ANNUAL REPORT

and

FINANCIAL STATEMENT

of

CHIEF ENGINEER

and

GENERAL SUPERINTENDENT

IMPERIAL IRRIGATION DISTRICT
CALIFORNIA
(and Subsidiary Company in Mexico)

1927

ANNUAL REPORT
and
FINANCIAL STATEMENT
of
CHIEF ENGINEER
and
GENERAL SUPERINTENDENT

1927

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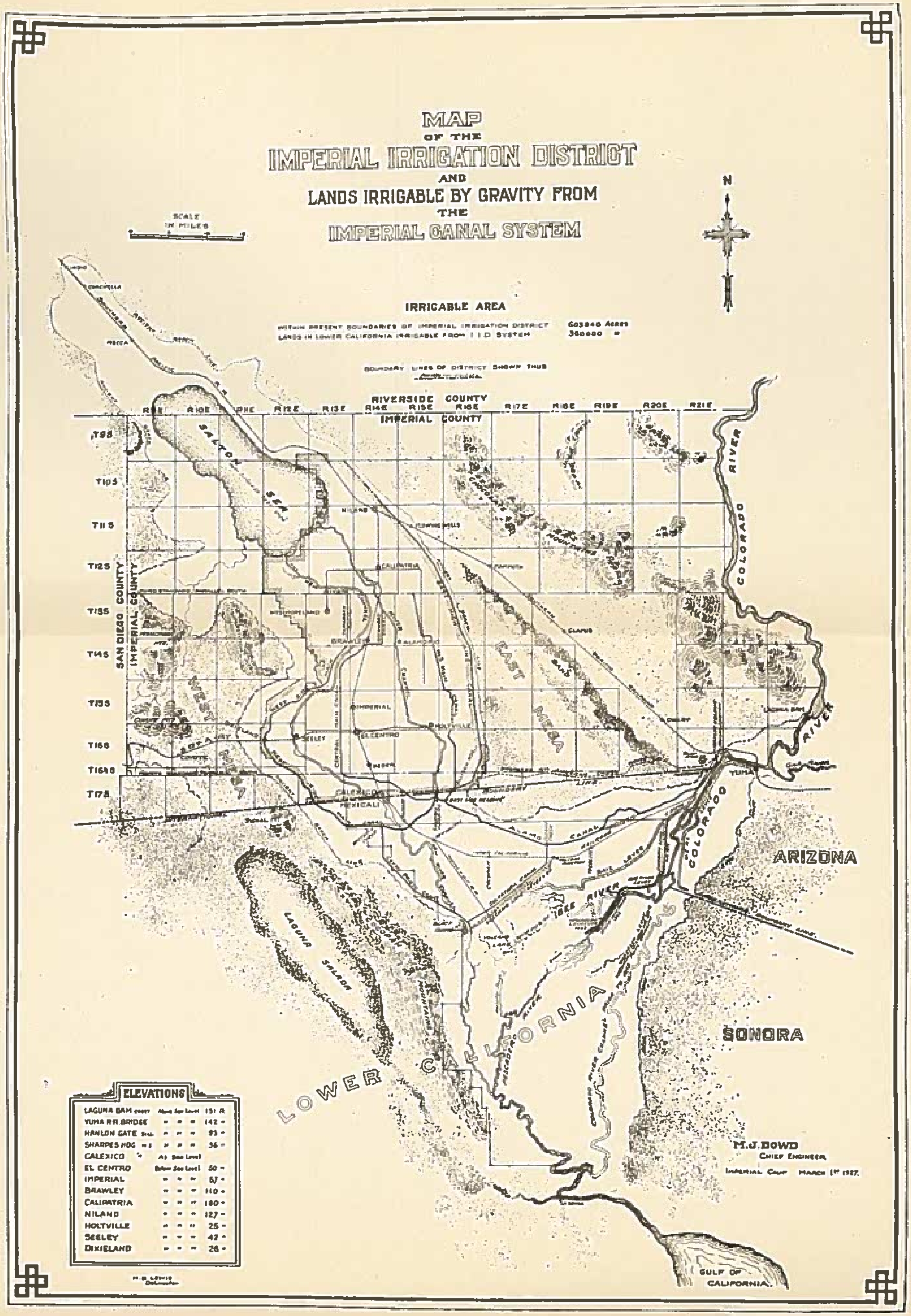

MAP
OF THE
IMPERIAL IRRIGATION DISTRICT
AND
LANDS IRRIGABLE BY GRAVITY FROM
THE
IMPERIAL CANAL SYSTEM
SCALE
IN MILES
N
IRRIGABLE AREA
WITHIN PRESENT BOUNDARIES OF IMPERIAL IRRIGATION DISTRICT 603840 Acres
LANDS IN LOWER CALIFORNIA IRRIGABLE FROM I.I.D. SYSTEM 360000 "
BOUNDARY LINES OF DISTRICT SHOWN THUS
RIVERSIDE COUNTY
IMPERIAL COUNTY
SAN DIEGO COUNTY
IMPERIAL COUNTY
R16E
R17E
R18E
R19E
R20E
R21E
T9S
T10S
T11S
T12S
T13S
T14S
T15S
T16S
T17S
SALTON SEA
COLORADO RIVER
NILAND
CALIPATRIA
BRAWLEY
IMPERIAL
EL CENTRO
HOLTVILLE
SEELEY
CALEXICO
MEXICALI
YUMA
EAST MESA
WEST MESA
ALAMO CANAL
ARIZONA
SONORA
LOWER CALIFORNIA
LAGUNA SALADA
GULF OF CALIFORNIA.
ELEVATIONS
LAGUNA DAM Above Sea Level 151 ft.
YUMA R.R. BRIDGE " " " 142 "
HANLON GATE " " " 93 "
SHARPES HDG " " " 36 "
CALEXICO At Sea Level
EL CENTRO Below Sea Level 50 "
IMPERIAL " " " 67 "
BRAWLEY " " " 110 "
CALIPATRIA " " " 180 "
NILAND " " " 127 "
HOLTVILLE " " " 25 "
SEELEY " " " 42 "
DIXIELAND " " " 28 "
M.J. DOWD
CHIEF ENGINEER
IMPERIAL CALIF MARCH 1st 1927.

IMPERIAL IRRIGATION DISTRICT

ORGANIZED JULY 25, 1911

COMPRISING 605,000 ACRES

OFFICE OF CHIEF ENGINEER AND
GENERAL SUPERINTENDENT

IMPERIAL, CALIFORNIA
May 1st, 1928

To the—

Board of Directors,
Imperial Irrigation District,
El Centro, California.

GENTLEMEN:—

There is herewith submitted the annual report for the calendar year 1927, together with a financial statement and other tabulations of interest in connection with the operations of the District.

Yours very truly,

M. J. DOWD,
Chief Engineer and General Superintendent.

Annual Report and Financial Statement

for Calendar Year 1927

FOREWORD

Imperial Valley is the name given to the southern portion of the Colorado Desert or Salton Sink—one time a portion of the Gulf of California, later to become a vast, rich empire built up by silt transported by the Colorado River from Colorado, Wyoming, Utah and other states comprising the 240,000 square miles of the Colorado River Basin.

In his unpublished report on the "Problems of the Colorado River Basin," Mr. F. E. Weymouth, former Chief Engineer of the Bureau of Reclamation, gives the following graphic description of Imperial Valley.

> "In the delta region below Yuma, being less restricted by natural lateral barriers * * the river has built a conical fan shaped ridge cutting off what formerly was the upper end of the Gulf of California. Along the crest of this flat delta ridge runs the river; one slope toward the south terminates at sea level at the present head of the Gulf of California, the other extending northerly on a much steeper slope reaches a depression 250 feet below sea level at the rim of the Salton Sea. The portion of the Gulf thus cut off constitutes the Salton Basin, the irrigated area of which, lying largely below sea level along the northward delta slope, is known as Imperial Valley.
>
> "In ages past, the river has swung back and forth across this delta, discharging now into the Gulf and now into the Salton Sea. Indian tradition would indicate that this has occurred ever since the basin has been inhabited. Preceding the coming of the white man, however, the river had flowed uninterruptedly into the Gulf for such a period that Salton Sea had become reduced through evaporation to a mere remnant, and the fertile acres of its former bed invited the construction of a canal from the river for their irrigation."

Seeing the Imperial Valley of today under its high state of development, with its 65,000 inhabitants, a property value of some one hundred and fifty million dollars created entirely through irrigation development by water brought from the Colorado River, producing annually on the half million acres in cultivation, some thirty million dollars of crop values, protected by a levee system 75 miles in length and served by 2,500 miles of canals and laterals, it is difficult to realize that but a quarter of a century ago this valley was a barren desolate waste, and devoid of life.

The development of Imperial Valley was made possible by those hardy pioneers who overcame many hardships, conquered seemingly unsurmountable difficulties and who thereby have written one of the most interesting chapters in the history of our country's development.

Notwithstanding the extent of the present development, the possibilities of Imperial Valley are far from being realized. It has only been during the past few years that the growing of garden crops such as lettuce, cantaloupes, watermelons, tomatoes and peppers has been started on a large scale and the same applies to permanent crops such as citrus, grapes, asparagus and berries, which are unusually well adapted to the soil and climate of the valley. Furthermore, at present, the area of the average farm is about 100 acres as compared to that on other western reclamation projects of from 35 to 45 acres and when these facts are considered, it is not difficult to realize that the next twenty-five years will result in as great a development as have the past twenty-five.

ORGANIZATION AND GENERAL FEATURES

The Imperial Irrigation District is a public or quasi-municipal organization, organized July 25th, 1911, under the State Law then known as the Wright Act, now a part of the California Irrigation District Act. It comprises an area of some 605,000 acres, of which 515,000 acres are irrigable.

All duly registered voters living within the boundaries of the District, either on farms or in towns or cities, have the right to vote at District elections, the elective officials being five Directors, a Treasurer and an Assessor and Collector.

The Directors sitting as a board appoint a Secretary, Attorney, Chief Engineer, Consulting Engineers and such other assistants as deemed advisable. The Board has power to transact all business; to equalize assessment valuations made by the Assessor and Collector; to establish levies to meet bond interest and redemption; to establish levies, tolls and charges to meet operation, maintenance and other expenditures; and to perform all necessary duties in accordance with the California Irrigation District Law.

The following tabulation shows tenure of office of the various Directors since date of organization:

Name	Division	From		To	
Fritz Kloke	1	July	1911	March	1913
W. O. Hamilton	2	July	1911	October	1916*
H. L. Peck	3	July	1911	March	1913
Earl C. Pound	4	July	1911	March	1915
Porter N. Ferguson	5	July	1911	October	1916*
C. W. Brockman	1	March	1913	October	1916*
Allison Peck	3	March	1913	December	1913*
J. A. McBride	3	January	1914**	October	1916*
John D. Bennett	4	March	1915	October	1916*
J. R. Edmunds	1	October	1916**	March	1921
Leroy Holt	2	October	1916**	March	1919
R. D. McPherrin	3	October	1916**	October	1923*
J. S. Nickerson	4	October	1916**	March	1923
C. D. Manning	5	October	1916**	May	1920*
J. Stanley Brown	2	March	1919	May	1921*
Mark Rose	5	May	1920**		
C. W. Brockman	1	March	1921		
Roy E. Breedlove	2	June	1921**	March	1923
Ira Aten	2	March	1923		
Earl C. Pound	4	March	1923		
Mack Trentham	3	October	1923**	March	1925
Wm. O. Blair	3	March	1925		

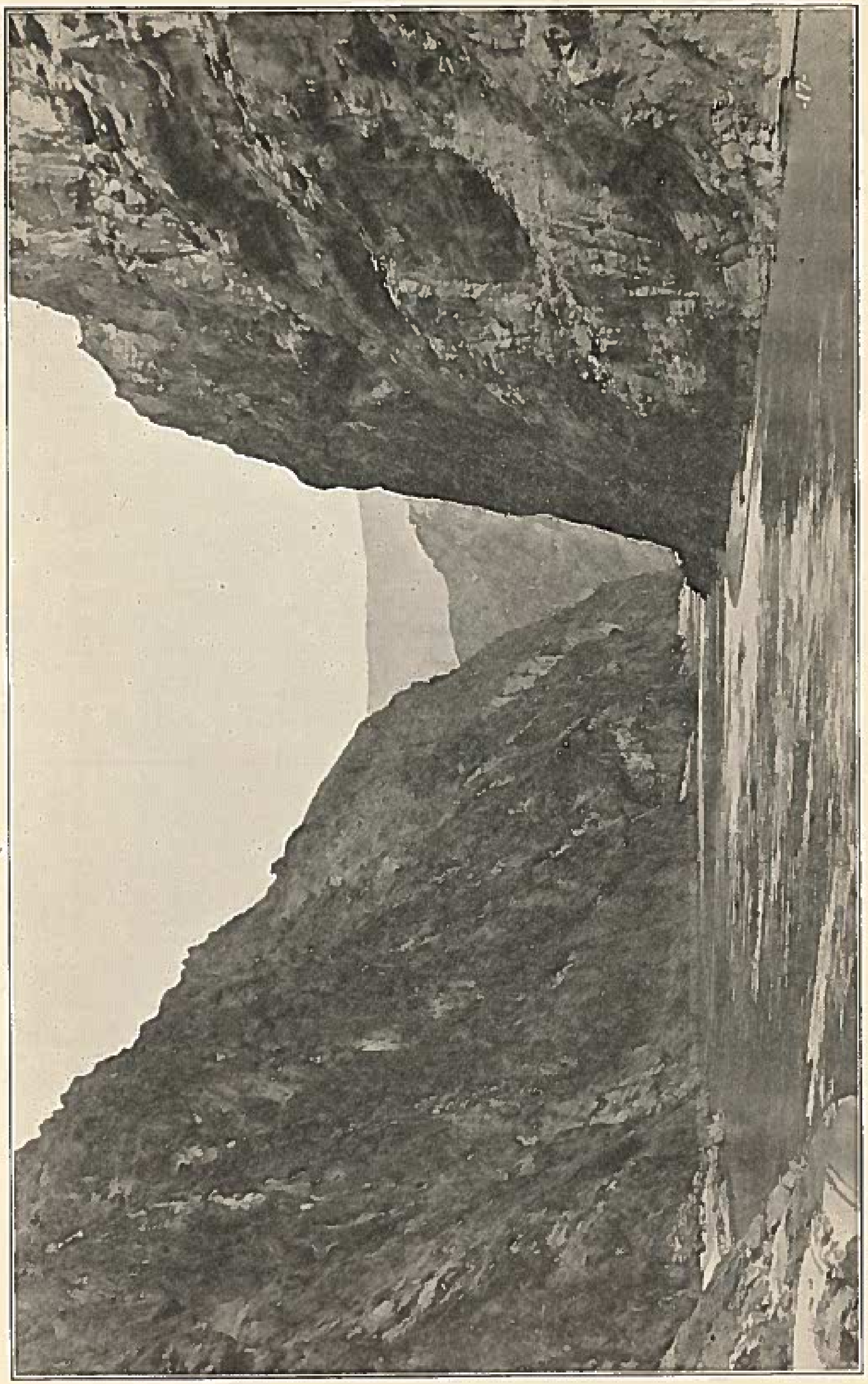
* Resigned. ** Appointed

Directors are elected by groups—those for Divisions One, Three and Five composing one group and those for Divisions Two and Four the other—one group being elected each odd numbered year.

The operations of the District in Mexico are carried on through the agency of the Compania de Terrenos y Aguas de la Baja California, S. A.

For the purpose of acquiring the properties of the California Development Company, for the absorption of the Mutual Water Companies, for the construction of a system of main drains, and for the construction of additions and betterments to the existing system, four bond elections have been held and bond issues authorized as indicated below:

Date of Election	Amount of Issue	Interest Rate
October 29th, 1914	$3,500,000	5
May 26th, 1917	2,500,000	5
September 15th, 1919	2,500,000	5½
June 1st, 1922	7,500,000	6



BOULDER DAM SITE

Of the First Issue, $3,000,000 were for the purchase of the California Development Company properties, the remaining $500,000 being for the construction of protective works, while the major portion of the Second and Third Issues was expended for improvements to the system in Mexico, and of the Fourth Issue, $5,000,000 were for the purchase of the Mutual Water Companies and the remaining $2,500,000 for the construction of a drainage system.

Some of the principal duties of the District have been:

Construct and maintain 73.5 miles of protective levees in Mexico, 47.5 miles of which are provided with standard railway and heavily rock revetted on the water side.

Construct and maintain a channel in Mexico for the diversion of the Colorado River to a new course, known as the "Pescadero Cut."

Maintain diversions and headworks to assure an ample supply of water in the canals at all times.

Operate and maintain 137 miles of main canals in Mexico, delivering water to users in Mexico and to various points on the International Boundary.

Operate and maintain 1700 miles of canals and laterals in the United States and distribute water to some 6,000 users on less than 24 hours notice.

Maintain 600 miles of surface drain ditches for removing waste water from a considerable portion of the Valley.

Locate and construct drainage outlets for the entire District and to maintain 212 miles of such outlets constructed to date.

Control the Alamo and New River channels and maintain their outlets into the Salton Sea.

The District entered into a contract with the United States Government in 1918 whereby the present intake at Andrade will eventually be moved to and connected with the Laguna Dam, thus eliminating the necessity for the annual construction of a temporary diversion weir in the Colorado River. The contract calls for the payment by the District of $1,600,000 under the terms of the Reclamation Act, of which $544,000 has been paid to date.

Colorado River Development:

Development of the Colorado River through the construction of the Boulder Dam being of such vital importance to Imperial Valley, no effort was spared by our representatives during the year to bring about a settlement of the existing controversy between the states of the Colorado River Basin.

Following the appointment of a permanent California Colorado River Commission, numerous conferences were held with Arizona, Nevada and the other states. Two conferences of all basin states were held in Denver during the summer at which the Governors of the Upper Basin States acted as mediators in trying to work out an agreement between the three Lower Basin States. In December, the latter met in San Francisco in a final effort to reach an agreement, particularly on the power question, and although many of the issues were clarified, there was but little progress made. Following adjournment of the conference, the various delegates left for Washington, D. C., to appear as witnesses at the hearings on the Boulder Dam Bill under consideration by the Congressional Committees.

California has tried in every way to meet the demands of Arizona, but found it to be impossible, making it necessary to proceed with the legislation, predicated on a six state ratification of the Colorado River Compact.

OPERATIONS FOR THE YEAR

General Administration:

The operating headquarters, directing the general activities of the District's operations, are located in the town of Imperial and include such departments as Accounting, Engineering, Mechanical, Purchasing, etc. The general Machine Shops and Garage, General Water Office, and Office of Water Accounts are also included, making it possible through a centralization of the work to provide many facilities for the more efficient and economical operation of the District, than would otherwise be possible. Local operations are handled through Division Offices, each being in charge of a Superintendent who is responsible for the canal system and delivery of water in the territory assigned to that particular division.

On July 1st, the southern portion of the Imperial Divison was formed into a new division called the Calexico Division and an operating office opened in the town of Calexico. The change was made in order to reduce the size of the former division, which was much larger than any other.

The original contract with the Niland Water District, under date of December 20th, 1923, was cancelled and a new agreement entered into on December 6th, 1927, with but very few changes. By the terms of the contract, the Niland District will construct a distribution system which, when completed, will be sold to the Imperial Irrigation District at actual cost without interest, payments to be made by the latter to the former over a term of years. Also, by agreement with the Niland District, the Imperial District will prepare the plans and specifications for the distribution system, to which end, surveys were commenced in the fall. The Niland Water District comprises some 16,000 acres lying north of Niland, for which area water service has not been heretofore available.

In July, negotiations were started with the City of Calexico looking towards the latter taking over the maintenance of the old District headquarters in Calexico. The office building is one of the first buildings constructed in Imperial Valley and together with the improved grounds should be preserved. It was suggested that the City of Calexico convert the building into a Museum for the collection of historical data and exhibits relating to the development of Imperial Valley. This matter was still under consideration at the end of the year.

Colorado River Diversion:

There being sufficient flow in the river at all times throughout the year, no difficulties were encountered in diverting the demand; in fact a more favorable late summer discharge of the river has not been had for many years. The highest percentage of monthly diversion for the year was in January, when 53.4% of the river's flow was diverted at Hanlon Heading. The highest for 1926 was during September when practically 100 per cent. of the flow was diverted by means of a sand dam which had been constructed across the river.

Due to a flash flood from the Gila River and its high flow during February, amounting to 415,000 acre feet, together with the flow of the Colorado for the month of 1,070,000 acre feet, it was necessary to blast a large hole in the western end of the temporary diversion weir. With this exception, it was unnecessary to do any work on the weir because of the unprecedented high flow of the river during the late summer months. Brush mats prepared for this year will, therefore, be available for next season when it will undoubtedly be necessary to construct another weir.

The continued high water during the summer months also precluded the necessity of the sand dam, which has had to be constructed each season for the past four years in connection with the temporary diversion weir.

Dredging of the settling basin was commenced on June 1st, when the dredge "Brawley" began working with three eight-hour shifts. Due to continued high water, it was necessary to extend the dredging period one month longer than usual, the season being concluded October 28th. During this period, the dredge "Brawley" excavated 592,400 cubic yards of silt and the "Calexico" 748,200 cubic yards or a total of 1,340,600 cubic yards, which is 290,680 cubic yards in excess of that for last year.

Considerable trouble was experienced this year from undermining and caving of the banks of the Alamo Canal between Hanlon Heading and the railroad bridge, necessitating the placing of several carloads of rock as riprap.

Reconstruction of pontoons for dredge discharge pipes and for the floating drift boom at Rockwood was continued, a total of twenty-two being rebuilt during the year.

In November and December, extensive repairs were made to the training wall located on the Arizona side of the river below the weir. Broken piling and caps were replaced and hog wire placed on the river side of the wall for the entire length. This structure serves to protect the Arizona Levee from being eroded by the cross-currents which develop below the weir.

The diversion at Hanlon Heading was 1814 second feet on January 1st, from which it was increased by varying stages to the maximum for the year on July 15th of 6,612 second feet after which it decreased to the minimum of 821 second feet on December 27th.

The following diversions, by dates, give an idea of the variations throughout the year:

Date	Second Feet	Date	Second Feet
*January 1st	1,814	July 15th	6,612
January 15th	3,162	October 12th	4,885
January 30th	2,600	November 6th	2,551
February 11th	3,308	November 31st	3,912
February 24th	2,445	December 19th	2,308
April 30th	5,833	December 20th	3,077
May 4th	6,100	December 25th	2,423
May 8th	4,866	*December 27th	821
July 3rd	5,408	*December 31st	1,465

* Low, due to heavy rains in the valley.

The total diversion for the year amounted to 3,089,191 acre feet, or 18.07 per cent. of the years discharge of the Colorado at Yuma. The amount diverted was 0.51 per cent. less than that for last year of 3,090,769 acre feet, or 25.3 per cent. of the total flow for that year.

Water Distribution—General:

The demand for water in the United States during the year was greater, but for Mexico much less, than normal. No trouble was experienced in delivering on demand and the canal system as a whole, functioned in a most satisfactory manner.

Severe earthquakes occurred January 1st, beginning at 12:05 A. M. and continuing until 5:00 A. M. and were followed by other minor shocks throughout the month. Considerable damage was done to buildings, particularly in Calexico and Mexicali, although only slight damage occurred to the canal system. At Dahlia Waste, a portion of the lower end of the concrete chute was cracked and the rock cushion below the stilling basin settled between three or four feet; a crack some fifty feet in length opened up in the bottom of the Barley Canal near the head and extended to the Dahlia Wasteway, resulting in a break and necessitating the relocation of about 500 feet of the lateral; and the Wisteria Canal was badly cracked longitudinally for some distance on both sides of the International Boundary, although no breaks resulted.

Deliveries to users in the United States were 177,511 acre feet greater, but for Mexico 105,799 acre feet less, than those for last year, making a net increase for total deliveries over last year of 71,712 acre feet.

Total diversions from the river amounted to 3,089,191 acre feet, of which 1,307,030* acre feet, or 42.3 per cent., were delivered to users in the United States and 573,588 acre feet, or 18.6 per cent., to users in Mexico; the total deliveries amounting to 1,880,618 acre feet.

Water Distribution—Mexico:

Operation and maintenance work in Mexico was carried on throughout the year without any serious breaks or interruptions in service.

The demand for water was considerably below normal, due to a decrease in cotton acreage caused by the low prices received last year.

In the past, certain records in connection with the distribution of water in Mexico have been recorded in the metric system, while all of the field measurements have been kept under the English system. This year, under order from the Mexican Government, the entire system of measurements and accounts was converted to the metric system, which meant the installing of new gages throughout the entire system, conversion of the recording instruments and revision of all methods dealing with the measurement of water.

Following the abandonment in February of the East Side Main Canal in United States below Allison Heading, there resulted a large decrease in the flow of that canal in Mexico. The smaller flow at the head end of the canal caused a rapid silting in at that point and at times resulted in some difficulty in obtaining a sufficient quantity to supply the demand. However, by narrowing the channel through the installation of brush jetties on either bank, it was possible to obtain a greater velocity at the head end which, together with the sluicing carried on at the Hemlock Sluice, relieved the situation.

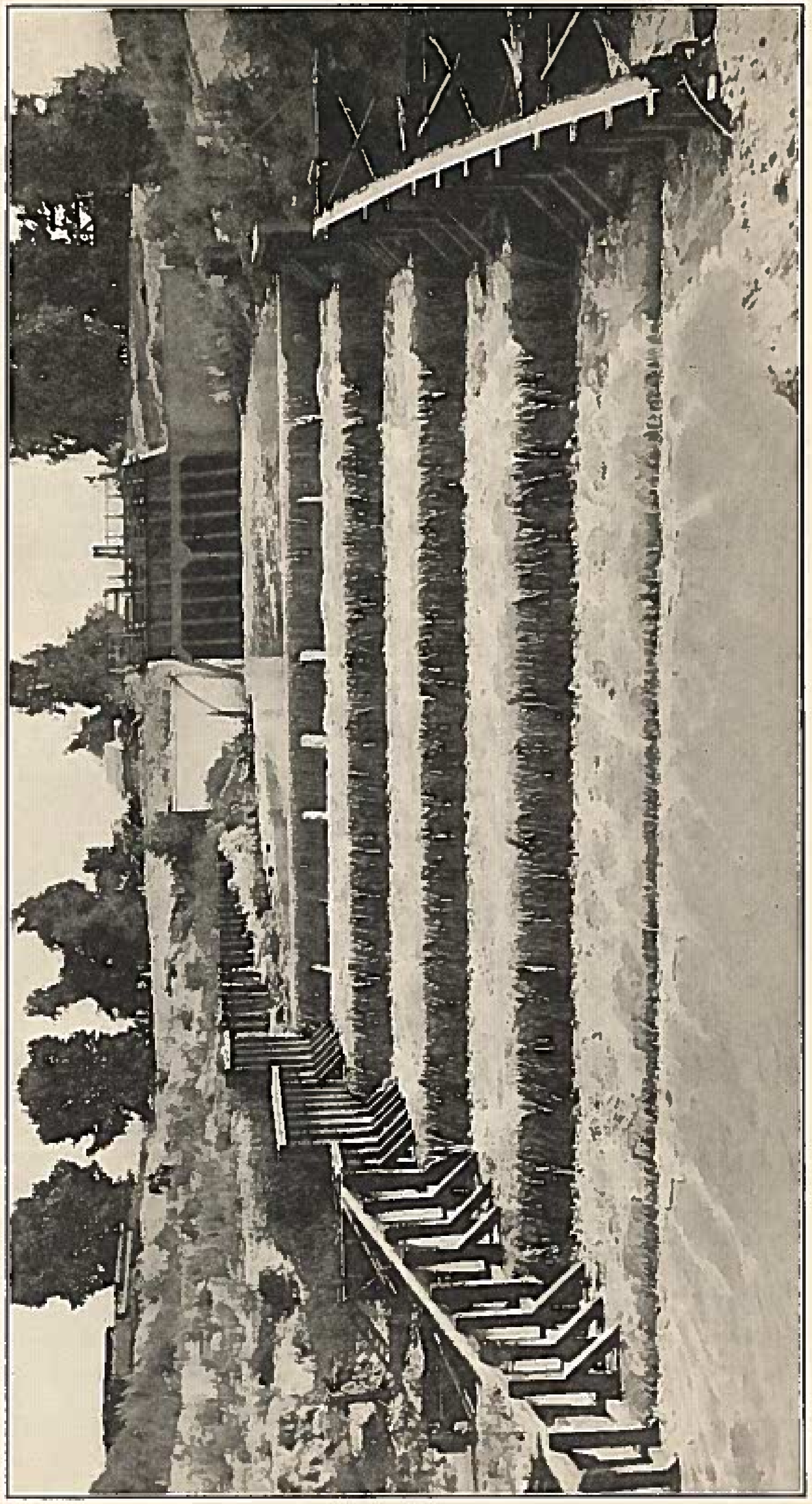
That the Alamo Canal below Cudahy Check has nearly reached a stabilizing grade, is shown by the fact that the raise in the water surface this year was much less than heretofore. For the past several years, deposition of bed silt has raised the water surface an average of 0.5 of a foot each year, making it necessary to continually raise and strengthen the canal banks and although considerable of the work was done this year, the situation was not nearly as dangerous as in past years.

Some difficulty was had in maintaining sufficient capacity in the head end of the Wormwood Canal due to deposition of bed silt and a dragline was used at two different times to relieve the situation. It is planned to construct a sluice gate into the West Side Main Canal next year, which will be used in keeping the head end free from silt.

By continuing the policy of making deliveries by running the water upstream in the Carrillo Bend Canal and opening the headgate only for sluicing, maintenance on that canal was held to a minimum, although some dredging was necessary.

During the summer, the West Side Main Canal silted in below El Progresso Check, raising the water surface several feet, notwithstanding the dredging carried out last year and the first part of this year and the periodic sluicing at Laguna and Wistaria Wasteways. This situation extended for several miles downstream and decreased the capacity of the canal, in fact the flume over New River ran over at one time but without damage to the

* Based on "Gate Measurements" which tests show to be over 10% low.



ROSITAS DROP, NEAR HOLTVILLE

structure. Additional sluicing during the winter months will remedy the condition temporarily.

As usual, there was considerable erosion on the banks of the upper Alamo Canal requiring extensive riprap and jetty work. In the fall, steel tripods were placed at several points as riprap in an endeavor to find a more permanent method of controlling erosion than that of using brush and trees, which is not only costly but also very temporary in character necessitating continual maintenance. Results to date would indicate that the use of the steel tripods is much preferable to the old method.

Extensive repairs were made to the Tule Check structure following the breaking loose of the outer end of the apron, as noted in the report of last year. Portions of the side walls and bridge supports were renewed and after the apron had been put back in position, the outer end was weighted down with concrete blocks to prevent further trouble.

Minor repairs were made to other large structures, including Cudahy and Tortuoso Checks, and New River flume, and in addition, a number of bridges were refloored.

Approval was granted by the Mexican Government for the installation of a small pump on the West Side Main Canal below Wardlaw Check over protest of the Compania.

Due to a poor market condition for cotton and consequently reduced acreage, there was practically no activity in new delivery gate construction by water users during the year. A few small gates were installed but none of large capacity.

The dredging of the West Side Main Canal, started last year, was finished in January with the completion of the work on the south bank from the Flume to El Progresso Check.

The Cerro Prieto Canal was dredged upstream on the east bank above Tule Check for a distance of 8.23 miles. This section had limited the capacity of the canal and was lacking in proper freeboard.

The Alamo Canal was raised and strengthened on the north bank from Mile 6 to Mile 14, and on the south bank from Mile 6 to Mile 10, also from a point opposite Laurence Heading for a distance of approximately 2,200 feet upstream.

It was also found necessary to dredge the Carrillo Bend and a portion of the Wormwood Canal.

The foregoing constituted the necessary dragline work for the year, the mileage dredged on the several canals being as follows:

Alamo, 11.71 miles; West Side Main, 1.50 miles; Cerro Prieto, 8.23 miles; Carrillo Bend, 2.23 miles; and Wormwood, 0.45 miles, a total of 24.12 miles. The smaller canals were "Ruth" dredged a total of 3.60 miles.

A crop report taken in the fall showed a total cropped area of 156,168 acres as compared with 192,555 acres for the previous year. Acreages shown for various crops were as follows: Cotton, 112,015; Alfalfa, 36,132; grains and miscellaneous, 8,021. The cotton acreage representing 72 per cent. of the total area in cultivation, was 33,333 acres, or 23 per cent., less than that for last year.

The water duty in acre feet per acre for the past three years has been as follows: 1925, 3.36; 1926, 3.53; 1927, 3.67.

Water Distribution—United States:

Effective July 1st, the Calexico Division was formed from a portion of the Imperial Division, taking over the following canals: Wormwood, Woodbine, Wistaria, Birch, Beech, Alamitos, West Side Main from the International Boundary to Fern Heading, and the Central Main, including the Briar and Dogwood, from the Boundary to Dahlia Heading.

The following tabulation gives relative data for the various Divisions:

Division	Miles of Canals	Miles of Surface Drains	Irrigable Area	Water delivered in Acre Feet
Holtville	366.9	110.3	100,000	235,423
Imperial	408.1	6.3	127,000	345,576
Brawley	459.0	241.2	142,000	420,731
Calipatria	345.9	235.9	103,000	253,521
*Calexico	125.9	4.7	43,000	* 51,779
Total	1,705.8	598.4	515,000	1,307,030

* Since July 1st, 1927.

A tabulated summary of the crop report for 1927 is given on page 52. The net cropped area for the year was 389,048 acres or about 35,000 acres more than that for last year, while the amount of water delivered to the land increased 177,000 acre feet.

The water duty for the year was 3.36 acre feet per acre as compared with 3.19 for last year. These figures are based on "Gate" measurements which are over 10 per cent. low, as shown by tests. This means that the actual duties were 3.70 and 3.51 acre feet per acre, respectively.

A comparison of the silt content of the water for the years 1926 and 1927, in per cent. by volume, is shown by the following tabulation:

Silt Content, Central Main at Dahlia Heading
In Per Cent. by Volume

	1926			1927		
	Max.	Min.	Mean	Max.	Min.	Mean
January	0.93	0.25	0.42	1.50	0.50	0.73
February	5.00	0.00	0.30	4.50	0.50	1.53
March	5.00	0.03	0.25	9.00	1.50	3.09
April	4.00	0.22	1.80	5.00	1.00	2.45
May	2.75	0.75	1.58	2.80	0.80	1.50
June	1.25	0.18	0.67	1.00	0.63	1.25
July	5.50	0.50	1.77	6.00	0.08	2.62
August	5.00	0.62	2.55	12.00	1.00	5.05
September	No readings	during	month	22.50	2.75	9.31
October	No readings	during	month	No readings	during	month
November	6.00	4.10	5.14	3.80	1.00	2.20
December	3.00	0.20	1.25	1.35	0.53	0.85

During January, a heavy rain occurred to the east of Niland breaking the East High Line Canal at several points and undermining about 25 feet of the concrete portion of "X" Lateral. This section was repaired by using rock masonry. To prevent a recurrence of similar damage, two overpour spillways were constructed near Niland in the west bank of the East High Line Canal, of rubble masonry, weir type with a crest of 75 feet and with provision to take care of an overpour of 15 inches in depth; also an outlet spillway was constructed under "X" Lateral at "U" Heading, just west of Niland.

The old Mesa Siphon under the East High Line Canal, consisting of 66 feet of 36 inch corrugated pipe, was replaced in January with 86 feet of 48 inch dipped corrugated pipe and lowered three and one-half feet; the new inlet and outlet structures are of treated timber construction. To make the

replacement, the East High Line was cut out for five days and the work rushed 24 hours a day. Ground water and soil conditions caused serious difficulties and made it necessary to drive a sheet pile cofferdam for the pipe excavation.

The earthquakes on January 1st, 1927, caused the rock riprap below the stilling basin on the Dahlia Wasteway to settle nearly four feet, and to prevent subsequent danger to the structure, three carloads of rock were placed to restore the riprap to grade. Seepage into the wasteway below the lined section continued to give considerable trouble this year, causing the banks of the channel to slough. As an experiment, trenches were dug parallel with and at the base of the high north bank to provide a means for carrying away the seepage, thereby establishing a stable soil condition and preventing further caving.

The earthquakes above referred to also opened up a crack in the bottom of the Barley Lateral, which parallels the Dahlia Wasteway, causing a break into the latter and making it necessary to relocate 500 feet of the lateral. In October, 300 feet of this same 500 feet had to be again relocated, when the caving of the bank of the wasteway endangered the lateral.

The old wooden headings of the Ohmar and Magnolia Laterals on the East High Line Canal were replaced during January, February and March, by concrete structures having steel slide gates and corrugated iron outlet pipes. A direct heading of similar design was constructed for the Pepper Lateral, which eliminates one-half mile of side-main from the Pomelo. There yet remain several wooden headings which will have to be reconstructed within the next year or two.

Flood waters from the heavy rains of December, 1926, and January, 1927, undermined the concrete foundations of the flume carrying the Trifolium Extension over the Trifolium Waste and in April the piers were lowered four feet.

Extensive repairs were made necessary to the outlet of the Dixie Wasteway structure by the flood water from the heavy rainstorm of December, 1926. Portions of the sidewalls and floor collapsed and had to be replaced, the work requiring nearly a month to complete.

The final work to make possible the abandonment of the Low Line Canal was completed on February 17th and since that date, no water has been diverted below Allison Heading at the International Boundary Line. This work has been in progress for the past three years, including; the enlargement of the East High Line Canal from a capacity of 800 to 1800 second feet; the enlargement of the High Line Laterals from Lateral 9 to the Nectarine near Calipatria and extensions across the Low Line Canal to connect with the laterals formerly served by the latter; and a similar extension of the corresponding surface drains. There yet remains some raising and strengthening of the East High Line banks, before the work is entirely completed.

The Peach Lateral Outlet into the Alamo, consisting of an "L" shaped pipe drop, washed out in March and was replaced by a wooden chute. For the cut-off walls of the new structure, use was made of a large amount of the sheet piling previously used in the cofferdam for the Mesa Siphon.

Due to settling of the floor of the concrete structure at the Pine Lateral Heading on the East High Line Canal in March, a break was threatened and narrowly averted by driving a sheet pile cut-off wall in front of the structure, backfilling under the floor and grouting in the cracks. Due to the use of poor material and lack of sufficient depth of the cut-off walls, a number of other structures on this canal built at approximately the same period, about ten years ago, have given similar trouble.

A Number 60 Armco metal flume 550 feet in length was constructed in March to replace the existing wooden flume near the end of Alder Lateral No. 6, which had been in service for many years. The old flume was not only too low but lacked sufficient capacity to make adequate delivery to the land served.

In order to relieve the demand on that portion of the Tokay Canal north of the crossing of the Tamarack, the Thorn Canal was connected to the latter by the construction of a canal approximately one mile in length, served by a direct heading out of the Tamarack; construction was started in April and completed the following month. A wasteway from the end of Tokay Lateral No. 1 to the connecting canal was also provided, whereby sluicing of the former will be possible with a resulting lower maintenance cost. The new heading is of reinforced concrete and was designed to also serve as the inlet for the highway siphon constructed at that point.

During the past several years, seepage from the Orchid Lateral into the Orchid Outlet of the Holtville Main Drain at a number of points west of the old Low Line Canal has caused the bank of the drain to slough. As the situation continued to become more serious this year, as the drain deepened through recession, by threatening the safety of the lateral, it was decided to move the location of the lateral north one-quarter of a mile. The work was started in April and by July it was possible to abandon the old location. A total of three and one-half miles of the old lateral was reconstructed, the cost of the work being charged to drainage construction.

After considerable delay caused by difficulty in securing necessary rights-of-way, excavation of Trifolium No. 7 Surface Drain by the interested water users was completed in April and the District then installed the necessary highway bridges and siphons, and delivery flume crossings and took charge of the maintenance work. The drain parallels the Trifolium No. 7 Lateral on the east side extending from the Trifolium Main Canal to New River.

The Schenck East Main Spillway structure, consisting of 16 feet of wooden drop and 70 feet of pipe chute, failed in April and was replaced by eighty feet of concrete chute. It was found that the cost of the latter was no greater than that of the original structure while the life will be many times longer.

During April, May, and June, the Standard Lateral and Surface Drain were straightened and reinforced for a distance of one and one-half miles through a slough formerly a part of the old Low Line Canal. This section had silted in at some points to such an extent that maintenance was difficult and furthermore, the adjoining property owners desired to reclaim as much of the area as possible. For these reasons the improvement work was undertaken.

By reason of the heavier demand on the East High Line Canal this year, it was possible to commence the silting of paralleling borrow pits earlier than usual. Starting in May, the silting was carried on continuously until the latter part of July extending from the Pear to the Orchid Headings. The results obtained were most satisfactory. The plan followed of running irrigation water through the borrow pits from one lateral to the next downstream was the same as described in the Report of last year. The silt thus deposited serves not only to reinforce the canal bank but also makes available material for use in raising and strengthening of the banks.

In order to provide surface drainage for a considerable area lying between Alder No. 7 Lateral and the Acacia Canal, the water users interested, in cooperation with the State Highway Commission—the drain also offering relief for the highway—excavated a canal and installed siphons under the El Centro-Holtville Highway and Holton Interurban Railroad. The District constructed a siphon under Acacia No. 10 Lateral and an outlet into the Central Drain, taking over the maintenance of the drain in May, following completion of the work.

The Sumac No. 2 Waste Structure washed out in May and in replacing it, the lateral was extended one-quarter mile north and the wasteway incorporated with the outlet of the Cook Drain, then under construction.

In order to eliminate emptying of surface drains into laterals and to better the water service, crossovers were constructed during May on the "Oak" and "E" Laterals.

Seven siphons were replaced by permanent structures during the spring, in connection with the Seeley-Bonds Corner road. This work was done in cooperation with the county, the cost being divided equally.

By agreement, the District assumed control of the Holton Power Canal from the Morrison Delivery to the City of Holtville in June. Delivery is now made to the city at the city ditch headgate for irrigation water and at the pipe line intake for domestic water. In cooperation with the city, an overflow pipe was installed in the pond at the end of the Holton Power Canal for the purpose of regulating the latter and eliminating the danger of breaks.

By constructing three deliveries and road siphons from the Holton Power Canal to deliver to land heretofore served by the lower end of the East High Line Lateral No. 7, it was possible to abandon that section of the latter. This was desirable as it was costly to maintain the lower end of the lateral, owing to inadequate grade and consequently rapid silting in which required frequent dredging.

Rights-of-way for surface drains paralleling Trifolium Laterals No. 9 to No. 16 are also being secured. In cooperation with the users, the District in June opened up outlets from the Third Standard to New River along Laterals No. 9 to No. 13, inclusive.

Two breaks were had during June in the east bank of the East High Line Canal a short distance below No. 1 Check, but as the land flooded was desert and located on the high side of the canal, no damage was done. By September, the breaks had silted in to the high water mark, making it an easy matter to repair the bank.

A heavy wind and rain storm on July 19th over the Calipatria-Niland area caused some damage to the canal system. The new spillways on the East High Line Canal did much to minimize the damage but notwithstanding, the runoff was so great that "O" Heading was entirely washed out and many small breaks occurred in the lateral system. By rushing repair work, water service was resumed within a few days and no loss of crops resulted.

Although the wastegate installed near the head of the Wisteria Canal in Mexico last year proved to be of much benefit, deposition of bed silt below that point for a number of miles continued to limit the capacity of the canal as well as to make frequent cleaning of the laterals necessary. To relieve the situation, a wasteway was constructed at a point in the United States about two miles north of the International Boundary, the work being commenced the latter part of August and completed in September.

The installation consists of a steel gate connected to a 48 inch diameter concrete pipe outlet, from the end of which an open channel 315 feet in length empties into a concrete chute 81 feet in length, for dropping the flow into New River. By the end of the year, sluicing through the structure had lowered the water surface in the canal upstream as far as the Boundary Line and in addition, elevations in the canal below the wasteway were lowered on account of the lesser amount of bed silt to contend with.

During September, check structures in Laterals "F", "G", "H" and "I", between the Southern Pacific Railroad and the Alamo River, were widened from 44 to 60 inches and the sills lowered 12 and 18 inches. This work was done in order to give better control of the water and facilitate sluicing operations, thereby reducing maintenance cost. Similar work was carried out on "A" and Marigold Laterals in November.

Recession working upstream in the Plum Surface Drain created a depth such that ground water seeping into it caused considerable sloughing of the north bank, endangering the paralleling road and also the Plum Lateral. As similar conditions will be encountered in other surface drains, an experiment was tried in this case by placing 80 feet of four inch tile, imbeded in gravel, at the toe of the lateral and 6 feet below normal ground surface, in an effort to cut off and drain the ground water seeping into the drain.

The washing out of a portion of the pipe outlet in the Plum Wasteway in October required the installation of 80 feet of 36 inch corrugated pipe and an outlet structure. The lower half of the pipe throughout its entire length was covered with one and one-half inches of concrete, reinforced with light woven wire.

The old wooden waste structure at the lower end of the Fern Lateral failed during December and will be replaced with a concrete chute the earlier part of next year. The Elder Lateral No. 14 waste also washed out in December and will be replaced at a point one mile south of the old location.

A part of the outer end of the Wakefield piling stilling basin of the Central Drain spillway under the Rositas Canal, failed during December, necessitating the re-driving of the collapsed section and the replacement of the damaged floor. The trouble was caused by seepage from a sand stratum uncovered by recession in the outlet channel, below the spillway, followed by sloughing which created a tremendous pressure against the structure. In order to relieve the pressure and prevent further damage, 40 feet of four inch vitrified drain tile were placed on both sides of the outlet.

For several years, plans for the elimination of the portion of the Date Canal within the city limits of El Centro have been under discussion. This year re-surveys and cost estimates were made, showing the total cost to be about $61,000. By agreement, it was decided to do all the work with District forces, the city to advance the sum of $45,000 as representing all of the expense except that for the excavation in connection with the enlargement of the Dahlia Canal. Bonds in this amount were voted by the city and final arrangements completed in November, construction work commencing in December.

At the request of the District, the Southern Pacific Company replaced with a concrete structure the old wooden culvert carrying "C" Lateral under the Westmorland Branch railroad.

The extending of laterals wasting into Salton Sea was continued, the principal work this year being the extension of "S", "R" and "Z" Laterals during February and March.

In cooperation with the State Highway Commission, the Trifolium No. 2 Surface Drain Siphon under the Trifolium Canal was replaced and extended to the north to provide a crossing for the new Brawley-Westmorland Highway; the new installation was also lowered at the same time to provide better service for lands to the south.

On this same Highway, arrangements were made with the State for the installation of Surface Drain Siphons at all points where such drains would be constructed in the near future. The District paid the additional cost over that required for the installation of the small equalizer pipes, which the State had planned to install.

In the Calipatria area, it was necessary to renew a large number of lateral checks this year. These were of wooden construction and installed at about the same time twelve years ago, which explains their simultaneous failing.

Heretofore, there have been no regulations in regard to wasting of water to surface drains. The need for such has been increasing for the past several years, therefore, after a thorough investigation, rules were adopted this year by which users are required to install suitable inlets to surface drains and to control the amount and manner of wasting. As a result, many inlet structures were installed during the latter part of the year.

In order to find a more economical method of leveling canal banks, tests were made with a tractor grader with the result that two of the machines were purchased and placed in operation. Compared to the use of team grading outfits, the tractor graders have been found to do twice as much work at one-half the cost. This will result in a considerable saving to the District.

The campaign on eradication of noxious weeds, which has been carried on for several years, is showing fine results and the situation is not only under control but this year the extent of affected areas has also been considerably reduced.

The following tabulation gives a synopsis of the amount of repairs and construction required during the year, in connection with canal structures:

REPAIRS

Division	Deliveries	Checks and Drops	Bridges	Misc.	Total	Structures Constructed or Replaced
Holtville	131	159	34	2	326	196
Imperial	297	139	43	18	497	229
Brawley	86	141	5	8	240	171
Calipatria	40	67	12	0	119	202
*Calexico	95	32	10	0	137	29
Total	649	538	104	28	1,319	827

*Since July 1st, 1927.

Mileage of canals, laterals and surface drains as of December 31st, 1927, arranged according to divisions and method of maintaining, together with a comparison of the amount of work done in 1926 and 1927, is shown in the following tabulation:

MILES OF CANALS AND SURFACE DRAINS

	Canals			Surface Drains		
	Dredged	Ruthed	Shoveled	Ruthed	Shoveled	Total
Mexico	124.6	12.4				137.0
Holtville	35.0	291.0	40.9	104.2	6.1	477.2
Imperial	25.3	305.0	77.8	5.4	.9	414.4
Brawley	25.0	425.1	8.9	234.7	6.5	700.2
Calipatria		317.3	28.6	218.1	17.8	581.8
Calexico	16.5	92.9	16.5	4.7		130.6
Total	226.4	1,443.7	172.7	567.1	31.3	2,441.2

Summary of Cleaning Operations, Miles Dredged One Side, Miles Shoveled

1 9 2 6

	Canals			Surface Drains		
Division	Dredged	*Ruthed	Shoveled	*Ruthed	Shoveled	Total
Mexico	14.3	6.0				20.3
Holtville	13.7	677.1	84.8	56.7	8.9	841.2
Imperial		830.0	172.0			1,002.0
Brawley	1.0	475.0	48.0	223.7		747.7
Calipatria		416.6	17.0	237.5		671.1
Total	29.0	2,404.7	321.8	517.9	8.9	3,282.[illegible]

Summary of Cleaning Operations, (Continued)

1927

Division	Canals Dredged	Canals *Ruthed	Canals Shoveled	Surface Drains *Ruthed	Surface Drains Shoveled	Total
Mexico	24.1	3.6				27.7
Holtville	5.1	561.5	89.6	85.5	8.3	750.0
Imperial		690.2	173.2	15.7		879.1
Brawley	1.0	505.8	74.3	109.4	10.0	700.5
Calipatria		491.6	21.6	231.8		745.0
**Calexico		154.1	18.0			172.1
Total	30.2	2,406.8	376.7	442.4	18.3	3,274.4

*Includes Clark and Buckeye dredges.
**From July 1st, 1927.

River Protection:

From reports of snowfall over the upper Colorado River watershed during the winter, which showed the depth of snow to be considerably greater than normal, a high summer flood peak was anticipated. However, a dry windy spring and reduced soil moisture conditions by reason of the previous dry years, coupled with slow melting of the snow pack, prevented the anticipated high flood peak and together with favorable summer rains over the lower watershed resulted in a more uniform flow than has been had for many years.

The discharge of the river at Yuma was fairlv steady during January and the first half of February, averaging about 4500 second feet. On February 15th, it was 5,700 second feet from which it jumped to 81,200 second feet—the peak for the year—on the 20th but fell to 29,700 second feet by the 22nd. This was due principally to a flash flood in the Gila River and that it resulted in the peak for the year was very unusual.

During March and April, the discharge averaged about 6,800 second feet but in May the flow increased gradually to 73,200 second feet on the 31st and in June to the peak for that month of 74,100 second feet on the 2nd. This is perhaps the earliest June peak of record although in amount it is much below normal. During the balance of June the flow was quite regular, being 61,200 second feet on the 30th. Another unusual condition this year was the peak of the summer flood of 77,200 second feet in July which occurred on the 9th, as with the exception of but two or three years in the past twenty-five, the summer peak has always occurred in June.

There was a gradual decrease from the peak on July 9th, which continued through August to a flow of 10,200 second feet on the 25th. Summer storms over the lower watershed resulted in an unusually high peak for September of 72,800 second feet on the 20th, which was nearly as great as the June peak, a condition which is very exceptional inasmuch as September is considered to be the low month of the year.

During October and November, the flow was quite steady averaging about 13,000 second feet. In December, the discharge gradually decreased from 10,000 second feet on the 4th to 3,900 on the 31st.

It may therefore be said that there were four peak flows during the year; that for the spring, which was also the maximum for the year, of 81,200 second feet on February 15th; the regular June peak of 74,100 on the 2nd; that for the summer of 77,200 on July 9th; and the September peak of 72,800 on the 20th. The minimum discharge occurred on January 9th with a flow of 2,600 second feet.

The total discharge for the year at Yuma was 17,095,000 acre feet or an increase of 4,894,000 acre feet over that for 1926. It is also 685,000 acre feet greater than the past twenty-five year average of 16,410,000 acre feet, this being the first year since 1923 having a greater discharge than normal.

ROCKWOOD INTAKE GATE, ANDRADE, CALIFORNIA

The total discharge of the Gila River for the year was 633,200 acre feet, as compared to 356,300 for last year and the twenty-five year average of 862,000 acre feet.

The survey of the Pescadero Delta region commenced in October of last year, was completed on January 16th. The work included the running and profiling of 133 miles of transit lines, practically every foot of which had to be brushed owing to the dense vegetation, the survey covering an area of some 102,000 acres over which the river silt has been depositing since the completion of the Pescadero Cut in 1922.

The central control line, extending southerly from the end of the Pescadero Levee along the ridge of the silt cone for over ten miles, showed a fall of about three feet per mile as compared to the normal river slope above the silt cone of 1.2 feet per mile, indicating the inadvisability of extending the Pescadero Levee at this time. Furthermore, notwithstanding the extent to which the Pescadero Basin has filled with silt, the survey showed there yet remain large areas on either side of the silt cone which will take care of the silt for several years to come. It must be expected that as the Pescadero Basin fills with silt there will result a gradual raising of the river upstream which will require the raising of the levee system; but the latter should not be extended until the available silting area in the basin has been exhausted.

Levee work during the spring included the salvaging of the railroad on the abandoned lower end of the Pescadero Levee below Mile 31½, raising and strengthening of the balance of the extension, built last year, between the latter point and Mile 29¾, and strengthening of the Bee River Levee between Miles 21 and 23. In connection with the raising and strengthening work, a Bucyrus dragline was used. Some difficulty was had on the extension raising due to water backing around the end of the levee into the borrow pits, making it necessary to operate the machine on mats. On this work, 19,400 cubic yards of earth were excavated and on the Bee River Levee, 14,000 yards; a total of 33,400 cubic yards. Also, in view of the snow reports indicating a high summer flood, a windrow of fine rock three feet high was dumped, as an added factor of safety, along the top of the outer edges of the Bee River and Pescadero Levees from Mile 19 to 31½.

In May, a blast was made at the Andrade Quarry by which approximately 35,000 yards of rock were shot down which,together with that already on hand, gave a total supply of nearly 100,000 yards available.

No serious trouble occurred on the levee system during the flood season. Due to a shifting of the current to the east at Mile 21½, the situation in that vicinity, which had been considered serious for the past two years, was greatly improved. However, 8,000 yards of rock were dumped at that point during May before the change of current had become effective.

The usual sloughing at the Pescadero Dam was had, however, it was not serious and required the placing of but 9,232 yards of rock. At several other points minor attacks were made by the river but none was severe. The total amount of rock used during the flood season amounted to 34,944 yards as compared to 39,600 yards last year; the gravel placed amounted to 6,224 yards as compared to 1,300 yards last year. The total yardage of rock and gravel used throughout the year was 56,846.

Conditions were such that on July 19th, protective work for the flood season was ended.

Due to the low flood discharges of the past few years, together with the gradual silting in of the Pescadero Basin, there has resulted a general raising of the bed of the river below Yuma. To take care of the situation, plans were prepared in September for raising the Bee and Pescadero Levees and forwarded to the Mexican Government for approval. Upon receiving such approval in November, construction with a Bucyrus dragline was started, beginning at the lower end—Mile 31¼—and by the end of the year, the work on the Pescadero Levee was practically completed except for one-half mile. The levee was widened between Miles 27¼ and 27½ to provide for a passing track to facilitate the rock hauling. For raising the last mile at the lower end of the levee, the earth had to be hauled by train as the borrow pits adjacent were too wet to permit of dragline operations. A total of 82,000 cubic yards of earth was placed during the two months.

All levees were patrolled daily during the year, and throughout the flood season at night in addition.

Telephone System:

In Mexico, Line 27 was extended from Mexicali to Lawrence Heading by stringing one wire from Seven Foot Drop to Sharps Heading and by making use of parts of existing lines for the remaining distance. Eight telephones were cut over to this new line and materially improved the service, particularly on Line 16 to camps in Mexico. The Saiz Levee line from Ockerson Junction to a point opposite Pescadero Camp, a length of eleven miles, was dismantled as it was no longer needed. In connection with regular maintenance, all lines were gone over, 90 new poles set, 171 old poles reset and 21 anchors reset; seventy-three cases of trouble were cleared, 18 batteries replaced, 4 telephones moved, 1 installed and 1 taken out.

In the United States, there were no material line changes during the year. The opening of the Calexico office required the installation of four telephones; Line One was extended to New Side Heading while the old Low Line was dismantled between the Osage and Mayflower Canals. One-half mile of line to Orita zanjero house and three-quarters of a mile of line near Fisher's ranch were rebuilt.

Regular maintenance work required the replacing of 230 and the resetting of 161 old poles. Thirteen 'phones were installed on District lines and one on the Number Eight Telephone Company line. Fourteen telephones were moved, five telephones and one extension bell were taken out, and 217 cases of trouble cleared.

At the end of the year, the lines in Mexico consisted of 156 miles of poles, carrying 236.9 miles of circuits, with 49 telephones, 7 gongs and 1 switchbox connected. In the United States, there were 186.9 miles of District poles and 46.7 miles of foreign pole lines, carrying 421 miles of circuits with 2 switchboards, 4 switchboxes, 176 telephones and 10 gongs, connected.

The total for the United States and Mexico was 342.9 miles of District line and 46.7 miles of foreign line with 657.9 miles of circuits, 225 telephones, 17 gongs, 2 switchboards and 5 switch boxes. These figures show a decrease of 14.5 miles of pole line and 17.8 miles of circuits over the previous year but an increase of 8 telephones.

Equipment, Purchases and Renewals:

During the year motor vehicles were purchased as follows: one Ford truck, three second hand Ford roadsters, one Dodge roadster and three Dodge coupes.

The following field equipment was purchased: one McCormick Deering power grader, one Easy Lift power grader, one Browning revolving truck crane, one new type Ruth dredge, one Hardie puncture vine sprayer, one K. & W. lawn mower and one Berger transit.

Reflooring of dump cars which was started last year was completed and one Fairmont speeder was added to those in use.

The following is a partial list of equipment in use in connection with operations of the District:

2	Locomotives	1	Buckeye Trencher
2	Locomotive Cranes	1	Buckeye Desilter
50	Air Dump Cars	2	Steam Shovels
1	Ballast Spreader	2	Power Graders
2	Electric Suction Dredges	9	Pile Drivers
18	Draglines (½ to 1½ Yard)	34	Trucks
1	Browning Truck Crane	75	Autos
35	Ruth Dredges	150	Horses and Mules

Drainage:

Preliminary investigations looking toward the construction of an adequate system to properly drain the irrigated lands of the Valley were commenced in 1920, and during that and the two succeeding years, there was expended on construction from current revenue the sum of $263,362.

In June, 1922, bonds were voted in the amount of $7,500,000, the proceeds from the sale of $2,500,000 being for the installation of a system of main drains. General plans were prepared and construction was commenced on a larger scale.

Under the original allocation of these funds, there was contemplated the construction of 174 miles of drains. Due to reduction of cost under that estimated, re-allocations of funds have been made providing for an additional 25.55 miles, increasing the mileage over that originally estimated, to a total of approximately 200 miles.

The proposed construction as first planned and later enlarged, was completed on December 31st, except for 3.7 miles. After completing the remaining mileage, there will remain of the original funds available, approximately $83,000.00.

In addition to the amounts expended for drainage from the construction fund and from current revenue during the years 1920 to 1923, inclusive, there has also been expended from current revenue during the last few years the sum of $101,857. The total expenditure to date from all sources is $2,483,755.

Structure work in connection with drainage since 1922 includes the following: 146-four ton, 129-eight ton, and 7-twelve ton bridges; 141-No. 72, 10-No. 84, 13-No. 96, 50-No. 108, 42-No. 120, 8-No. 132 and 1-No. 144 flumes; and 39 culverts ranging in size from 18 to 48 inches in diameter.

The following tabulation gives the total cost, for the years shown, of the average costs of one each of the following: four ton bridge, eight ton bridge, No. 72 flume, No. 108 flume and No. 120 flume.

1924	1925	1926	1927
$4,684.59	$3,908.73	$3,449.60	$3,324.47

A number of tabulations in connection with drainage construction are shown on pages 45 to 48, inclusive.

Following tests of the wheel-type excavator built for the District by the Buckeye Company, the machine was used to excavate shallow drains for individual water users. The cost of the work was borne by the user, the District cooperating to the extent of deepening the existing surface drain outlet. This work is applicable in the areas where the slope of the ground is fairly steep and where intercepting drains are required at frequent intervals, such as the portion of the valley east of the Alamo River and north of Holtville.

The machine was found to be well adapted to this type of work and the cost less than with any other equipment. The drains are excavated to a depth of approximately six feet and are usually one-half mile in length, running north and south between existing surface drains, the latter serving as outlets. By this method, a large area is being given relief.

Drainage Investigations:

Investigations of ground water conditions were continued throughout the year and included areas not previously tested. Plans and cost estimates were prepared covering the construction of an additional 148 miles of deep drains, some of which are badly needed.

Although general conditions are improving and hundreds of acres of land being reclaimed, it will be necessary to provide funds for further construction in order to maintain control of the situation.

In addition to periodic readings of permanent drainage wells, samples of drain water were taken and analyzed at frequent intervals. These tests show no appreciable change in the alkali content of the drainage water. No tests were made this year of the amount of water developed by the drainage system as conditions would not permit. However it is believed that the amount is practically the same as that for last year.

Maintenance of Drains:

The drainage system is now requiring a considerable expenditure for maintenance and upkeep and will doubtless require larger sums as the system becomes older and is further enlarged. During the year there was expended on maintenance of drains, $63,317; on maintenance of structures, $17,227; and on pumping operations, $3,402; or a total of $83,946, as compared with an expenditure of $60,447 for the year previous.

The exceptionally heavy rains of December, 1926, and January of this year did considerable damage to the drainage system. Many breaks occurred and numerous structures were washed out, the most serious damage being to the Trifolium No. 1, Rose and Rose No. 1, Central and Dixie Drains.

The cost of making the necessary repairs, together with that of the regular maintenance work, required a larger expenditure than had been contemplated and it was therefore necessary to forego considerable work which had been planned.

For cleaning the drains, a small dragline equipped with a clamshell bucket was used. During the year a total of 50 miles was cleaned by this method, including Holtville No. 7, Trifolium No. 1, Rose No. 1, Central No. 3, South Central, Greeson Wash, and No. 9 Drains. Considerable difficulty was encountered in the work on the Greeson Wash Drain, due to unstable soil conditions but it is believed that, as a result of the work this year, no further trouble will be had.

During July and August, excessive waste into the Rose Drain from rice irrigation taxed to capacity the pumping plant, by which the water is lifted to the Rose outlet. Some method will have to be found of controlling this wasting or the plant will have to be enlarged.

Recession in the Orchid Outlet of the Holtville Main Drain continued to give trouble throughout the year. Seepage from the Orchid Lateral caused excessive sloughing at a number of points, not only damaging the drain but also endangering the lateral and as a consequence the latter was moved to the north one-quarter of a mile.

Seepage through a sand stratum on top of a clay stratum in the Holtville Main Drain at the Occident Flume crossing also caused considerable sloughing and the concrete lining on the outlet of the flume was extended in an effort to reduce the flow.

The usual routine maintenance work was continued throughout the year consisting of channel alignment, repairing and painting of flumes, removing plugs caused from wash-ins—for this work the Browning truck crane purchased in August proved very effective—repairing of bridges, and cleaning out sumps on the Dahlia and Mansfield tile Drains.

Alamo and New Rivers:

The plans for a new outlet of the Alamo River, as outlined in the Report of last year, were completed and excavation commenced in April. A levee was built on the north side of the channel, starting at a point approximately 2 miles from the old outlet and carried in a northwesterly direction across Section 16 for a distance of 3,700 feet, which was as far as the Bucyrus dragline could operate on account of water. A total of 58,300 cubic yards was excavated.

On May 23rd, the river was diverted to the new course and as a result the water surface upstream lowered as much as three feet. The diversion was completed none too soon as the overflow from the old channel, caused by the delta silting in, had reached cultivated land and growing crops would have soon been damaged. In fact, the overflow water covered the ground on which the dragline worked, not only making it necessary to operate the machine on mats but also pins had to be put in the caterpillar treads to keep them from slipping as the mud accumulated on the mats.

The break in the left bank of New River near the outlet, caused by the flood waters from the storms of December, 1926, diverted the entire flow and stranded the floating dredge, which was a short distance downstream. As the break silted in, water started to run down the old channel again and by the middle of February, the dredge had moved upstream and replaced the broken bank. In July, the dredge was shut down and was not in operation during the balance of the year.

Owing to the silted condition of the outlet and the inability of the floating dredge to keep it open, the same procedure as followed on the Alamo was carried out for the New River channel. In July, the Bucyrus dragline started construction of a levee along the east line of Section 15, running north from the channel to the northeast corner of the Section, then in a diagonal direction northeast to the center of Section 11, completing the work to the latter point in September, a distance of 7,450 feet, involving the excavation of 69,500 cubic yards of material.

Diversion of New River to the new outlet did not give as much relief as that of the Alamo River and therefore will be of service for a shorter period. However, both diversions will afford an opportunity to clean out the old channels and raise and strengthen the banks, which was not possible before.

Erosion at points on both New and Alamo Rivers, especially the latter, where such endangered adjoining farm lands, was corrected by riprap work. In most instances, "Kellner" steel jetties were used and proved very effective, although in the Calipatria area small rock jetties were also used with success.

In September, a short cut-off was excavated on the Alamo River just west of the Brawley-Calipatria Highway to eliminate a very sharp bend which was continually causing trouble.

Power Development:

Following consideration of the preliminary investigation of the possibilities of power development, as noted in the Report for last year, the Board of Directors authorized the preparation of detailed plans and cost estimates for a comprehensive development and distribution of power throughout the valley.

In accordance with the authorization, detail report was prepared and submitted in June. Following approval of the report by the Board, application was made to the California Bond Certification Commission for approval of the plans and a proposed bond election for the voting by the people of the necessary funds to carry out the development. The application was pending at the end of the year.

Under the proposed plans, five hydro-electric plants are to be constructed at various points on the canal system, together with a reserve steam plant at Imperial, a loop system of transmission lines throughout the valley and a line to Andrade to serve the needs of the District at that point, and distribution systems in the various towns. The plans also contemplate a reduction, by at least thirty per cent. of all present power and light rates.

It is believed that the carrying out of the proposed development will not only mean a considerable saving to users in the valley by means of reduced rates but there will also be provided a supplemental revenue for the District. Furthermore, the system has been planned with the idea of facilitating extensions throughout the rural sections of the valley as rapidly as conditions justify. There can be no question but that the need of cheap power in Imperial Valley is second in importance only to development of the Colorado River.

Meteorological Data:

The District has been acting as observer for the Weather Bureau of the United States Department of Agriculture since 1915. Commencing September, 1925, observations are being made at Imperial, those prior having been made at Calexico.

Daily observations are made covering temperature,—maximum and minimum,—precipitation, *humidity, direction of prevailing winds, character of the day and general observations as to unusual occurrences, such as storms or earthquakes.

The maximum temperature for the year was 115 degrees on August 10th, the minimum, 31 degrees on the eighth, twentieth, twenty-first and twenty-fourth of December, and the mean, 72.3. The average of the monthly mean maximum temperatures for the year was 88.4, while that for the monthly mean minimum was 56.1.

During the year, there were 294 clear days, 52 partly cloudy and 19 cloudy days. There was a precipitation of over .01 of an inch on 21 days, the total rainfall for the year amounting to 4.78 inches as compared to the normal of 3.52 inches for the past 14 years. The hardest rain storm of the year occurred on the 25th and 26th of December when the precipitation amounted to 2.26 inches.

Several earthquake shocks were experienced on January 1st and others of less intensity for some time thereafter.

A tabulation of interest giving meteorological data for the year will be found on page 54.

* Humidity observations commenced August 13th, 1926.

Mechanical Department:

To maintain its equipment the District has two large modern and well equipped machine shops, one at Imperial and the other at Andrade. An auto shop is also maintained at Imperial to overhaul and maintain the fleet of over one hundred autos and trucks which are constantly in service.

One of the main functions of the Imperial Shops is the maintenance of 7 Bucyrus, 7 Marion, 2 Stockton, 2 Monighan and 35 Ruth dredges. The shop equipment consists in part of the following: 1 five ton traveling crane, 6 lathes from 12 to 54 inches, 1 Universal iron worker, 1 Landis bolt threading machine, 2 Bender power hammers, 1 Lucas boring and milling machine, 1 Kempsmith milling machine, 1 Smith and Mills shaper, 1 Baker Brothers keyseater, 5 drill presses, 1 hydraulic press, 1 Osterlein tool and cutter grinder, 1 Lincoln arc welder, and 1 acetylene gas generating plant.

The Andrade Shop has to do primarily with the maintenance of two locomotives, 50 dump cars, 2 locomotive cranes, 2 suction dredges, 2 steam shovels and miscellaneous quarry equipment. The shop equipment, in part, is

as follows: 1 five ton travelling crane, 1 Cincinnati drill press, 1 Massilon steam hammer, 1 Lodge and Shipley lathe, 1 Gould and Eberhart shaper, 1-36" and 1-21" Cincinnati drill press, 1 power band saw, 1 Landis bolt threader, 1 Leyner drill sharpener, 1 Sullivan air compressor, 1-600 pound Massilon steam hammer, and 1 Westinghouse arc welder.

Experiments in the use of manganese steel castings for large gears, of which there are a considerable number on the various draglines, show such to have a life of five times that of ordinary gears. It was also found that the rough castings can be secured and finished in the District shops at a considerable saving over purchasing the finished product.

Plans were practically complete at the end of the year for the installation of a heat treating plant with the necessary testing equipment. This will permit the treating of alloy steel castings and shafts, the use of which has been found to reduce breakage with a consequent increase in efficiency of the machines and a lower maintenance cost.

In cooperation with Mr. A. C. Clarke, the District developed a small shifting wheel type excavator which proved so satisfactory that a contract was entered into last year with the Buckeye Traction Ditcher Company for the construction of a larger machine of the same type. The latter machine with minor alterations made by the District, is now being used for the construction of shallow drains for water users and for maintenance of District surface drains, with complete success. The machine excavates a drain 12 feet wide at the top and six feet deep at a cost of about $450.00 per mile, which is much less than can be done with any other equipment.

During the latter part of the year, plans were started on the design of a gas-electric bucket line excavator for use in cleaning canals, which it is hoped will make possible a reduction in present costs.

Purchasing and Stores:

The purchasing of all material and supplies for the District is centralized in the Purchasing Department located at the Imperial Headquarters. By this method, it is possible to purchase in large quantities at reduced unit prices and through the use of a perpetual inventory card system keep a close check of stocks on hand and maintain a balanced supply of material, which would otherwise be very difficult to accomplish.

For the convenience and economical delivery of materials to the field the following warehouses and material yards are maintained: Imperial General Warehouse, Imperial Shop Storehouse, Calipatria, Brawley, Holtville, Calexico, Mexicali and Andrade.

Materials carried on hand represent an investment of $303,000, the major portion being at Imperial.

On March 15th, the Andrade Warehouse with an inventory of $86,000 was destroyed by fire. After deducting amounts received from insurance coverage and value of salvaged material, the loss was reduced to approximately $12,000 on building and contents.

It is of interest to note that during the year there was manufactured at Andrade for the use of the River Division a total of 213,700 pounds of ice, the total quantity manufactured during the years 1923 to 1927 inclusive being 1,267,500 pounds. Also, in connection with District operations over the entire system, and in the field, there were 158,580 meals served during the year by the commissary department.

Materials and equipment of all kinds purchased during the year amounted to approximately $640,000. The following tabulation gives an approximate recapitulation of purchases of a few of the larger items during the year:

Comparative Recapitulation of Purchases

Lumber and Cement	$99,410
Dredges and Tractors (Parts and Repairs)	95,718
Gasoline, Oil and Grease	91,895
Automobiles (Parts and Repairs)	52,642
Light, Power and Heat	49,112
Hardware	47,507
Commissary Supplies	42,977
Office Supplies and Printing	34,678
Culverts, Pipe and Hose	30,158
Hay and Feed	18,475
Steel, Iron and Bronze	18,103
Metal Castings	17,964
Rope and Cable	13,710
Machinery, Parts and Repairs	11,143
Engineering Equipment and Supplies	10,469
Electrical Supplies	10,413

Real Estate and Buildings:

The following tabulation shows buildings and lands owned by the District together with their present book value:

Buildings Owned by District

DESCRIPTION	LOCATION	Book Value as of December 31st, 1927
General Administration Office Bldg.	Imperial	$ 52,093
Main Shop Building	Imperial	30,169
Mess House	Andrade	26,201
Store and Office Building	Brawley	13,393
Machine Shop	Andrade	12,081
Auto Shop and Service Station	Imperial	10,804
Imperial Division Office Building	Imperial	8,870
Sand Bunker	Imperial	5,940
River Division Office Building	Andrade	5,625
Main Storehouse	Imperial	5,268
Office Building	Calexico	5,250
Rating Flume	Imperial	5,052
Woodworking Shop	Imperial	4,380
Office Building (No. 7 Water Co.)	Holtville	3,980
Superintendent's Residence	Andrade	3,750
Residence	Calexico	3,660
Office Building (No. 5 Water Co.)	Holtville	3,332
Industrial Fence	Imperial	3,209
Office Building	Mexicali	3,000
Warehouse	Mexicali	2,732
Bunk House	Calipatria	2,669
New Warehouse	Andrade	2,658
Shop Washroom and Toilets	Imperial	2,420
Warehouse	Calexico	2,250
Mess House	Calipatria	1,875
Office Building	Calipatria	1,749
Miscellaneous		
70 Zanjero Houses	United States	36,884
17 Zanjero Houses	Mexico	7,598
15 Employees' Residences	Andrade	23,408
149 Small Buildings	United States	31,512
18 Small Buildings	Mexico	5,077
A total of 295 Buildings valued at		$ 326,889

Land Owned by District on December 31st, 1927

Within Cities:		
Calexico—Block 71 and parts of Blocks 68 and 72		$ 31,721
Imperial—Blocks 4, 5, 19, 26, 27, 40, 41, 48, 49, 62 and parts of Block 18 (land used for administration buildings, shops and yards)	$13,198	
Improvements to Land, Imperial Yards and Grounds	15,247	
Lot 11, Block 82 and Lot 11, Block 83	1,689	30,134
Holtville—Part of Block 30		8,864
Mexicali—Part of Block 4		8,500
Brawley—5 acres in Block 27, Subdivision No. 1	$ 1,000	
Lot 15, Block 71	5,794	6,794
Calipatria—Parts of Blocks 22 and 34		2,412
Sub-total		$ 88,425
Outside Cities:		
127.2 Acres—Cartwright Ranch, in Sections 1, 2, 11 and 12, T. 16 S., R. 16 E.		$ 8,800
516.9 Acres, at Andrade, in Sections 25, 26, 35, and 36 of T. 16 S., R. 12 E.	$ 5,169	
Improvements to land at Andrade	1,500	6,669
132 Acres in Sections 20 and 29 T. 12 S., R. 14 E.		4,200
10 Acres at Alamorio (Lot 1), in Sec. 31, T. 13S., R. 15 E.		1,980
120 Acres in Tract 180, T. 13 S., R. 14 E.		1,500
2 Acres in Tract 64, T. 13 S., R. 13 E.		579
1 Acre in Section 15, T. 12 S., R. 13 E.		500
2 Acres on Fern Canal, in Tract 212, T. 15 S., R. 12 E., and in Section 9, T. 16 S., R. 12 E.		482
3 Acres in Lot 1, Sec. 14 and Lot 6, Sec. 11, T. 16 S., R. 15 E. on Ash Canal		366
8 Acres on Tamarack Canal, in Section 11, T. 14 S., R. 13 E.		196
1 Acre in Tract 57, T. 15 S., R. 16 E.		95
Total Value of Land December 31st, 1927		$113,742

Besides the above, the District owns various unappraised parcels of land obtained for drainage and canal rights-of-way and for locations of dams, headings, etc., the largest of these parcels being one of about 200 acres in Section 36, T. 16 S., R. 13 E. at Dahlia Heading, and another irregularly shaped parcel of land within which is located the Rositas Dam, By-Pass and Wasteway in Sections 28 and 29, T. 15 S., R. 15 E. The District also owns all of Block 124—except the east 340 ft.—townsite of Heber, on the Dogwood Canal.

Payments for Gopher and Muskrat Bounty:

By agreement with the County of Imperial, the District commenced payments in July, 1925, of fifty per cent. of bounties paid by the County on gophers, and all of the bounties on muskrats; the bounty on gophers being 10c. each and that on muskrats 12½c. Under this agreement the District paid to the County a total of $35,399.62 for gopher bounty, or one-half the bounty on 707,992 gophers killed during the period July, 1925, to February, 1927, inclusive. During the same period the District reimbursed the County for all the bounty on 12,387 muskrats, or a total of $1,548.43.

In February, 1927, gopher bounty payments were discontinued entirely, and the District commenced paying directly to the trappers a bounty of 25c.

for each muskrat tail presented. During the year the District paid a total of $5,560.25 as bounty on 22,241 muskrats.

Summing up, from July, 1925, to December, 1927, inclusive, a total of 707,992 gophers and 34,628 muskrats was exterminated at a total cost of $77,907.93 for the County and District jointly, of which the District paid $42,508.30 and the County $35,399.63.

Budget Estimates and Expenditures:

The following tabulation gives a comparison of actual expenditures and Budget Estimates:

COMPARISON OF BUDGET ESTIMATE WITH ACTUAL EXPENDITURES, 1927

	Budget Estimate	Actual Expense	Under Budget	Over Budget
1. Board	$ 84,000	$ 100,407		$ 16,407
2. Administration	87,000	88,922		1,922
3. Storage	10,000	67,148		57,148
4. Diversion	257,000	231,431	$25,569	
5. Water Distribution:				
Mexico	189,000	146,615		
General Office	36,500	34,779		
Holtville	282,200	274,711		
(Imperial)	312,550	(267,839)		
(Calexico)		(49,397)		
Brawley	208,000	244,600		
Calipatria	149,500	146,793		
	$1,177,750	$1,164,734	13,016	
6. River Protection	$ 97,000	$ 125,147		28,147
7. Real Estate and Buildings:				
Telephone and Power Lines	33,000	26,600		
Real Estate and Buildings	24,700	25,594		
Auto Vehicles	10,000	6,190		
Miscellaneous New Equipment	22,300	56,835		
	$ 90,000	$ 115,219		25,219
8. Bonded and Other Indebtedness	$1,077,250	$1,094,791		17,541
9. Drainage and Miscellaneous:				
Drainage Maintenance	73,000	83,946		
Drainage Construction	13,000	34,287		
Alamo and New Rivers	34,000	54,507		
	$ 120,000	$ 172,740		52,740
Total	$3,000,000	$3,160,539	$38,585	$199,124

Valuations and Assessments:

During the year the net assessed valuation was decreased by $421,466. Payments required to meet matured bond interest, bond redemption and amounts due on Laguna Dam contract, have and will steadily increase until the year 1928, in which year the bond interest maturing will be $11,000 less than for the year 1927, as shown by the following tabulation:

Year	*Net Assessed Valuation	Per Cent. of 1920-21	Fixed Charges	Per Cent. of 1920-21	Rate Required
1920-21	$45,555,551	100.0	$ 469,500	100.0	1.03
1921-22	40,983,642	89.9	694,500	147.9	1.69
1922-23	39,413,783	86.5	951,500	202.7	2.41
1923-24	36,573,181	80.3	951,500	202.7	2.60
1924-25	36,050,103	79.1	1,080,750	230.2	3.00
1925-26	40,393,572	88.7	1,123,875	239.4	2.78
1926-27	41,563,353	91.2	1,164,250	248.0	2.80
1927-28	41,141,887	90.3	1,153,250	245.6	2.80

*15% less than the total assessment set up on books of Assessor and Collector.

Land Assessments paid before issuance of Certificates of Sale, for the above years are as follows:

Year	Assessed Valuation	Rate	Total of Assessments	Paid	Per Cent.
1920-21	$53,594,766	.025	$1,339,869	$1,074,167	80.2
1921-22	48,216,049	.011	530,376	446,895	84.3
1922-23	46,369,156	.025	1,159,229	1,003,769	86.6
1923-24	43,027,272	.050	2,151,364	1,913,928	89.0
1924-25	42,411,886	.050	2,120,594	1,824,825	86.1
1925-26	47,521,849	.050	2,376,092	2,076,669	87.4
1926-27	48,898,062	.050	2,444,903	2,061,477	84.3
1927-28	48,402,220	.050	2,420,111	* 967,337	40.0

* To December 31st, 1927.

The following statement shows the portion of each year's assessment transferred to certificates of sale, the percentage of this portion to the total assessment, the amount of certificates of sale for each year unpaid on December 31st, 1927, and the percentage of these unpaid certificates of sale to the total assessment.

Year of Assessment Levy	Portion of Assessment Transferred to Certificates of Sale	Per Cent of Total Assessment	Certificates of Sale Unpaid, December 31, 1927	Per Cent. of Total Ass't.
1920-21	$ 260,698*	19.5	$ 45,011	3.36
1921-22	83,479	15.7	19,402	3.66
1922-23	155,461	13.4	45,039	3.89
1923-24	244,706	11.3	86,241	4.01
1924-25	293,623	13.8	131,806	6.22
1925-26	298,500	12.6	200,420	8.43
1926-27	381,216	15.6	358,660	14.67
Total	$1,717,683		$886.579	

* Approximate for 1920-21.

Comparison of Asset and Expense Expenditures and Income:

The following table gives a comparison of expenditures by asset and expense accounts, exclusive of those in connection with absorption of Mutual Water Companies and Drainage Construction from funds derived from the sale of bonds. The asset accounts include only new construction and cost of replacing major wooden structures with concrete; expense accounts include operation, maintenance of canals, maintenance of structures, etc.

	Asset Expenditures		Bonded Indebtedness and Expense		
Year	Laguna Dam	Other	Bond Interest and Principal	Other	Totals
1921	$32,000	$577,654	$ 434,411	$ 934,393	$1,978,458
1922	32,000	653,499	408,555	898,796	1,992,850
1923	64,000	721,480	724,165	1,634,989	3,144,634
1924	64,000	429,157	794,977	1,632,321	2,920,455
1925	96,000	365,565	961,850	1,772,730	3,196,145
1926	96,000	224,418	1,068,645	1,783,786	3,172,849
1927	96,000	266,181	1,077,717	1,720,643	3,160,541

The revenue from water sales and service charges, together with amounts realized from redemption of Certificates of Sale, was as follows:

Year	Water Sales and Service Charges Mexico	United States	Redemption of Certificates (Including Interest)	Total
1921	$334,938	$ 765,464	$ 75,125	$1,175,527
1922	469,741	788,952	168,887	1,427,580
1923	526,972	* 920,047	176,707	1,623,726
1924	532,418	*1,039,658	178,344	1,750,420
1925	630,259	*1,019,248	258,704	1,908,211
1926	585,156	82,955	219,774	887,885
1927	496,017	82,308	211,564	789,889

* Assessment credits were applied on water sales as follows:

On 1923 water sales—	$ 1,677
On 1924 water sales—	743,960
On 1925 water sales—	765,655

After deducting these credits, the revenue from United States water sales for the three years was as follows:

1923	$918,370
1924	295,698
1925	253,593

Changes In Method of Collection for Water:

In establishing the rate for the 1923-24 levy and water tolls, a change was made from the previous practice in that, whereas the toll charges remained the same, $1.00 per acre foot, the assessment rate was increased from $2.50 to $5.00 per hundred dollar valuation, and an assessment credit was allowed to apply on water used equal to one-half of the assessment paid on land assessed on an acreage basis, for water delivered after payment of the assessment. This was later changed so that credits would apply to water used in 1924 previous to date of payment, provided payment was made on or before December 31st, 1924. This was again changed so that in 1925, credits would apply on water used at any time during the year irrespective of the dates upon which payments of assessments were made. In 1924 the District also collected from tenants for water used, and refunded to owners up to but not exceeding the amount of the assessment credit, but in 1925 no collections were made from tenants for water used until the assessment credit had been entirely exhausted.

Effective January 1st, 1926, land assessed on an acreage basis was allowed all water required without charge, except for a service charge of 25 cents per gate per day for each and every day water was delivered. For lands within incorporated cities and towns, the charge remained at $1.00 per acre foot but without the service charge.

DISTRICT PROBLEMS:

The following are some of the many problems facing the District, and which merit the consideration of individuals and organizations interested in the welfare of the District and the valley.

Colorado River Control.
Boulder Canyon Dam.
Diversion with Temporary Weir.
Laguna Dam Connection.
Drainage.
Reclamation of Drained and Alkali Lands.
Transporting Water through Mexico.
Replacement of Major Wooden Structures.
Replacement of Thousands of Minor Structures.
Extension of Lateral Systems.
Extension of Waste Systems.
Additional Right-of-Way along Canals for Silt.
Disposition of Silt.
Eradication of Weeds and Vegetation.
Gophers, Squirrels and Muskrats.
Protection of East High Line Canal from Cloudbursts.
Protection of West Side Main Canal from Cloudbursts.
Construction of Additional Wasteways.
Lining of Canals to Prevent Seepage.
Disposition of Waste and Sluice Waters.
More Electrical Power Service for the Farm.
Increased Acreage in Cultivation.

FINANCIAL AND COST STATEMENTS AND TABULATIONS:

I herewith submit the several Financial and Cost Statements for the year 1927, together with additional statements and tabulations concerning the current year's operations. They are more particularly enumerated as follows:

1. Financial Statement.
2. Statement of Accrued Income and Expense.
3. Adjustments to Surplus Account.
4. Statement of Cash Receipts and Disbursements.
5. Statement of Cash Receipts by the Collector.
6. Expenditures for Calendar Years 1923 to 1927, inclusive.
7. Drainage Tabulations.
8. River Discharge and Diversion at Hanlon.
9. Bond Issues, Principal and Interest.
10. Crop Report.
11. Water, Weather and Crop Report.
12. Meteorological Data.
13. Graph showing Bond and Laguna Dam Payments.
14. Graph showing Expenditures.
15. Salton Sea Elevations.
16. Affidavit of Business Manager.

Financial Statement

December 31st, 1927

BALANCE SHEET

ASSETS

CURRENT ASSETS:		
Cash	$ 989,790.08	
Materials and Supplies	327,007.07	
Accounts Receivable	2,415,295.18	
Total Current Assets		$ 3,732,162.33
FIXED ASSETS:		
Canal System, Additions and Betterments	$10,387,027.34	
Protective Works	3,011,987.15	
Drainage Canals and Structure	2,590,453.33	
Equipment and Facilities	1,224,164.33	
Laguna Dam Equity	544,000.00	
Buildings	326,889.47	
Land	113,646.61	
Other Fixed Assets	15,137.27	
Total Fixed Assets		18,213,305.50
DEFERRED ASSETS AND CHARGES.		
Laguna Dam Diversion Right	$ 1,056,000.00	
Funds Advanced	27,011.45	
Deferred Charges to Operation	17,165.64	
Other Deferred Assets and Charges	35,933.99	
Total Deferred Assets and Charges		1,136,111.08
Total Assets		$23,081,578.91

LIABILITIES AND SURPLUS

CURRENT LIABILITIES:		
Unpaid Matured Bond Interest	$ 436,100.00	
Unpaid Warrants	362,524.92	
Third Issue Bonds Maturing July 1, 1928	200,000.00	
Other Accounts Payable	126,057.77	
Total Current Liabilities		$ 1,124,682.69
BONDED INDEBTEDNESS:		15,350,000.00
DEFERRED LIABILITIES AND CREDITS:		
Laguna Dam Diversion Right	$ 1,056,000.00	
1927 Assessments - Budget Year 1928	2,418,771.20	
Other Deferred Liabilities and Credits	23,133.58	
Total Deferred Liabilities and Credits		3,497,904.78
SURPLUS:		
Surplus of Prior Years	$ 2,813,759.52	
Surplus of Year 1927	295,231.92	
Total Surplus		3,108,991.44
Total Liabilities and Surplus		$23,081,578.91

DETAIL OF FINANCIAL STATEMENT

ASSETS

I—CASH:			
Cash with District Treasurer:			
General Fund	$ 2,853.40		
Construction Fund	148,679.24		
Bond Fund	257,212.50		
Compania Fund	36,154.50		
Compania Special Tax Fund	20,418.01	$ 465,317.65	
Cash with Assessor and Collector		510,778.33	
Cashier Account Revolving Fund		10,798.36	
Petty Cash Funds		1,690.00	
Cash in Transit to Treasurer		1,205.74	
Total Cash			$ 989,790.08
II—MATERIALS AND SUPPLIES:			
Value of Stores on Hand:			
Mercantile Store, Andrade	$ 2,722.09		
Mess Houses	1,171.65	$ 3,893.74	
Value of Stores, Storehouses and Material Yards:			
Andrade	$ 83,115.21		
Brawley	1,663.51		
Calexico	684.47		
Calipatria	3,808.44		
Holtville	2,257.83		
Imperial	53,637.00		
Imperial Shop Stores	135,357.27		
Mexicali	20,265.45		
Volcano Junction	1,968.43	302,757.61	
Quarried Rock, Andrade		17,249.32	
Materials and Supplies in Process		982.50	
Unallocated Charges to Materials and Supplies		1,202.23	
Materials and Supplies in Transit		989.63	
Mexican Revenue Stamps		2.04	
Total Materials and Supplies			327,077.07
III—ACCOUNTS RECEIVABLE:			
Assessor and Collector —1927-28 Assessments		$ 1,451,434.31	
Certificates of Sale - Delinquent Assessments		932,689.40	
Uncollected Water Sales and Service Charges, United States		20,070.24	
Miscellaneous Accounts Receivable		9,976.75	
Accrued Interest Receivable		220.29	
Notes Receivable		904.19	
Total Accounts Receivable			2,415,295.18
Forward			$3,732,162.33

Brought Forward				$ 3,732,162.33

IV—DEFERRED ASSETS AND CHARGES:

Laguna Dam Diversion Right..			$ 1,056,000.00	
Funds Advanced:				
For Litigation ....$		7,265.56		
For Special Investigations, etc.		19,745.89	27,011.45	
Doubtful Accounts Receivable..			22,613.72	
Prepaid Insurance			10,597.25	
Deferred Charges to Operation			6,568.39	
Funds with Liquidator - Farmers and Merchants Bank........			9,738.07	
Obsolete Materials and Supplies			3,582.20	
Total Deferred Assets and Charges				1,136,111.08

V—FIXED ASSETS:

Canal System, Additions and Betterments		$10,387,027.34		
Protective Works		3,011,987.15		
Drainage Canals & Structures		2,590,453.33		
Laguna Dam Equity		544,000.00		
Buildings $400,326.97				
Less Reserve for Depreciation	73,437.50	326,889.47		
Land		113,646.61		
Total Construction Costs......				16,974,003.90
Equipment and Facilities:				
Excavating Machinery and Field Equipment ....$		1,494,477.36		
Less Reserve for Depreciation		715,082.16	$ 779,395.20	
Rolling Stock ....$		223,473.95		
Less Reserve for Depreciation		53,623.08	169,850.87	
Telephone and Power Lines......$		104,445.73		
Less Reserve for Depreciation		7,713.51	96,732.22	
Shop Machinery ....$		74,255.67		
Less Reserve for Depreciation		19,507.16	54,748.51	
Office Equipment ....$		53,622.52		
Less Reserve for Depreciation		8,620.72	45,001.80	
Automobiles and Trucks............$		68,864.82		
Less Reserve for Depreciation		42,154.79	26,710.03	
Commissary Equipment ....$		42,193.43		
Less Reserve for Depreciation		20,354.00	21,839.43	
Live Stock			15,330.00	
Shop Tools			14,556.27	
Total Equipment and Facilities				1,224,164.33
Forward				$23,066,441.64

Brought Forward			$23,066,441.64
Other Fixed Assets:			
Land Held Under District Tax Deeds		$ 5,297.27	
Salton Sea Flooding Easements		9,540.00	
Investments in Stock of Other Companies		300.00	15,137.27
Total Fixed Assets			$18,213,305.50
Grand Total Assets			$23,081,578.91

LIABILITIES AND SURPLUS

VI—ACCOUNTS PAYABLE:

Unpaid District Warrants........$	410,068.41		
Less Warrants favor Compania Fund, held by Treasurer	47,543.49	$ 362,524.92	
Third Issue Bonds Maturing July 1st, 1928........................		200,000.00	
Unpaid Matured Bond Interest		436,100.00	
Unpaid Interest on District warrants		1,365.87	
Unpaid District Time Vouchers		43,886.37	
Unpaid Compania Time Vouchers		8,505.00	
Unpaid Compania Vouchers		1,640.51	
Unpaid Revolving Fund Checks		3,398.24	
Unpaid Purchases		41,692.96	
Unpaid Mexican Federal Water Tax		20,147.19	
Unpaid State Compensation Insurance		5,192.28	
Unredeemed Mercantile Store Coupons		229.35	
Total Accounts Payable........			$ 1,124,682.69
Forward			$1,124,682.69

Brought Forward			$1,124,682.69
VII—DEFERRED LIABILITIES AND CREDITS:			
Laguna Dam Diversion Right		$ 1,056,000.00	
Advance Deposits on Water Accounts, Mexico		16,307.35	
Guaranty Deposits on Water Accounts, U. S.		861.00	
Deposits for Construction Work, (Removal Date Canal)		5,935.23	
Unapplied Cash Collections		30.00	
Total Deferred Liabilities and Credits			1,079,133.58
VIII—DEFERRED REVENUES:			
Assessments levied by District, Year 1927-28			2,418,771.20
IX—BONDED INDEBTEDNESS:			
Imperial Irrigation District Bonds:			
First Issue 5%		$ 3,500,000.00	
Second Issue 5%		2,500,000.00	
Third Issue 5½%	$ 2,050,000.00		
Less Bonds Maturing July 1st, 1928	200,000.00	1,850,000.00	
Fourth Issue 6%		7,500,000.00	
Total Bonded Indebtedness			15,350,000.00
X—SURPLUS:			
Surplus of Prior Years		$ 2,813,759.52	
Surplus of Current Year		295,231.92	
Total Surplus			3,108,991.44
Grand Total Liabilities and Surplus			$23,081,578.91

INCOME AND EXPENSE STATEMENT FOR YEAR 1927

INCOME:			
Assessments for Year 1927 (1926-27 Levy)			$2,441,883.80
Water Sales and Service Charges:			
Water Sales—Mexico		$ 496,017.37	
Water Sales—United States		14,483.65	
Service Charges — United States		67,824.13	
Total Water Sales and Service Charges			578,325.15
Total Operating Income			$3,020,208.95
Miscellaneous Income:			
Penalties and Costs on 1927 Assessment		$ 54,542.00	
Interest Received on Certificates of Sale		38,322.33	
Interest Earned on Bank Deposits		11,434.23	
Gain on Exchange for Mexican Currency		6,649.44	
Rental of District Property		5,220.50	
Cash Discounts on Purchases		5,413.63	
Unpayable Accounts		1,159.05	
Miscellaneous Revenue		3,613.57	
Interest Earned, Miscellaneous		81.97	
Total Miscellaneous Income			126,436.72
Total Income			$3,146,645.67
EXPENSES:			
Operation and Maintenance of System		$1,723,694.16	
Depreciation of Buildings, Equipment and Facilities		202,460.29	
Accrued Interest on District Bonds		868,250.00	
Total Operating Expenses		$2,794,404.45	
Miscellaneous Expenses:			
Interest on District Warrants	$ 18,439.88		
Loss on Material and Supplies, Inventory Adjustments	15,100.94		
Fire Loss, Andrade Warehouse	12,494.69		
Loss on Exchange of Mexican Currency	5,913.30		
Uncollected Accounts Receivable	623.04		
Taxes	236.20		
Interest on Accounts Payable	222.62		
Miscellaneous Losses	3,978.63		
Total Miscellaneous Expenses		57,009.30	
Total Expenses			2,851,413.75
Surplus of Income over Expenses for Year 1927			$ 295,231.92

ADJUSTMENTS TO SURPLUS ACCOUNTS

	Debit	Credit
Balance as per Financial Statement, Surplus, December 31st, 1926		$2,866,395.29
ADJUSTMENTS:		
Loss on Obsolete and Abandoned Dredges Alpha and Iota	$ 24,480.00	
Cancellations of Certificates of Sale	14,006.78	
Adjustments to Reserve for Depreciation of Field Equipment	9,040.72	
Adjustment of Materials and Supplies Clearing Account	8,052.47	
Loss on Caterpillars discarded	8,009.21	
Expense in Connection with Experimental Dredge	4,781.47	
Gopher Bounty Expense, Year 1926	4,265.93	
Cancellation of Amount Due for Land Leased	1,950.00	
Adjustment of Live Stock Account to Inventory	1,120.10	
Loss on Old Fairbanks-Morse Engine sold	1,000.00	
Loss on Automobiles Traded in or Scrapped	940.43	
Miscellaneous Debit Adjustments	2,935.38	
Adjustment to Reserve for Depreciation of Auto Vehicles		10,793.14
Adjustment of Expense for Salton Sea Flooding Easements		9,440.00
Dividend on State Compensation Insurance for Year 1926		4,098.47
Andrade Fire Loss Adjustment		2,334.29
Miscellaneous Credit Adjustments		1,280.82
Excess of Income Over Expense for Year 1927 as per statement		295,231.92
Surplus, December 31st, 1927	3,108,991.44	
Total	$3,189,573.93	$3,189,573.93

Statement of Cash Receipts and Disbursements by Funds

GENERAL FUND

Balance on Hand January 1st, 1927		$ 89,856.42
RECEIPTS:		
From Assessor and Collector as per schedule	$1,330,737.83	
Collections from Water Sales and Service Charges, United States	86,174.94	
From Insurance Companies for Fire Loss, Andrade Warehouse	41,699.07	
Interest on Bank Deposits	18,903.86	
Refunds of Cash Advances	16,567.67	
From City of El Centro for Removal of Date Canal	15,000.00	
Payments for Delivery Gates, Checks and Waste Boxes	7,656.89	
Refunds by State of California of gasoline tax	6,787.65	
Payments for dredging and shoveling private ditches	6,695.89	
For Drain Pipes Sold to Water Users	6,619.38	
Sales of Tax Deeds	6,408.31	
Andrade Mercantile Store Sales	6,213.36	
Rental of Buildings and Property	5,220.50	
Deposit of Cudahy Farm Operating Co. for drain construction	4,858.00	
From Certificates of Sale sold to others	4,369.09	
From Colorado River Land Co. for levee construction expenses	2,108.54	
Sale of Fairbanks-Morse Engine	2,000.00	
Miscellaneous Materials & Supplies Sold	1,888.74	
Payments for Building or Repairing Private Bridges	1,258.64	
Sales of old equipment and junk	1,173.73	
From Delta Canal Co. for rock and freight	1,008.55	
From Colorado River Land Co., for rental of Power Line	1,000.00	
Payments for syphons and flumes	948.47	
State Compensation Insurance dividend	792.57	
Interest on Certificates of Sale sold to others	627.05	
For repairs to telephone lines of others	468.47	
Shop Repair Work for others	448.87	
Freight Refunds	424.95	
Payments for personal telephone calls	386.26	
Payments for unloading gravel	382.56	
Share of Crop on District Land	309.75	
Payments for pumping water from land	133.66	
Sales of old District buildings	120.00	
Sales of Maps and Blue Prints	106.35	
Insurance Premiums returned	91.07	
Other miscellaneous receipts	8,184.13	
Total Receipts		1,587,774.80
Forward		$1,627,631.22

Brought Forward			$ 1,627,631.22
Transfers From:			
Compania Fund		$ 344,573.11	
Construction Fund		223,151.55	
Bond Fund		85,364.34	
Petty Cash Fund		100.00	653,189.00
Total			$ 2,280,820.22
DISBURSEMENTS:			
Audited Warrants	$ 617,403.18		
Interest on Registered Warrants	17,074.01	$ 634,477.19	
Transfers To:			
Compania Fund	$ 1,313,926.08		
Revolving Fund	294,893.09		
Bond Fund	34,670.46	1,643,489.63	
Total			2,277,966.82
Balance in General Fund December 31st, 1927			$ 2,853.40

CONSTRUCTION FUND

Balance on Hand January 1st, 1927		$ 371,830.79
RECEIPTS:		
None		
DISBURSEMENTS:		
Transfers:		
To General Fund, covering expenditures for construction of drainage canals and structures		223,151.55
Balance in Construction Fund December 31st, 1927		$ 148,679.24

BOND FUND

Balance on Hand January 1st, 1927			$ 165,439.42
RECEIPTS:			
From Assessor and Collector as per schedule		$ 1,220,184.46	
Transfers:			
From General Fund		34,670.46	1,254,854.92
			$ 1,420,294.34
DISBURSEMENTS:			
Matured Bond Interest Paid	$ 875,717.50		
Matured Bonds Paid	202,000.00	$ 1,077,717.50	
Transfers:			
To General Fund		85,364.34	1,163,081.84
Balance in Bond Fund, December 31st, 1927			$ 257,212.50

CASHIER ACCOUNT REVOLVING FUND

Balance on Hand January 1st, 1927		$ 5,953.43
RECEIPTS:		
Cash Received in exchange for Checks	$ 56.70	
Transfers:		
From General Fund	294,893.09	294,949.79
		$ 300,903.22
DISBURSEMENTS:		
Audited Cashier Account Checks	$ 257,980.26	
Audited Andrade Drafts	22,426.32	
	$ 280,406.58	
Transfers:		
To Petty Cash Fund	50.00	280,456.58
		$ 20,446.64
Less Cash with Receiver, Farmers and Merchants Bank of Imperial		9,648.28
Balance in Revolving Fund December 31st, 1927		$ 10,798.36

COMPANIA FUND

Balance on Hand January 1st, 1927			$ 9,086.73
RECEIPTS:			
From Water Users, Mexico		$ 544,884.92	
Interest on Bank Deposits		600.00	
Miscellaneous Accounts Receivable		1,100.00	
		$ 546,584.92	
Transfers:			
From General Fund		1,313,926.08	1,860,511.00
Total			$ 1,869,597.73
DISBURSEMENTS:			
District Time Vouchers	$ 1,290,582.15		
Compania Time Vouchers	143,377.44		
Compania Vouchers	13,903.41		
		$ 1,447,863.00	
Loss on Exchange		5,913.30	
		$ 1,453,776.30	
Transfers To:			
General Fund	$ 344,573.11		
Compania Tax Fund	35,093.82	379,666.93	1,833,443.23
Balance in Compania Fund December 31st, 1927			$ 36,154.50

COMPANIA TAX FUND

Balance on Hand January 1st, 1927	$	43,532.01
RECEIPTS:		
Transfers from Compania Fund		35,093.82
	$	78,625.83
DISBURSEMENTS:		
Vouchers in payment of Mexican Federal Water Tax for 1926 and first half of 1927		58,207.82
Balance in Compania Tax Fund December 31st, 1927	$	20,418.01

PETTY CASH FUND

Balance on Hand January 1st, 1927	$	1,740.00
RECEIPTS:		
Transfers from Revolving Fund		50.00
Total	$	1,790.00
DISBURSEMENTS:		
Transfers to General Fund		100.00
Balance in Petty Cash Funds December 31st, 1827	$	1,690.00

CASH WITH ASSESSOR AND COLLECTOR

Cash Balance with Assessor and Collector on January 1st, 1927			$ 813,609.45
RECEIPTS:			
1926 Assessment Levy		$ 1,061,934.78	
1927 Assessment Levy		967,336.89	
Redemption of Certificates of Sale:			
Year			
1915	$ 1.05		
1916	7.53		
1917	15.74		
1918	37.57		
1919	79.58		
1920	1,371.98		
1921	1,009.88		
1922	8,564.90		
1923	6,965.01		
1924	16,915.67		
1925	74,274.13		
1926	59,660.17	168,903.21	
Interest on Certificate of Sale Redeemed		37,797.59	
Penalties and Costs on 1926 Assessments		12,118.70	
Total Receipts			2,248,091.17
Total			$ 3,061,700.62
DEPOSITED WITH DISTRICT TREASURER:			
In General Fund		$ 1,330,737.83	
In Bond Fund		1,220,184.46	2,550,922.29
Cash Balance with Assessor and Collector on December 31st, 1927			$ 510,778.33

Expenditures for Calendar Years 1924 to 1927 Inclusive

No.	Feature Item	1924	1925	1926	1927
1.	**BOARD OF DIRECTORS:**				
	El Centro Office	$ 77,664.77	$ 88,818.41	$ 93,140.39	$100,406.69
2.	**GENERAL ADMINISTRATION:**				
	Headquarters Office	$106,305.03	$ 96,693.39	$ 87,378.63	$ 88,922.17
3.	**STORAGE:**				
	Boulder Canyon Dam	$ 23,869.00	$ 26,310.66	$ 6,386.76	$ 67,148.03
4.	**DIVERSION:**				
	Laguna Dam Contract	$132,480.00		$192,000.00	$ 96,000.00
	Diversion Gates	21,382.10	$ 21,365.08	20,624.18	24,653.96
	Revetment of Intake	1,767.46	834.61	2,471.17	2,669.51
	Weir Construction	16,004.46	11,670.78	8,762.57	2,346.82
	Weir Maintenance	9,686.82	5,615.53	10,002.34	12,300.02
	Dredging	72,277.59	79,714.54	72,631.31	80,708.10
	Miscellaneous Operations	9,361.79	11,943.55	13,825.85	12,752.62
	Total	$262,960.22	$131,144.09	$320,317.42	$231,431.03
5.	**WATER DISTRIBUTION:**				
	Mexico:				
	Canal Operation	$ 62,338.81	$ 64,197.79	$ 64,649.26	$ 62,411.20
	Canal Maintenance	145,534.46	134,897.30	89,670.77	73,971.51
	Structure Maintenance	13,349.69	10,933.51	4,595.06	10,232.25
	Canal Construction				
	Structure Construction	17,733.75		2,549.54	
	Total	$238,956.71	$210,028.60	$161,464.63	$146,614.96
	United States:				
	Canal Operation	$ 213,627.66	$211,429.37	$197,207.38	$191,970.91
	Canal Maintenance	675,700.17	684,328.94	675,335.85	637,375.36
	Structure Maintenance	124,275.45	101,071.06	118,851.19	145,034.49
	Canal Construction	35,576.58	4,908.39	11,722.17	10,313.24
	Structure Construction	90,757.87	90,451.81	31,118.76	33,425.49
	Total	$1,139,937.73	$1,092,189.57	$1,034,235.35	$1,018,119.49

No.	Feature Item	1924	1925	1926	1927
6.	**RIVER PROTECTION:**				
	Pescadero Cut Maintenance		$ 3,877.34		
	Improvements to Levee System	$58,971.87	66,747.40	$ 42,452.32	$ 48,001.51
	Patrolling and Maintaining Levees	17,231.29	11,085.32	70,463.60	77,145.32
	Total	$76,203.16	$ 81,710.06	$ 112,915.92	$ 125,146.83
7.	**REAL ESTATE, BUILDINGS, ETC.:**				
	Telephone and Power Lines, Operation and Maintenance	$ 26,822.38	$ 23,329.49	$ 24,799.30	$ 26,238.70
	Telephone and Power Line, Construction	1,295.22	21,399.54	2,420.48	361.53
	Real Estate and Buildings, Maintenance	10,164.80	10,778.87	17,978.37	15,975.88
	Real Estate and Buildings, Construction	15,910.62	109,322.53	7,640.41	9,618.51
	Equipment, Renewals and Purchases	154,031.30	41,355.31	64,065.34	63,024.97
	Total	$208,224.32	$206,185.74	$ 116,903.90	$ 115,219.59
8.	**BONDED INDEBTEDNESS:**				
	Bond Interest	$ 794,977.50	$863,850.00	$ 923,645.00	$ 875,717.50
	Discount on Bonds Sold	13,750.00			
	Redemption of Bonds		98,000.00	145,000.00	202,000.00
	Interest on Registered Warrants		9,554.97	5,904.81	17,074.01
	Total	$ 808,727.50	$971,404.97	$1,074,549.81	$1,094,791.51
9.	**SPECIAL CONSTRUCTION, MAINTENANCE AND MISCELLANEOUS:**				
	Drainage Construction, General Fund		$ 12,257.23	$ 55,363.76	$ 34,287.36
	Drainage Maintenance	$ 28,842.30	77,522.01	60,447.21	83,946.43
	New River Outlet	30,994.68	16,807.77	14,272.65	26,628.64
	New River Bank Protection		152.95	684.83	1,016.61
	Alamo River Outlet		1,083.85	517.70	12,179.70
	Alamo River Bank Protection		1,488.07	13,540.31	9,886.24
	Adjustment of Salton Sea Claims			116,031.22	4,795.46
	Miscellaneous		9,430.77	698.47	
	Total	$ 59,836.98	$118,742.65	$ 261,556.15	$ 172,740.44

Summary

	1924	1925	1926	1927
1. Board of Directors	$ 77,664.77	$ 88,818.41	$ 93,140.39	$ 100,406.69
2. General Administration	106,305.09	96,693.39	87,378.63	88,922.17
3. Storage	23,869.00	26,310.66	6,386.76	67,148.03
4. Diversion	262,960.22	131,144.09	320,317.42	231,431.03
5. Water Distribution, Mexico	238,953.71	210,028.60	161,464.63	146,614.96
Water Distribution, United States	1,139,937.73	1,092,189.57	1,034,235.35	1,018,119.49
6. River Protection	76,203.16	81,710.06	112,915.92	125,146.83
7. Real Estate, Buildings, Facilities, Etc.	208,224.32	206,185.74	116,903.90	115,219.59
8. Bonded Indebtedness	803,727.50	971,404.97	1,074,549.81	1,094,791.51
9. Special Construction and Miscellaneous	59,836.98	118,742.65	261,556.15	172,740.44
Total Budget Expenditures	$3,002,685.[illegible]8	$3,023,228.14	$3,268,848.96	$3,160,540.74
Drainage Construction, Construction Fund	568,801.21	507,893.88	274,629.37	228,938.59
Total, including Drainage Construction, Construction Fund	$3,571,486.69	$3,531,122.02	$3,543,478.33	$3,389,479.33
Capital Account	$1,130,438.40	873,458.75	836,047.48	793,119.23
Expense Accounts	$2,441,048.29	2,657,663.27	2,707,430.85	2,596,360.10

Drainage

DRAINAGE CONSTRUCTION EXPENDITURES

General Fund

	Miles Prior to 1927	Miles During 1927	Cost
East of Alamo	29.79	2.37	$221,958.93
Between Alamo and New Rivers	1.66	1.77	30,842.74
West of New River	6.06	1.02	27,005.97
Engineering, etc.			74,101.88
Alignment of Rivers			11,351.09
Total	37.51	5.16	$365,260.61
Total Miles		42.67	

Construction Fund

	State Authorization Miles	State Authorization Amount	Work Completed Miles	Work Completed Cost
East of Alamo	72.25	$ 617,341.23	50.50	$ 598,908.57
Between Alamo and New Rivers	67.70	807,322.80	73.97	837,765.41
West of New River	59.60	510,357.16	53.69	394,597.04
Engineering, etc.		291,154.62		277,790.42
Purchase of Machinery		191,413.99		191,413.99
Alignment of Rivers		24,722.98		24,722.98
Total	199.55	$2,442,312.78	178.16	$2,325,198.41
Total, General and Construction Funds			220.83	2,690,459.02

SUMMARY OF DRAINAGE EXPENDITURES

	1927	1926	Total to Date
Preliminary Expenditures Prior to 1922			$ 39,965.53
Purchase of Equipment			191,413.99
Engineering and Surveying	$ 24,298.64	$ 30,147.82	249,976.44
Rights-of-Way and Land	4,510.90	5,127.62	56,049.64
Major and Minor Structures	53,667.99	84,129.51	694,207.77
Drain Ditch and Canal Construction	180,748.42	210,588.18	1,422,771.58
Channel Training and Bank Protection			36,074.07
Total	$263,225.95	$329,993.13	$2,690,459.02

FUNDS FROM SALE OF FOURTH ISSUE BONDS

Delivery Date	Par Value		Realized
August 5th, 1922	$2,000,000.00 at 94.5		$1,890,000.00
August 31st, 1922	2,500,000.00 at 94.5		2,362,500.00
November 6th, 1922	1,000,000.00 at 94.5		945,000.00
January 2nd, 1922-Bonus			7,500.00
November 6th, 1922	500,000.00 at 97.5		487,500.00
April 11th, 1924	50,000.00 at 97.5		48,750.00
May 29th, 1924	100,000.00 at 97.5		97,500.00
June 23rd, 1924	100,000.00 at 97.5		97,500.00
July 2nd, 1924	300,000.00 at 97.5		292,500.00
October 31st, 1924	500,000.00 at 100.		500,000.00
March 31st, 1925	450,000.00 at 101.		454,500.00
Total	$7,500,000.00		
Discount	316,750.00		
Funds Available			$7,183,250.00
Authorizations			7,166,924.78
Less Expenditures to December 31st, 1927			7,049,810.41
Authorizations Unexpended			117,114.37
Add Amount Unauthorized:			
Proceeds	$7,183,250.00		
Less Authorizations	7,166,924.78		16,325.22
Amount Available for Future Work			$ 133,439.59
Less Amount Required to Complete			49.821.01
			$ 83,618.58

MAJOR DRAINAGE STRUCTURES COMPLETED DURING YEAR 1927

	No.	Cost	Average Cost
4-Ton Bridges	23	$ 9,896.52	$ 430.28
8-Ton Bridges	13	7,758.74	596.83
12-Ton Bridges	1	1,051.71	1,051.71
No. 72 Flumes	11	5,470.80	497.36
No. 84 Flumes	2	986.38	493.19
No. 108 Flumes	4	4,003.67	1,000.92
No. 120 Flumes	4	3,196.31	799.08
No. 132 Flumes	1	1,177.44	1,177.44
No. 144 Flumes	1	923.37	923.37
Special Flumes (Pipe)	6	7,457.80	1,242.97
Special Culverts	6	14,012.46	2,335.41

Average Cost of Drainage Structures

	1924 Average	1925 Average	1926 Average	1927 Average	1923 to 1927 Inclusive No.	Amount	Average
Bridges:							
4 Ton	$ 667.71	$ 472.55	$ 434.62	$ 430.28	146	$ 83,317.55	$ 570.67
8 Ton	747.67	617.79	599.21	596.83	129	96,133.01	745.20
12 Ton		976.80		1,051.71	7	8,351.38	1,193.05
Flumes:							
No. 72	834.98	717.31	666.53	497.36	141	104,722.13	742.71
No. 84		831.47	799.39	493.19	10	7,541.94	754.19
No. 96		980.42	773.69	None	13	12,331.99	948.61
No. 108	1,146.82	999.45	818.10	1,000.92	50	54,050.40	1,081.01
No. 120	1,287.41	1,101.63	931.14	799.08	42	47,305.40	1,126.32
No. 132		1,193.23	1,083.59	1,177.44	8	8,872.25	1,109.03
No. 144				923.37	1	923.37	923.37
Special Flumes				1,242.97	6	7,457.80	1,242.97

SUMMARY OF DRAINAGE EXCAVATION

Drains	Cubic Yards Excav. 1927	Unit Cost	Miles 1927	Total Yards To Date	Unit Cost	Mileage to Date
Ash				45,593	.138	1.50
Calipatria No. 2				123,485	.063	2.39
Central Main Drain and Extension				977,190	.095	14.70
Central No. 2				237,277	.065	4.41
Central No. 3				471,782	.071	7.64
Dahlia Tile				48,193	.108	2.47
Dixie No. 1				208,998	.089	4.10
Dixie No. 2				70,364	.065	1.52
Dixie No. 3, 3A and 3B				230,378	.077	4.61
Dixie No. 4 and 4A	106,864	.101	1.64	250,559	.089	3.85
Greeson Wash				162,572	.161	8.71
Greeson No. 1				19,686	.182	.47
Holtville Main				1,097,271	.098	23.00
Holtville No. 1 and Extension				262,390	.111	5.01
Holtville No. 2				6[illegible]3,579	.102	10.81
Holtville 2A and 2B	136,604	.098	2.94	136,954	.098	2.94
Holtville 2C Drain				90,268	.138	2.31
Holtville 2D and 2DA	94,363	.095	1.81	197,931	.079	3.64
Holtville No. 3				157,960	.114	2.50
Holtville No. 6 and Extension				441,374	.098	8.66
Holtville No. 7 Drain				114,309	.061	2.14
Holtville No. 8				459,800	.059	7.57
Holtville No. 9 and 9A				72,588	.123	2.52
Holtville No. 11				19,156	.133	.52
Mesquite Drain				420,768	.068	7.52
Mt. Signal Drain				322,720	.067	5.40
Mt. Signal No. 1 and 1A Drains				124,142	.067	2.69
No. 9 Drain				337,675	.094	6.72
Orchid Outlet				118,394	.110	1.63
Outlets—Miscellaneous				18,297	.061	.75
Rose Outlet Drain				543,145	.100	7.80
Rose No. 1 Drain				315,863	.071	5.74
South Central Drain				652,051	.067	11.78
Schilling Tile Drain				4,250	.151	.64
Trifolium No. 1 Drain				518,370	.074	11.87
Trifolium No. 2 Drain	136,108	.094	2.37	378,686	.080	7.00
Westmorland	78,216	.133	1.04	120,716	.110	3.47
Holtville No. 4	106,952	.085	2.52	106,952	.085	2.52
Spruce	229,904	.086	5.19	229,904	.086	5.19
Bonds Corner Drain	56,071	.155	2.37	56,071	.155	2.37
Moss				20,948	.122	.90
Timothy No. 1	28,650	.083	1.02	50,168	.072	1.61
Timothy No. 2				26,440	.098	1.68
Gerrard Drain	20,952	.076	1.77	20,952	.076	1.77
Trifolium Storm	48,639	.087		81,409	.093	3.79
Total	1,043,323	.0[illegible]8	22.67	11,057,578	.087	220.83

COMPARISON OF COLORADO RIVER DISCHARGE AT YUMA, ARIZ., WITH DIVERSION AT HANLON HEADING

Colorado River Discharge

Year	Total Acre Feet	Maximum Sec. Feet	Date	Minimum Sec. Feet	Date
1913	11,788,300	62,500	June 10	2,600	Jan. 18
1914	20,654,400	136,700	June 14	3,300	Jan. 7
1915	14,643,200	90,000	Feb. 3	2,700	Sept. 20
1916	22,940,400	220,000	June 22	3,800	Jan. 12
1917	20,610,600	142,900	July 4	5,300	Jan. 9
1918	13,145,300	94,300	July 3	4,100	Sept. 13
1919	10,740,000	82,600	Nov. 30	1,800	Jan. 16
1920	21,445,800	190,000	June 8	5,100	Dec. 27
1921	19,464,400	185,700	June 28	5,200	Jan. 10
1922	17,019,500	115,000	June 10	3,300	Oct. 18
1923	17,843,500	100,000	June 8	4,600	Jan. 3
1924	11,421,000	65,800	June 24	1,200	Sept. 11
1925	12,457,300	52,900	June 8	1,210	Jan. 8
1926	12,201,000	73,100	June 16	2,440	Sept. 17
1927	17,095,000	81,200	Feb. 20	2,620	Jan. 9

Hanlon Heading Diversion**

Year	Total Acre Feet	Maximum Sec. Feet	Date	Minimum Sec. Feet	Date
1913	1,667,343	3,419	July 25	786	Dec. 31
1914	1,863,518	4,205	July 26	802	Jan. 1
1915	1,912,931	5,003	June 23	746	Jan. 30
1916	2,218,898	5,854	June 22	1,011	Jan. 19
1917	2,270,110	5,595	Sept. 22	1,456	Aug. 16
1918	2,719,149	5,932	Aug. 17	295	Jan. 13
1919	2,656,675	6,082	Aug. 4	1,781	Jan. 13
1920	2,821,543	5,992	July 19	1,789	Feb. 28
1921	2,419,595	4,868	Sept. 17	413	Jan. 5
1922	2,890,282	5,860	July 31	1,740	Jan. 14
1923	3,275,425	6,910	Aug. 15	2,492	Dec. 28
1924	3,078,307	7,200	July 30	1,295	*Sept. 11
1925	3,158,665	6,948	July 22	300	Dec. 15
1926	3,090,769	6,400	July 8	300	Dec. 11
1927	3,089,191	6,612	July 15	821	Dec. 27

* The wasteway from the Yuma Main Canal at Siphon Spill is between the meter station at Yuma and Hanlon Heading, which accounts for the Diversion at Hanlon Heading being greater than the discharge at Yuma on September 11th, 1924.

** This tabulation includes all water diverted from the Colorado River to the Imperial Irrigation District, except the following amounts, listed by years in acre feet which were diverted at Cerro Prieto Headgate from Volcano Lake; 1916, 17,309; 1917, 142,345; 1918, 157,685; 1919, 197,534; 1920, 274,413; 1921, 115,425.

District Bond Maturities and Interest-Issues 1 to 4, Inclusive

For Calendar Year	FIRST ISSUE (1) Principal $3,500,000.00	FIRST ISSUE (1) Interest For Year at 5%	SECOND ISSUE (2) Principal $2,500,000.00	SECOND ISSUE (2) Interest For Year at 5%	THIRD ISSUE (3) Principal $2,500,000.00	THIRD ISSUE (3) Interest For Year at 5½%	FOURTH ISSUE (4) Principal $7,500,000.00	FOURTH ISSUE (4) Interest For Year at 6%	Total Principal Per Year	Total Interest Per Year	Total Interest and Principal 4 Issues	For Year
1915		$ 175,000.00								$ 175,000.00	$ 175,000.00	1915
1916		175,000.00								175,000.00	175,000.00	1916
1917		175,000.00		$ 62,500.00						237,500.00	237,500.00	1917
1918		175,000.00		125,000.00						300,000.00	300,000.00	1918
1919		175,000.00		125,000.00		$ 34,375.00				334,375.00	334,375.00	1919
1920		175,000.00		125,000.00		137,500.00				437,500.00	437,500.00	1920
1921		175,000.00		125,000.00		137,500.00				437,500.00	437,500.00	1921
1922		175,000.00		125,000.00		137,500.00		$ 225,000.00		662,500.00	662,500.00	1922
1923		175,000.00		125,000.00		137,500.00		450,000.00		887,500.00	887,500.00	1923
1924		175,000.00		125,000.00		137,500.00		450,000.00		887,500.00	887,500.00	1924
1925		175,000.00		125,000.00	$ 100,000.00	134,750.00		450,000.00	$ 100,000.00	884,750.00	984,750.00	1925
1926		175,000.00		125,000.00	150,000.00	127,875.00		450,000.00	150,000.00	877,875.00	1,027,875.00	1926
1927		175,000.00		125,000.00	200,000.00	118,250.00		450,000.00	200,000.00	868,250.00	1,068,250.00	1927
1928		175,000.00		125,000.00	200,000.00	107,250.00		450,000.00	200,000.00	857,250.00	1,057,250.00	1928
1929		175,000.00		125,000.00	250,000.00	94,875.00		450,000.00	250,000.00	844,875.00	1,094,875.00	1929
1930		175,000.00		125,000.00	250,000.00	81,125.00		450,000.00	250,000.00	831,125.00	1,081,125.00	1930
1931		175,000.00		125,000.00	300,000.00	66,000.00		450,000.00	300,000.00	816,000.00	1,116,000.00	1931
1932		175,000.00		125,000.00	300,000.00	49,500.00		450,000.00	300,000.00	799,500.00	1,099,500.00	1932
1933		175,000.00		125,000.00	350,000.00	31,625.00		450,000.00	350,000.00	781,625.00	1,131,625.00	1933
1934		175,000.00		125,000.00	400,000.00	11,000.00		450,000.00	400,000.00	761,000.00	1,161,000.00	1934
1935		175,000.00		125,000.00			$ 422,000.00	437,340.00	422,000.00	737,340.00	1,159,340.00	1935
1936	$ 70,000.00	171,500.00		125,000.00			377,000.00	413,370.00	447,000.00	709,870.00	1,156,870.00	1936
1937	70,000.00	168,000.00		125,000.00			396,000.00	390,180.00	466,000.00	683,180.00	1,149,180.00	1937
1938	105,000.00	162,750.00	$ 50,000.00	123,750.00			313,000.00	368,910.00	468,000.00	655,410.00	1,123,410.00	1938
1939	105,000.00	157,500.00	50,000.00	121,250.00			327,000.00	349,710.00	482,000.00	628,460.00	1,110,460.00	1939
1940	140,000.00	150,500.00	75,000.00	118,125.00			279,000.00	331,530.00	494,000.00	600,155.00	1,094,155.00	1940
1941	140,000.00	143,500.00	75,000.00	114,375.00			292,000.00	314,400.00	507,000.00	572,275.00	1,079,275.00	1941
1942	140,000.00	136,500.00	100,000.00	110,000.00			292,000.00	296,880.00	532,000.00	543,380.00	1,075,380.00	1942
1943	140,000.00	129,500.00	100,000.00	105,000.00			320,000.00	278,520.00	560,000.00	513,020.00	1,073,020.00	1943
1944	175,000.00	120,750.00	100,000.00	100,000.00			304,000.00	259,800.00	579,000.00	480,550.00	1,059,550.00	1944
1945	175,000.00	112,000.00	100,000.00	95,000.00			334,000.00	240,660.00	609,000.00	447,660.00	1,056,660.00	1945
1946	175,000.00	103,250.00	125,000.00	89,375.00			333,000.00	220,650.00	633,000.00	413,275.00	1,046,275.00	1946
1947	175,000.00	94,500.00	125,000.00	83,125.00			373,000.00	199,470.00	673,000.00	377,095.00	1,050,095.00	1947
1948	210,000.00	84,000.00	125,000.00	76,875.00			383,000.00	176,790.00	718,000.00	337,665.00	1,055,665.00	1948
1949	210,000.00	73,500.00	125,000.00	70,625.00			333,000.00	155,310.00	668,000.00	299,435.00	967,435.00	1949
1950	210,000.00	63,000.00	150,000.00	63,750.00			320,000.00	135,720.00	680,000.00	262,470.00	942,470.00	1950
1951	210,000.00	52,500.00	150,000.00	56,250.00			317,000.00	116,610.00	677,000.00	225,360.00	902,360.00	1951
1952	245,000.00	40,250.00	150,000.00	48,750.00			300,000.00	98,100.00	695,000.00	187,100.00	882,100.00	1952
1953	245,000.00	28,000.00	150,000.00	41,250.00			300,000.00	80,100.00	695,000.00	149,350.00	844,350.00	1953
1954	280,000.00	14,000.00	175,000.00	33,125.00			300,000.00	62,100.00	755,000.00	109,225.00	864,225.00	1954
1955	280,000.00		175,000.00	24,375.00			300,000.00	44,100.00	755,000.00	68,475.00	823,475.00	1955
1956			200,000.00	15,000.00			585,000.00	17,550.00	785,000.00	32,550.00	817,550.00	1956
1957			200,000.00	5,000.00					200,000.00	5,000.00	205,000.00	1957
Total..	$3,500,000.00	$5,680,500.00	$2,500,000.00	$4,057,500.00	$2,500,000.00	$1,544,125.00	$7,500,000.00	$10,612,800.00	$16,000,000.00	$21,894,925.00	$37,894,925.00	

(1) Date of Issue January 1st, 1915, Matures January 1st.
(2) Date of Issue July 1st, 1917, Matures July 1st.
(3) Date of Issue October 1st, 1919, Matures July 1st.
(4) Date of Issue July 1st, 1922, Matures July 1st.

Crop Report

For Year 1927

UNITED STATES

Field Crops

	Acres
Alfalfa	178,210
Barley	47,022
Corn	34,105
Cotton	23,102
Oats	604
Wheat	4,082
Pasture	13,519
Sugar Cane	770
Rice	4,455
Sudan Grass	249
Miscellaneous	127
Total	306,245

Garden Crops

	Acres
Cantaloupes	37,186
Lettuce	42,674
Beans	234
Cucumbers	229
Peas	6,432
Onions	118
Tomatoes	2,368
Watermelons	6,122
Squash	163
Spinach	365
Sweet Potatoes	99
Cabbage	228
Carrots	156
Bell Peppers	120
Miscellaneous	182
Total	96,576

Permanent Crops

	Acres
Asparagus	2,638
Dates	198
Grapes, Malaga	3,135
Grapes, Thompson	2,004
Grapes, Other	459
Grapefruit	7,342
Strawberries	204
Miscellaneous	499
Total	16,479

Summary

FIELD CROPS	306,245
GARDEN CROPS	96,576
PERMANENT CROPS	16,479
GRAND TOTAL AREA IN CROPS	419,300
LESS AREA DOUBLE CROPPED	30,252
NET AREA CROPPED	389,048
Area not in Crops	78,376
Area Non-irrigable	10,797
Total Area Reported	478,221
Irrigable Area not Reported	47,576
Non-irrigable Area not Reported	79,203
Total Area of District	605,000
Number of Farms Reported	4,769
Farmed by Owners 38%	1,812
Farmed by Tenants 62%	2.957
Average Area of Farm	98.18

MEXICO

	Cotton	Alfalfa	Grains	Miscellaneous	Total
Acres	112,015	36,132	6,448	1,573	156,168
Per Cent.	72	23	4	1	100

GRAND TOTAL AREA CROPPED, United States and Mexico, 545,216 acres

Water, Weather and Crop Tables

IMPERIAL IRRIGATION DISTRICT AND SUBSIDIARY COMPANY IN MEXICO

Calendar Year.	Total Area Irrigated For Year.	Total Quantity of Water Diverted for Direct Use—Acre Feet From Colorado River.	Total Quantity of Water Wasted, Lost, and Unaccounted For—Acre Feet.	Total Quantity of Water Delivered To Users—Acre Feet.	Net Acre Feet Per Acre Delivered To Users.	Rainfall—Feet.	Water Delivered Plus Rainfall During Season—Feet.	Mean Annual Temperature—Degrees Fahrenheit.	Date of Last Killing Frost in Spring Before July 15th.	Date of First Killing Frost After July 15th in Fall.	Percentage of Area in Different Crops. Cereals and Seed.	Cotton.	Hay and Forage.	Fruits, Vegetables and Miscellaneous.
1912	242,110	1,433,753	520,665	913,088	3.77	0.20	3.97	70.0	Jan. 3	Dec. 21	47.9	3.3	44.0	4.8
1913	275,797	1,667,343	551,305	1,116,038	4.05	0.16	4.21	69.9	Mar. 25	Dec. 25				
1914	316,832	1,863,518	556,251	1,307,267	4.13	0.24	4.37	71.6	Jan. 31	Dec. 13	26.6	12.3	47.1	14.0
1915	334,534	1,912,931	618,662	1,294,269	3.87	0.28	4.15	71.1	Jan. 19	Nov. 14				
1916	387,809	2,236,207	750,215	1,485,992	3.83	0.40	4.23	71.1	Feb. 2	Nov. 13	35.5	11.4	42.1	11.0
1917	435,940	2,412,455	728,016	1,684,439	3.86	0.14	4.00	71.0	Mar. 4	Dec. 11				
1918	508,210	2,876,834	878,193	1,998,641	3.93	0.15	4.08	70.9	Feb. 3	Nov. 27	31.5	36.2	21.7	10.0
1919	588,250	2,854,209	773,936	2,080,273	3.54	0.24	3.78	70.9	Feb. 25	Nov. 29	30.8	31.3	23.9	14.0
1920	603,440	3,095,956	1,009,999	2,085,957	3.46	0.41	3.87	70.1	None	Dec. 7	20.6	49.2	16.9	13.3
1921	531,674	2,535,020	726,670	1,808,350	3.40	0.50	3.90	71.8	Feb. 16	Nov. 19	31.5	31.5	31.0	6.0
1922	563,400	2,890,282	755,882	2,134,400	3.79	0.21	4.00	70.6	Feb. 6	Jan. 3	26.2	33.1	28.0	12.5
1923	530,000	3,275,425	1,741,003	1,534,422	2.90	0.29	3.19	70.0	Feb. 11	Jan. 1	15.1	44.8	30.0	10.1
1924	544,338	3,078,307	1,413,934	1,664,373	3.06	0.06	3.12	72.5	Jan. 23	Dec. 19	13.7	45.5	27.9	12.9
1925	586,545	3,158,665	1,377,807	1,780,858	3.04	0.25	3.29	71.1	Jan. 18	Dec. 12	13.4	40.9	30.3	15.4
1926	546,402	3,090,769	1,281,863	1,808,906	3.31	0.54	3.85	72.6	Feb. 2	Dec. 14	16.0	29.1	36.1	18.8
1927	545,216	3,089,191	1,208,573	1,880,618	3.45	0.39	3.84	72.9	Jan. 24	Dec. 7	16.8	23.5	39.8	19.9

Previous to January 1st, 1923, water wasted, lost and delivered, based on deliveries to Mutual Water Companies, since that time on deliveries to water users.

NOTE:—Deliveries to land based on orifice measurement and are at least 10% less than actual as shown by tests.

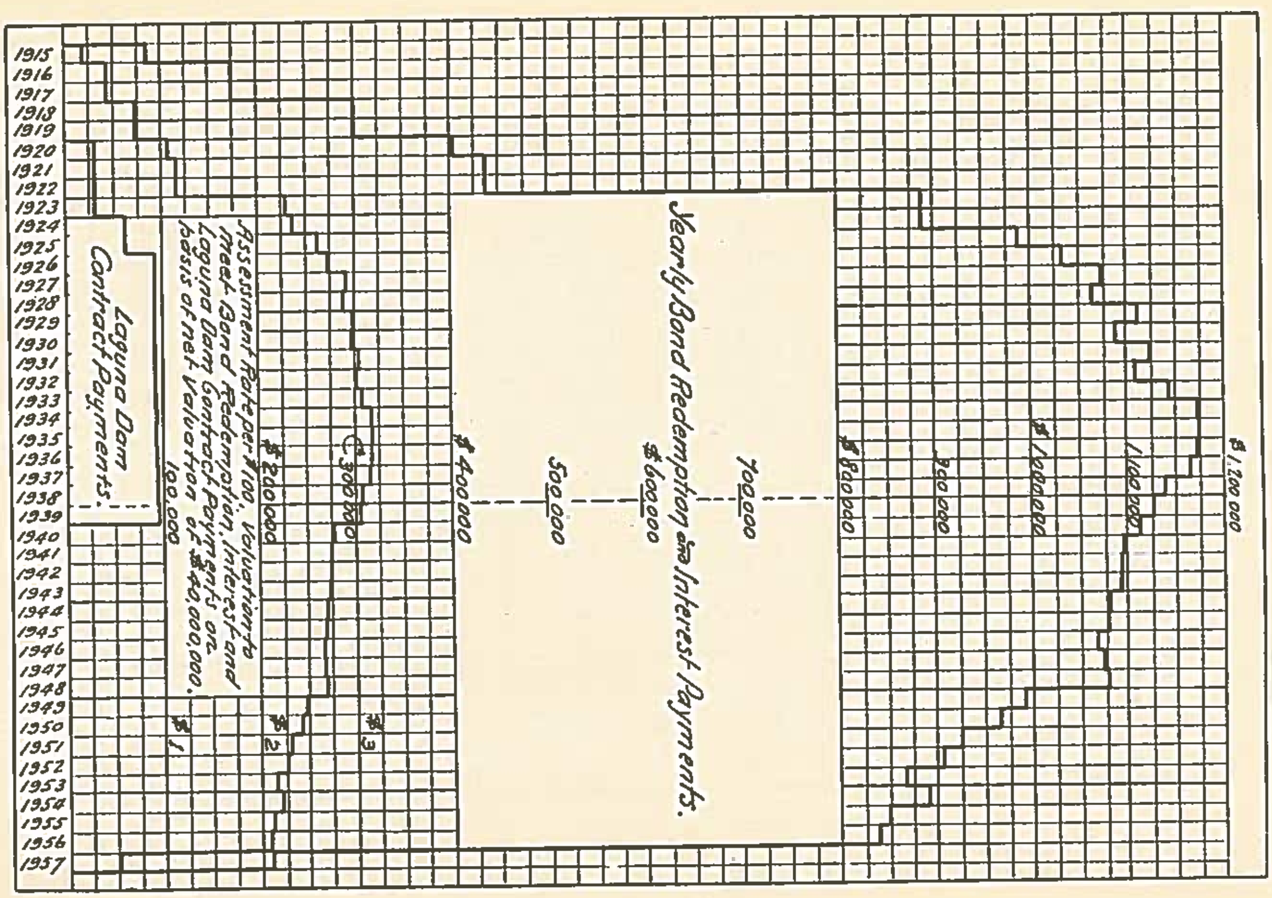
Meteorological Data---Year 1927

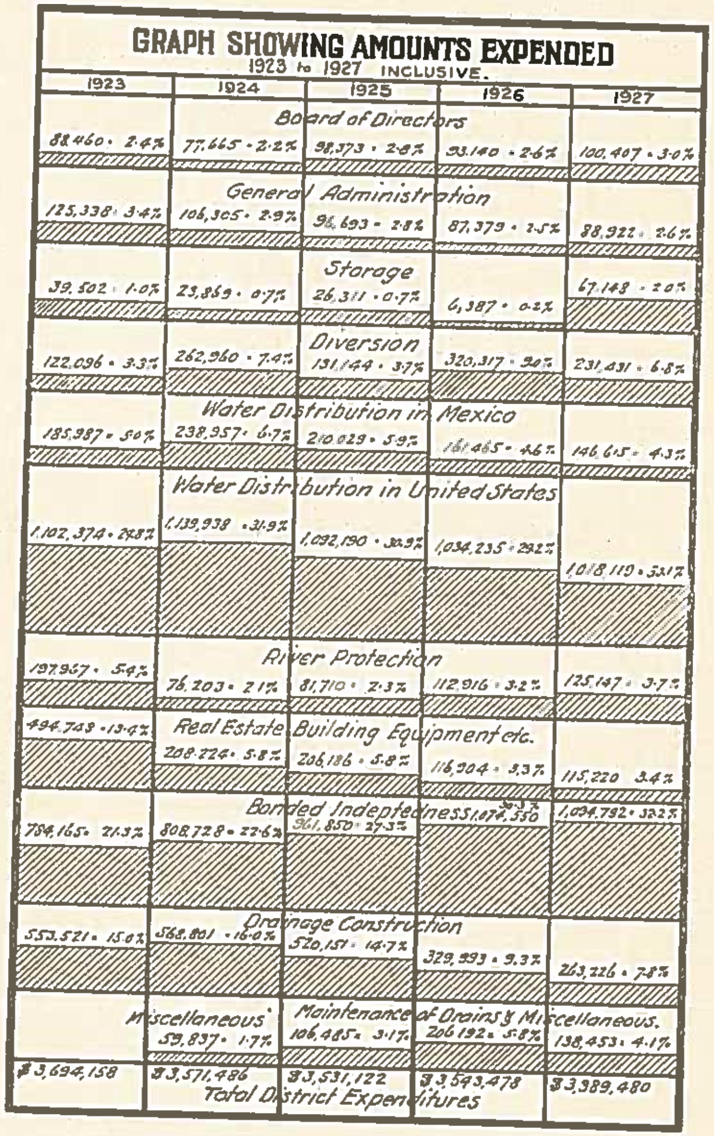
TEMPERATURE

Month	Mean Maximum	Mean Minimum	Mean	Maximum	Date	Minimum	Date	Greatest Daily Range
January	71.4	39.2	55.3	76	10th-15th	32	14th	42
February	75.0	44.2	59.6	87	26th	34	2nd	40
March	79.5	44.9	62.2	92	24th	38	20th	42
April	87.8	53.7	70.8	102	25th-26th	41	13th	40
May	95.1	62.3	78.7	110	14th	53	8th, 9th	41
June	100.8	67.2	84.0	111	15th	54	10th	48
July	106.9	76.5	91.7	114	11th	68	12th, 13th,15th,	43
August	103.9	78.0	90.9	115	10th	72	11th, 28th,	34
September	99.2	66.3	82.8	106	6th	56	30th	45
October	92.1	55.4	73.8	101	5th	43	28th	54
November	80.3	47.5	63.9	98	4th	37	23rd	44
December	68.5	38.3	53.4	85	2nd	31	8th	42
Total				115	Aug. 10	31	Dec. 8th	
Average	88.4	56.1	72.3					

PRECIPITATION / WEATHER

Month	Relative Humidity	No. Days Over .01	Inches	Greatest 24 Hours	Clear	Partial	Cloudy
January	50	1	.12	.12	16	12	3
February	49	6	.64	.31	15	6	7
March	39	4	.11	.04	26	7	2
April	33	2	.02	.01	29	4	
May	28				22		
June	30				26	2	
July	28				31	3	2
August	37				28	5	
September	31				26	1	
October	28	4	.89	.41	26	3	2
November	44				25	4	1
December	50	4	2.92	1.26	24	5	2
Total		21	4.78		294	52	19
Average	37						





SALTON SEA ELEVATIONS

July, 1921—January, 1928

Date	Sea Level
July 1st, 1921	—249.1
Jan. 1st, 1922	—249.2
July 1st, 1922	—249.2
Jan. 1st, 1923	—249.9
July 1st, 1923	—250.2
Jan. 1st, 1924	—249.1
July 1st, 1924	—249.0
Jan. 1st, 1925	—250.2
July 1st, 1925	—249.9
Jan. 1st, 1926	—249.2
July 1st, 1926	—248.8
Jan. 1st, 1927	—247.8
July 1st, 1927	—247.0
Jan. 1st, 1928	—246.4

STATE OF CALIFORNIA, }
COUNTY OF IMPERIAL. } ss.

R. H. Maddux, being first duly sworn, deposes and says:

That he is employed as Business Manager of the Imperial Irrigation District, in which capacity he is in charge of the District's Books of Account; that he has at the request and on the behalf of the Chief Engineer and General Superintendent of the Imperial Irrigation District, caused to be compiled from said books of account the above financial statements and statistics, and that said statements and statistics and all thereof are true and correct to the best of his knowledge and belief.

R. H. MADDUX, Business Manager
Imperial Irrigation District.

Subscribed and sworn to before me this 2nd day of April, 1928.

(SEAL) L. J. THOMAS.
Notary Public in and for the County of Imperial, State of California.

Approved:

M. J. Dowd, Chief Engineer and General Superintendent,
Imperial Irrigation District.