>
<td>$2,143.44</td>
<td>$19,189.75</td>
</tr>
</tbody>
</table>

LITTLE HUMBOLDT RIVER DISTRIBUTION, STATEMENT OF EXPENSES FROM JULY 1, 1956, TO JUNE 30, 1956

<table>
<thead>
<tr>
<th>Month and Year</th>
<th>Total</th>
<th>Salaries</th>
<th>Traveling</th>
<th>Miscellaneous</th>
</tr>
</thead>
<tbody>
<tr>
<td>July 1956</td>
<td>$3,726.51</td>
<td>$240.00</td>
<td>$240.00</td>
<td>$2,746.51</td>
</tr>
<tr>
<td>August</td>
<td>$3,726.51</td>
<td>$240.00</td>
<td>$240.00</td>
<td>$2,746.51</td>
</tr>
<tr>
<td>September</td>
<td>$3,962.51</td>
<td>$240.00</td>
<td>$240.00</td>
<td>$3,682.51</td>
</tr>
<tr>
<td>October</td>
<td>$3,884.51</td>
<td>$240.00</td>
<td>$240.00</td>
<td>$3,804.51</td>
</tr>
<tr>
<td>November</td>
<td>$3,726.51</td>
<td>$240.00</td>
<td>$240.00</td>
<td>$3,726.51</td>
</tr>
<tr>
<td>December</td>
<td>$3,726.51</td>
<td>$240.00</td>
<td>$240.00</td>
<td>$3,726.51</td>
</tr>
<tr>
<td>Totals</td>
<td>$37,265.15</td>
<td>$2,940.00</td>
<td>$2,940.00</td>
<td>$36,385.15</td>
</tr>
</tbody>
</table>

### Notes
- **8370.**- 8-23-56. Nevada Pahquant Mining Co.; Gold Canyon; Mining and selling; No action.
- **1918.**- 8-31-56. Southern Pacific Railway; Improvement; No action.
- **2029.**- 8-31-56. Nevada Consolidated Mining Co.; Gold Canyon; Mining and selling; No action.
- **2030.**- 8-31-56. Nevada Consolidated Mining Co.; Gold Canyon; Mining and selling; No action.
- **2031.**- 8-31-56. Nevada Consolidated Mining Co.; Gold Canyon; Mining and selling; No action.
- **2032.**- 8-31-56. Nevada Consolidated Mining Co.; Gold Canyon; Mining and selling; No action.
- **2033.**- 8-31-56. Nevada Consolidated Mining Co.; Gold Canyon; Mining and selling; No action.
- **2034.**- 8-31-56. Nevada Consolidated Mining Co.; Gold Canyon; Mining and selling; No action.
- **2035.**- 8-31-56. Nevada Consolidated Mining Co.; Gold Canyon; Mining and selling; No action.
- **2036.**- 8-31-56. Nevada Consolidated Mining Co.; Gold Canyon; Mining and selling; No action.
- **2037.**- 8-31-56. Nevada Consolidated Mining Co.; Gold Canyon; Mining and selling; No action.
- **2038.**- 8-31-56. Nevada Consolidated Mining Co.; Gold Canyon; Mining and selling; No action.
- **2039.**- 8-31-56. Nevada Consolidated Mining Co.; Gold Canyon; Mining and selling; No action.
- **2040.**- 8-31-56. Nevada Consolidated Mining Co.; Gold Canyon; Mining and selling; No action.
- **2041.**- 8-31-56. Nevada Consolidated Mining Co.; Gold Canyon; Mining and selling; No action.
- **2042.**- 8-31-56. Nevada Consolidated Mining Co.; Gold Canyon; Mining and selling; No action.
- **2043.**- 8-31-56. Nevada Consolidated Mining Co.; Gold Canyon; Mining and selling; No action.
- **2044.**- 8-31-56. Nevada Consolidated Mining Co.; Gold Canyon; Mining and selling; No action.
- **2045.**- 8-31-56. Nevada Consolidated Mining Co.; Gold Canyon; Mining and selling; No action.
- **2046.**- 8-31-56. Nevada Consolidated Mining Co.; Gold Canyon; Mining and selling; No action.
- **2047.**- 8-31-56. Nevada Consolidated Mining Co.; Gold Canyon; Mining and selling; No action.
- **2048.**- 8-31-56. Nevada Consolidated Mining Co.; Gold Canyon; Mining and selling; No action.
- **2049.**- 8-31-56. Nevada Consolidated Mining Co.; Gold Canyon; Mining and selling; No action.
- **2050.**- 8-31-56. Nevada Consolidated Mining Co.; Gold Canyon; Mining and selling; No action.
- **2051.**- 8-31-56. Nevada Consolidated Mining Co.; Gold Canyon; Mining and selling; No action.
- **2052.**- 8-31-56. Nevada Consolidated Mining Co.; Gold Canyon; Mining and selling; No action.
- **2053.**- 8-31-56. Nevada Consolidated Mining Co.; Gold Canyon; Mining and selling; No action.
- **2054.**- 8-31-56. Nevada Consolidated Mining Co.; Gold Canyon; Mining and selling; No action.
### Currant and Duckwater Creeks, Statement of Expenditures for July from July 1, 1936, to June 30, 1938

<table>
<thead>
<tr>
<th>Month and year</th>
<th>Fiscal Year 1936</th>
<th>1936-37</th>
<th>1937-38</th>
<th>1938-39</th>
<th>Total Expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td>July</td>
<td>$103.54</td>
<td>$112.81</td>
<td>$112.81</td>
<td>$112.81</td>
<td>$447.14</td>
</tr>
<tr>
<td>August</td>
<td>$285.73</td>
<td>$285.73</td>
<td>$285.73</td>
<td>$285.73</td>
<td>$1,136.99</td>
</tr>
<tr>
<td>September</td>
<td>$392.72</td>
<td>$285.73</td>
<td>$285.73</td>
<td>$285.73</td>
<td>$1,264.88</td>
</tr>
<tr>
<td>October</td>
<td>$358.25</td>
<td>$358.25</td>
<td>$358.25</td>
<td>$358.25</td>
<td>$1,413.95</td>
</tr>
<tr>
<td>November</td>
<td>$1,087.09</td>
<td>$1,087.09</td>
<td>$1,087.09</td>
<td>$1,087.09</td>
<td>$4,347.47</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td>$3,710.65</td>
<td>$3,710.65</td>
<td>$3,710.65</td>
<td>$3,710.65</td>
<td>$14,842.64</td>
</tr>
</tbody>
</table>

### Fair Harbor Lake Distribution, Statement of Expenditures from July 1, 1938, to June 30, 1938

<table>
<thead>
<tr>
<th>Month and year</th>
<th>Fiscal Year 1938</th>
<th>1938-39</th>
<th>1939-40</th>
<th>Total Expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td>July</td>
<td>$103.54</td>
<td>$112.81</td>
<td>$112.81</td>
<td>$447.14</td>
</tr>
<tr>
<td>August</td>
<td>$285.73</td>
<td>$285.73</td>
<td>$285.73</td>
<td>$1,136.99</td>
</tr>
<tr>
<td>September</td>
<td>$392.72</td>
<td>$285.73</td>
<td>$285.73</td>
<td>$1,264.88</td>
</tr>
<tr>
<td>October</td>
<td>$358.25</td>
<td>$358.25</td>
<td>$358.25</td>
<td>$1,413.95</td>
</tr>
<tr>
<td>November</td>
<td>$1,087.09</td>
<td>$1,087.09</td>
<td>$1,087.09</td>
<td>$4,347.47</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td>$3,710.65</td>
<td>$3,710.65</td>
<td>$3,710.65</td>
<td>$14,842.64</td>
</tr>
</tbody>
</table>

### Muddy River Distribution, Statement of Expenditures from July 1, 1938, to June 30, 1938

<table>
<thead>
<tr>
<th>Month and year</th>
<th>Fiscal Year 1938</th>
<th>1938-39</th>
<th>1939-40</th>
<th>Total Expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td>July</td>
<td>$103.54</td>
<td>$112.81</td>
<td>$112.81</td>
<td>$447.14</td>
</tr>
<tr>
<td>August</td>
<td>$285.73</td>
<td>$285.73</td>
<td>$285.73</td>
<td>$1,136.99</td>
</tr>
<tr>
<td>September</td>
<td>$392.72</td>
<td>$285.73</td>
<td>$285.73</td>
<td>$1,264.88</td>
</tr>
<tr>
<td>October</td>
<td>$358.25</td>
<td>$358.25</td>
<td>$358.25</td>
<td>$1,413.95</td>
</tr>
<tr>
<td>November</td>
<td>$1,087.09</td>
<td>$1,087.09</td>
<td>$1,087.09</td>
<td>$4,347.47</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td>$3,710.65</td>
<td>$3,710.65</td>
<td>$3,710.65</td>
<td>$14,842.64</td>
</tr>
<tr>
<td>Month and year</td>
<td>Amount in Fund</td>
<td>Total</td>
<td>Transference</td>
<td>Balance</td>
</tr>
<tr>
<td>----------------</td>
<td>----------------</td>
<td>-------</td>
<td>--------------</td>
<td>---------</td>
</tr>
<tr>
<td>July 1898</td>
<td>$4,000</td>
<td></td>
<td></td>
<td>$4,000</td>
</tr>
<tr>
<td>April 1898</td>
<td>$7,250</td>
<td></td>
<td></td>
<td>$7,250</td>
</tr>
<tr>
<td>Total</td>
<td>$11,250</td>
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<td></td>
<td>$11,250</td>
</tr>
</tbody>
</table>

**ADJUDICATION EMERGENCY FUND, STATEMENT OF EXPENDITURES FROM JULY 1, 1898, TO JUNE 30, 1899, INCLUSIVE**

**STATEMENT OF EXPENDITURES**

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
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</thead>
<tbody>
<tr>
<td>July 1898</td>
<td>$4,000</td>
</tr>
<tr>
<td>April 1898</td>
<td>$7,250</td>
</tr>
<tr>
<td>Total</td>
<td>$11,250</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Month and year</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>July 1898</td>
<td>$4,000</td>
</tr>
<tr>
<td>April 1898</td>
<td>$7,250</td>
</tr>
<tr>
<td>Total</td>
<td>$11,250</td>
</tr>
</tbody>
</table>

**RECORD OF STATE ENGINEER**

18910. 5-10-97. C. W. Gaulnich, Indian Springs; Mining, milling and domestic; Approved August 19, 1897.
18911. 1-20-97. Thomas A. Milner, Creekside; Underground water; Municipal; Approved October 14, 1897; G. B.
18912. 5-24-97. Fred Vollmer; Cave Springs; Milling, milling and domestic; Approved.
18913. 6-29-97. David B. Penick; South Willow Creek Spring; Mining, milling and domestic; Withdrawn April 21, 1897.
18914. 2-27-97. T. R. Tandy; Underground water; Mining, milling and domestic; Approved November 12, 1896; G. B.
18915. 2-27-97. T. R. Tandy; Underground water; Mining, milling and domestic; Approved January 12, 1896; G. B.
18916. 5-5-97. Joseph Christiansen, Jones Creek; Irrigation; Approved September 8, 1896; G. B.
18917. 4-12-97. Land Irrigation Company; Preston Big Springs, Coal and Nichols Sand Spring; Irrigation; No action.
18918. 6-13-97. Land Irrigation Company; Land Spring; Irrigation; No action.
18919. 6-13-97. Preston Irrigation Company; Atkinson Spring; Appro" by 99, 1897.
18920. 6-13-97. Preston Irrigation Company; Preston Big Spring; Appro" by 99, 1897.
18921. 6-13-97. The Town of Catlin; Medicine; Art Spring and underground water; Approved. 27, 1897; Approved.
18922. 4-4-97. The Munising Mining Incorporated; Trout Creek and Tributaries; Mining, milling and domestic; Approved December 22, 1896; G. B.
18923. 6-1-97. A. A. F. Larson; Sheep Springs; Mining, milling and domestic; Approved. 27, 1897; Approved.
18924. 5-3-97. T. E. Biles; Cave Creek; Milling and mining; Approved November 1, 1896.
18925. 5-14-97. Joseph Christiansen, White River; Irrigation; Approved October 7, 1896; G. B.
18926. 5-14-97. A. G. Hussey; Willow Creek; Mining; Approved August 18, 1897; G. B.
18927. 5-14-97. Preston Irrigation Company; Willow Creek; Irrigation; No action.
18928. 5-27-97. Irwin Bower; Two Springs; Stockwatering; Approved August 21, 1897; G. B.
18929. 6-14-97. Irwin Bower; Iron Bank Spring; Stockwatering; Approved September 25, 1897; G. B.
18930. 5-15-97. Elbridge Elbridge, South Creek; Mining, milling and domestic; Approved.
18931. 5-20-97. E. J. Johnson and L. F. Prewett; Underground water; Mining; Approved. 27, 1897; Approved.
18932. 5-27-97. E. J. Broekhoff; Union Springs, Churchill and mining; Approved January 12, 1897; G. B.
18933. 6-1-97. The Oregon Operating Company; Underground water; Mining; Domestic and mining; Approved.
18934. 6-9-97. D. B. Penick; Creek and Springs in Stetwery; Approved.
18935. 6-9-97. H. Ogler and O. G. Gartley; Sheep Rock Springs and Creek; Irrigation and domestic; Approved.
18936. 5-11-97. La Veta Land and Water Company; La Veta Creek (remaining); Approved December 28, 1897; G. B.
18937. 6-11-97. La Veta Land and Water Company; La Veta Valley Artesian; Approved December 28, 1897; G. B.
18938. 6-11-97. W. Bluhm; Dona Creek, Massacre, Middle and West Lakes and tributaries; Irrigation and domestic; Approved October 7, 1897; G. B.
18939. 6-15-97. M. F. Bickel; Sheep Springs; Irrigation and domestic; Approved June 14, 1897; G. B.
18940. 6-25-97. J. R. Cooper; Center Creek; Milling and mining; Approved.
18941. 6-27-97. Thomas Demaschew, Cherry Creek and Tributaries; Irrigation and domestic; No action.
18942. 6-27-97. C. M. Derringer; Underground water; Mining and domestic; Approved December 29, 1897; G. B.
18943. 7-2-97. A. I. Hanks and Carroll Company; A Corporation; Approved.
18944. 7-2-97. G. J. Hays; Underground water; Mining and domestic; Approved December 29, 1897; G. B.
18945. 7-3-97. Land and Water Company; Approved.
18946. 7-4-97. Marcus W. Wally and James M. Martin; Sheep Spring, Fish Lake Valley; Mining and milling; Approved June 11, 1898; G. B.

*Protested application. G. B. Good standing.
CHAPTER XVI

Status of Applications Filed During the Period from July 1, 1938, to June 30, 1939

Following is a condensed statement giving the salient data in connection with applications filed during the period from July 1, 1938, to June 30, 1939, in the order of:

1. Application Serial Number.
2. Date of Filing.
3. Name of Applicant.
5. Purpose of Appropriation.
6. Action on Application.
7. Status of Permits as of June 30, 1939.

1938 - 7 - 3-34 - Lake Reflection, El. Fish, Lake Springs and Creek and Tributaries; Approved.
1938 - 7 - 10-34 - Payette River, El. Fish, Lake Springs and Creek and Tributaries; Irrigation and domestic; Approved.
1938 - 7 - 13-34 - Upper Sacramento, El. Fish, Lake Springs and Creek and Tributaries; Mining and milling; Approved.
1938 - 7 - 1-34 - Greenlee, El. Fish, Lake Springs and Creek and Tributaries; Mining and milling; Approved.
1938 - 7 - 1-34 - Henry, El. Fish, Lake Springs and Creek and Tributaries; Mining and milling; Approved.
1938 - 7 - 1-34 - A. G. Wills, El. Fish, Lake Springs and Creek and Tributaries; Mining and milling; Approved.
1938 - 7 - 1-34 - B. J. B. Baffetto, El. Fish, Lake Springs and Creek and Tributaries; Mining and milling; Approved.
1938 - 7 - 1-34 - A. G. Wills, El. Fish, Lake Springs and Creek and Tributaries; Mining and milling; Approved.
1938 - 7 - 1-34 - T. F. B., El. Fish, Lake Springs and Creek and Tributaries; Mining and milling; Approved.
1938 - 7 - 1-34 - J. H. J., El. Fish, Lake Springs and Creek and Tributaries; Mining and milling; Approved.
1938 - 7 - 1-34 - W. J. J., El. Fish, Lake Springs and Creek and Tributaries; Mining and milling; Approved.
1938 - 7 - 1-34 - W. J. J., El. Fish, Lake Springs and Creek and Tributaries; Mining and milling; Approved.
1938 - 7 - 1-34 - T. F. B., El. Fish, Lake Springs and Creek and Tributaries; Mining and milling; Approved.
1938 - 7 - 1-34 - J. H. J., El. Fish, Lake Springs and Creek and Tributaries; Mining and milling; Approved.
1938 - 7 - 1-34 - W. J. J., El. Fish, Lake Springs and Creek and Tributaries; Mining and milling; Approved.
1938 - 7 - 1-34 - T. F. B., El. Fish, Lake Springs and Creek and Tributaries; Mining and milling; Approved.
1938 - 7 - 1-34 - J. H. J., El. Fish, Lake Springs and Creek and Tributaries; Mining and milling; Approved.
1938 - 7 - 1-34 - W. J. J., El. Fish, Lake Springs and Creek and Tributaries; Mining and milling; Approved.
1938 - 7 - 1-34 - T. F. B., El. Fish, Lake Springs and Creek and Tributaries; Mining and milling; Approved.
1938 - 7 - 1-34 - J. H. J., El. Fish, Lake Springs and Creek and Tributaries; Mining and milling; Approved.
1938 - 7 - 1-34 - W. J. J., El. Fish, Lake Springs and Creek and Tributaries; Mining and milling; Approved.
1938 - 7 - 1-34 - T. F. B., El. Fish, Lake Springs and Creek and Tributaries; Mining and milling; Approved.
1938 - 7 - 1-34 - J. H. J., El. Fish, Lake Springs and Creek and Tributaries; Mining and milling; Approved.
1938 - 7 - 1-34 - W. J. J., El. Fish, Lake Springs and Creek and Tributaries; Mining and milling; Approved.
1938 - 7 - 1-34 - T. F. B., El. Fish, Lake Springs and Creek and Tributaries; Mining and milling; Approved.
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<tr>
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<td>Tubes, water</td>
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<td>Table, irrigated lands in acres by years to 1905</td>
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<tr>
<td>Tahoe, Lake</td>
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<td>Taylor Grazing Act</td>
<td>112</td>
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<td>Three-Judge Court</td>
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<td>Topographic information</td>
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<td>Transferred water</td>
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<td>Truckee-Carson Irrigation District—CCC work</td>
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<td>Truckee Storage Project</td>
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**U**

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<tr>
<th>Upstream storage, Paradise Valley</th>
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<tr>
<td>United States Geological Survey</td>
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<tr>
<td>United States of America v. H. L. I. L. &amp; P. Company</td>
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**V**

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<td>Walker Lake</td>
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<tr>
<td>Walker Lake Basin</td>
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<td>Walker River Irrigation District</td>
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REPORT OF STATE ENGINEER

Lausselle Creek Near Halleck

<table>
<thead>
<tr>
<th>Season</th>
<th>March</th>
<th>April</th>
<th>May</th>
<th>June</th>
<th>July</th>
<th>August</th>
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<td>1933</td>
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<td>1935-36</td>
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<td>14,400</td>
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<td>1939</td>
<td>496</td>
<td>392</td>
<td>260</td>
<td>262</td>
<td>548</td>
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<td>306</td>
<td>228</td>
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<tr>
<td>1946</td>
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<td>406</td>
<td>424</td>
<td>306</td>
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<td>772</td>
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<td>690</td>
<td>2,566</td>
<td>22,966</td>
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<td>1948</td>
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<td>6,240</td>
<td>11,400</td>
<td>842</td>
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Snow Survey Data, Little Humboldt Basin. Average Water Content in Inches

<table>
<thead>
<tr>
<th>Location</th>
<th>Sierra</th>
<th>Martys Co.</th>
<th>Martys Co.</th>
<th>Granite</th>
<th>Rubyville</th>
<th>Rubyville</th>
<th>Average</th>
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<td>Creek</td>
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<td>County</td>
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<td>County</td>
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<td></td>
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<td>1,000</td>
</tr>
<tr>
<td>1946-47</td>
<td>7,490</td>
<td>3,340</td>
<td>1,490</td>
<td>244</td>
<td>489</td>
<td>1,070</td>
<td>1,486</td>
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<td>1946-47</td>
<td>7,490</td>
<td>3,340</td>
<td>1,490</td>
<td>244</td>
<td>489</td>
<td>1,070</td>
<td>1,486</td>
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<tr>
<td>1946-47</td>
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<td>3,340</td>
<td>1,490</td>
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<td>1,070</td>
<td>1,486</td>
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<td>1946-47</td>
<td>7,490</td>
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<td>1,070</td>
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<td>1946-47</td>
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<td>1,070</td>
<td>1,486</td>
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<tr>
<td>1946-47</td>
<td>7,490</td>
<td>3,340</td>
<td>1,490</td>
<td>244</td>
<td>489</td>
<td>1,070</td>
<td>1,486</td>
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</tbody>
</table>

Above figures represent the main annual survey taken around March 1.

Sources—Nevada Cooperative Snow Surveys.
## REPORT OF STATE ENGINEER

**Water in Acres Feet Delivered to all Ditches in Lovelock Valley**

<table>
<thead>
<tr>
<th>Year</th>
<th>Sierra</th>
<th>Napa</th>
<th>North Wash</th>
<th>Back Wash</th>
<th>Walker</th>
<th>Total</th>
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<tbody>
<tr>
<td>1921</td>
<td>1,780</td>
<td>376</td>
<td>1,847</td>
<td>722</td>
<td>1,577</td>
<td>7,002</td>
</tr>
<tr>
<td>1922</td>
<td>1,780</td>
<td>376</td>
<td>1,847</td>
<td>722</td>
<td>1,577</td>
<td>7,002</td>
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<tr>
<td>1924</td>
<td>1,780</td>
<td>376</td>
<td>1,847</td>
<td>722</td>
<td>1,577</td>
<td>7,002</td>
</tr>
<tr>
<td>1923</td>
<td>1,780</td>
<td>376</td>
<td>1,847</td>
<td>722</td>
<td>1,577</td>
<td>7,002</td>
</tr>
</tbody>
</table>

### Eye Patch Reservoir

On March 1, 1937, the elevation of the water was 4,104.34 feet, indicating a storage of 9,906 acre feet. Water was steadily accumulated in the reservoir until it reached its maximum yearly capacity on April 26 of 31,585 acre feet. The elevation of the water at this capacity was 4,115.37 feet. Thereafter, inflows were greater than the outflows and the accumulated storage was gradually increased. On September 15 there was a total of 3,543 acre feet of water remaining in the reservoir. Between September 15 and December 31, 1937, 1,700 acre feet were released and 1,545 acre feet of water stored; leaving 3,543 acre feet of water in storage on December 31, 1937.

### Star Creek, Near Deeth

<table>
<thead>
<tr>
<th>Season</th>
<th>March</th>
<th>April</th>
<th>May</th>
<th>June</th>
<th>July</th>
<th>Aug</th>
<th>Sept</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1918</td>
<td>1,220</td>
<td>2,092</td>
<td>3,265</td>
<td>5,071</td>
<td>7,390</td>
<td>9,828</td>
<td>10,040</td>
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</tr>
<tr>
<td>1919</td>
<td>1,220</td>
<td>2,092</td>
<td>3,265</td>
<td>5,071</td>
<td>7,390</td>
<td>9,828</td>
<td>10,040</td>
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</tr>
<tr>
<td>1920</td>
<td>1,220</td>
<td>2,092</td>
<td>3,265</td>
<td>5,071</td>
<td>7,390</td>
<td>9,828</td>
<td>10,040</td>
<td></td>
</tr>
<tr>
<td>1921</td>
<td>1,220</td>
<td>2,092</td>
<td>3,265</td>
<td>5,071</td>
<td>7,390</td>
<td>9,828</td>
<td>10,040</td>
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**Lantolite Creek at Power House**

<table>
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<tr>
<th>Year</th>
<th>March</th>
<th>April</th>
<th>May</th>
<th>June</th>
<th>July</th>
<th>Aug</th>
<th>Sept</th>
<th>Total</th>
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</thead>
<tbody>
<tr>
<td>1918</td>
<td>950</td>
<td>1,000</td>
<td>1,200</td>
<td>1,400</td>
<td>1,600</td>
<td>1,800</td>
<td>2,000</td>
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<tr>
<td>1919</td>
<td>950</td>
<td>1,000</td>
<td>1,200</td>
<td>1,400</td>
<td>1,600</td>
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<td>1,200</td>
<td>1,400</td>
<td>1,600</td>
<td>1,800</td>
<td>2,000</td>
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<tr>
<td>1921</td>
<td>950</td>
<td>1,000</td>
<td>1,200</td>
<td>1,400</td>
<td>1,600</td>
<td>1,800</td>
<td>2,000</td>
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1. May 3 to September 24. 2. Missing, March 1 to 31, June 1 to July 3. 3. Missing, June 15 to September 24. 4. May 7 to September 25.
### Humboldt River at Palisade, Nevada

Gaging Station located in the SW 1/4 Section 36, Township 32 N., Range 53 E., M. D. B. & M. Drainage area, 5,000 square miles.

<table>
<thead>
<tr>
<th>Season</th>
<th>Runoff in acre feet</th>
<th>Runoff in inches</th>
<th>Runoff in million cubic feet</th>
<th>Runoff in thousand cubic feet</th>
<th>Runoff in million gallons</th>
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<tbody>
<tr>
<td>1937</td>
<td>...</td>
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<tr>
<td>1939</td>
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<tr>
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**Loveck Deliveries in Acme Feet**

<table>
<thead>
<tr>
<th>Season</th>
<th>March</th>
<th>April</th>
<th>May</th>
<th>June</th>
<th>July</th>
<th>Aug</th>
<th>Sept</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1932</td>
<td>5,914</td>
<td>21,275</td>
<td>34,168</td>
<td>35,266</td>
<td>33,326</td>
<td>15,548</td>
<td>11,414</td>
<td>85,008</td>
</tr>
<tr>
<td>1933</td>
<td>9,087</td>
<td>7,075</td>
<td>5,748</td>
<td>5,213</td>
<td>5,393</td>
<td>3,543</td>
<td>2,808</td>
<td>29,392</td>
</tr>
<tr>
<td>1934</td>
<td>7,087</td>
<td>2,822</td>
<td>323</td>
<td>66</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2,989</td>
</tr>
<tr>
<td>1935</td>
<td>2,740</td>
<td>1,370</td>
<td>12,190</td>
<td>2,510</td>
<td>2,462</td>
<td>20,020</td>
<td>21,080</td>
<td>4,382</td>
</tr>
<tr>
<td>1936</td>
<td>8,613</td>
<td>22,388</td>
<td>20,443</td>
<td>11,265</td>
<td>10,469</td>
<td>77,475</td>
<td>75,475</td>
<td>6,813</td>
</tr>
<tr>
<td>1937</td>
<td>96,512</td>
<td>25,225</td>
<td>10,082</td>
<td>10,915</td>
<td>10,563</td>
<td>2,469</td>
<td>73,880</td>
<td>11,876</td>
</tr>
</tbody>
</table>

*Includes deliveries from Pott-Taylor Reservoir.

**Secret Goose**

Bridge above 71 Ranch about Section 25, Township 35 N., Range 59 E.

<table>
<thead>
<tr>
<th>Season</th>
<th>March</th>
<th>April</th>
<th>May</th>
<th>June</th>
<th>July</th>
<th>Aug</th>
<th>Sep</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1932</td>
<td>438</td>
<td>5,199</td>
<td>710</td>
<td>62</td>
<td>3,368</td>
<td>862</td>
<td>3,672</td>
<td>16,791</td>
</tr>
<tr>
<td>1933</td>
<td>808</td>
<td>3,492</td>
<td>1,712</td>
<td>146</td>
<td>30</td>
<td>5,185</td>
<td>5,185</td>
<td>3,492</td>
</tr>
<tr>
<td>1934</td>
<td>334</td>
<td>1,548</td>
<td>465</td>
<td>32</td>
<td>62</td>
<td>522</td>
<td>522</td>
<td>5,574</td>
</tr>
<tr>
<td>1935</td>
<td>116</td>
<td>1,875</td>
<td>354</td>
<td>1,778</td>
<td>1,259</td>
<td>256</td>
<td>256</td>
<td>6,727</td>
</tr>
<tr>
<td>1936</td>
<td>2,040</td>
<td>3,300</td>
<td>750</td>
<td>22</td>
<td>7,808</td>
<td>7,808</td>
<td>7,808</td>
<td>2,040</td>
</tr>
</tbody>
</table>

| 1937   | 2,040 | 3,300| 750 | 22   | 7,808| 7,808| 7,808| 2,040|

January 1 to December 31 inclusive; thereafter October 1 to September 30.
STATE OF NEVADA

BIENNIAL REPORT

OF THE

STATE ENGINEER

For the Period
July 1, 1936, to June 30, 1938

ALFRED MERRITT SMITH
State Engineer of Nevada