Imperial Irrigation District 1972 Annual Report

IMPERIAL IRRIGATION DISTRICT

annual report for the year **1972**

CONTENTS

COVER

Imperial Irrigation District's emblem has been used since 1939. The design was the winning entry of a contest among District employees.

The emblem is a shield resembling a spade, symbolic of the pioneers who wrested the fertile fields from the desert. It is surmounted by a crown denoting the name "Imperial."

The rising sun represents a winter garden producing crops the year round. The All-American Canal crossing the shield, and one of its hydroelectric power plants, form the heartline of the Valley bringing it life-giving water and producing power.

Board of Directors

Carl C. Bevins	*President, Division 5*
Raymond L. Thompson	*Vice-President, Division 1*
Joseph D. Moore	*Division 2*
Bernard Galleano	*Division 3*
A. Neal Jack	*Division 4*

Management

Robert F. Carter	*General Manager*
J. Fred Hesse	*Power Manager*
J. Melvin Sheldon	*Water Manager*
Robert D. Reynolds	*Operations Manager*
Richard W. Wheeler	*Finance Manager*
L. R. McGlocklin	*Personnel Manager*

Executive

Larry E. Beck	*Secretary to the Board*
Anna T. McManus	*Treasurer*
Reginald L. Knox, Jr.	*Chief Legal Counsel*
William J. Stadler	*Director, Community and Special Services*

Joseph D. Moore

Bernard Galleano

A. Neal Jack

The Board of Directors in this, its 62nd Annual Report, is pleased to submit the record of service and achievements of the Imperial Irrigation District for the calendar year ended December 31, 1972. It is an outstanding record, and our fellow citizens, who are the owners as well as the customers of the District, may justifiably be proud of these accomplishments.

Under its long-range program of planning and building ahead, the District has consistently met the increasing requirement for water and electric service.

Preparation of the site for a new power plant in Coachella was begun, another step taken by the District to assure sufficient power for our system in coming years. The $6 million plant will consist of three turbines and will have a generating capacity of 60,000 kilowatts. It will firm up the District's power system considerably.

Geothermal development in Imperial Valley continued to create nationwide interest, and the Geothermal Resources Council held its first national conference here in February. If tests are successful, not only electric power but clean water as well may be produced here. The District continued its cooperation with the U.S. Bureau of Reclamation and private firms in this important development.

Of great importance was the visit in October of former U.S. Attorney General Herbert Brownell and his task force to gain firsthand knowledge of the salinity of the Lower Colorado River Basin. Brownell was appointed by President Nixon to undertake this study.

Our sincere thanks and appreciation are extended to management and employees of the District for the accomplishments of the year and for their dedicated service to the District.

Respectfully submitted,

CARL C. BEVINS, President
Board of Directors

Carl C. Bevins
President

Raymond L. Thompson
Vice-President

GENERAL MANAGER'S REPORT

Robert F. Carter
General Manager

The basic goals of Imperial Irrigation District are to provide water and power service at the lowest possible cost to its customers, which are essential to the maximum development of the areas its serves.

To attain these goals, the total dedication to service of all its employees is necessary, even vital. No organization is better than its people, and management points with pride and confidence to its employees who make the District the positive force that it is.

The service rendered to its customers is sometimes unseen by them because it is performed at night or in a remote area; or many times it is performed right in front of them but they are not aware of it — but it is always there! It might be a line crew called out in a desert dust storm, or it may be as unspectacular as a polite greeting on the telephone. It is still service and important.

During 1972, the Water Department operation and maintenance costs were $5,296,147, an increase of $291,828 over 1971. Capital improvements were $2,342,363, an increase of $259,394. Water revenue amounted to $7,235,869, a decrease of $35,940.

Water conservation was stepped up in 1972 by the installation of several water recovery lines at subsurface level parallel with and adjacent to the west bank of the East Highline Canal, Holtville. Good usable water was recovered and returned to the EHL for beneficial use rather than waste into the drainage system.

Power Department operation and maintenance costs were $9,931,566, an increase of $996,648 over 1971. Total power revenue was $16,038,860, an increase of $1,276,277.

The Coachella Division gas turbine installation continued on schedule with the perimeter fencing and street work having been completed. Also, main equipment, bids and specifications were initiated, evaluated and awarded for early 1973 delivery. Turbine foundations and imbedded parts were constructed on schedule, all indicating a June 1973 start-up date for two units.

The Water, Power, Operations Services, Personnel and Finance Departments operated efficiently during 1972 and accomplished their assignments within the budget allotted by the Board of Directors.

In the legal area, the remaining issue in the case of Arizona vs. California is the determination of "present perfected rights" on the Colorado River. The stipulated agreement is in the process of being executed, after which it will be submitted to the United States Supreme Court for its final review and judgment.

In the matter of appeal in the case of United States of America vs. Imperial Irrigation District (the trial court held that the Reclamation Law had no application to Imperial Valley lands), a number of Imperial Valley residents, who maintained a pro-plaintiff status with court permission, filed a motion with the court for leave to intervene as plaintiffs in an effort to appeal the decision. The court denied the motion and the group is now appealing the court's ruling on their motion.

District Board Vice President Lom Thompson greets Rep. Harold T. (Bizz) Johnson, left, chairman, Irrigation and Reclamation Subcommittee of the House Interior and Irrigation Committee, and Commissioner Ellis L. Armstrong, Bureau of Reclamation.

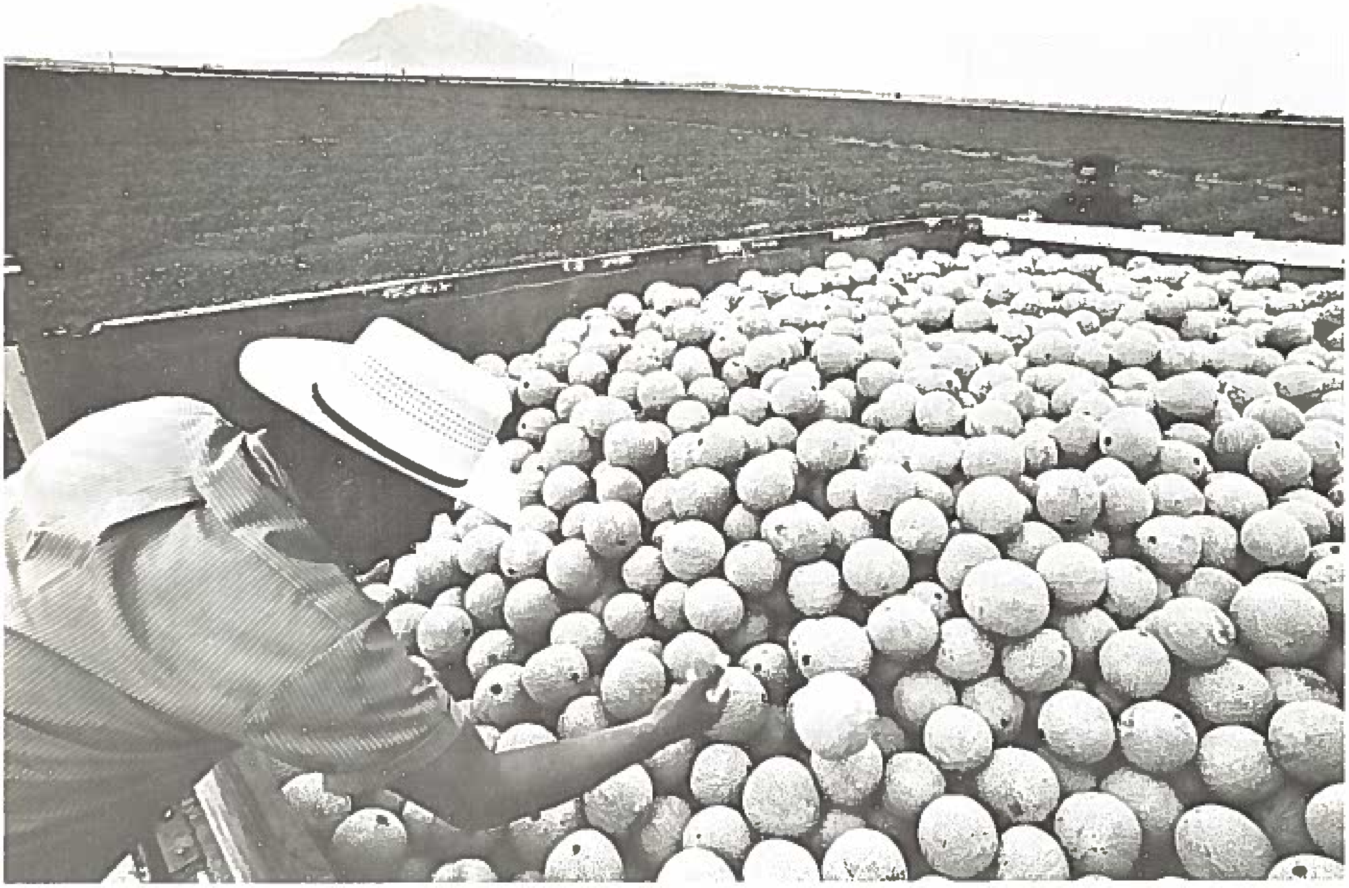
District officials arrange meeting of Secretary of Agriculture Earl Butz (far right) and Yevgeniy Y. Alekseyevskiy, Soviet minister of agriculture and water, in Imperial Valley. USSR agricultural minister headed a team of Russian irrigation experts touring the Valley.

District Director Neal Jack, left, explains need for deep plowing and tile drain operations to combat salinity problems to former U.S. Attorney General Herbert Brownell. Brownell had been appointed by President Nixon to head a task force which would seek a solution to the salinity problems of the Colorado River.

Erratum

Coachella agriculture production total should be $66,420,000 instead of $66,420.

AGRI-BUSINESS



Agriculture is the largest industry in Imperial Valley, ranking among the highest in the nation. Gross cash receipts in 1972 totalled $330,569,000, up $28,783,000 over the previous year. This 10 per cent increase reflected gains in all segments of agriculture in the county. However, increases in the cost of equipment, supplies and labor affected the gross gain. Coachella Valley, in Riverside County, agricultural production increased over the previous year, totalling $66,420, an increase of 13 per cent. Although Imperial Irrigation District does not supply water to Coachella Valley, much of its lands are within the District's power service area. Imperial Valley Development Agency estimates that industry allied to agriculture produced an income of approximately $15,000,000 in 1972.

MILLION DOLLAR CROPS

	1972	1971
Lettuce	$60,136,000	$44,795,000
Hay, Alfalfa	34,136,000	38,199,000
Sugar Beets	28,647,000	28,400,000
Cotton Lint	19,102,000	13,710,000
Cantaloupes	10,786,000	10,732,000
Wheat	7,740,000	6,372,000
Sorghum	6,900,000	6,555,000
Barley	5,040,000	6,578,000

	1972	1971
Tomatoes	$ 4,925,000	$ 5,456,000
Carrots	3,945,000	7,262,000
Onions	3,384,000	1,690,000
Pasture, Ryegrass	3,375,000	2,520,000
Asparagus	3,164,000	3,704,000
Alfalfa, Dehydrated	2,184,000	2,394,000
Pasture, Alfalfa	1,995,000	1,871,000
Cotton Seed	1,581,000	1,380,000
Watermelon	1,316,000	2,046,000

In addition, the livestock and dairy industry produced $119,741,000 in 1972, compared to $107,687,000 in 1971.

TREASURER'S AND FINANCIAL REPORT

The District's 1972 cash receipts totalled $24,200,438, increase of $1,289,696 over 1971. Expenditures for 1972 were $23,645,444, increase of $2,370,653 over 1971, which covered payment of bond principal and interest, payrolls, other operating expenses.

Richard W. Wheeler
Finance Manager

Cash receipts from water and power sales, earned-interest on investments, and miscellaneous sources are deposited in local banks and retained in specified fund accounts in the Treasurer's office until expenditures are approved by the Board of Directors.

Funds were retained for annual budget requirements, including water and power department operations, bond principal and interest, and coverage of reserves. Cash funds not needed for current expenses were placed in interest-bearing inactive accounts with local banks. These accounts, together with government bond purchases and repurchase agreements, provided the District with a total earned-interest income of $763,586 during 1972.

As of December 31, 1972, inactive accounts amounted to $15,163,000. Interest rates ranged from 3¼ per cent to 5¾ per cent.

Repurchase agreements (purchase and sale of U.S. securities by the District on a day-to-day and over-a-weekend basis) with banks started January 16, 1970, when the interest rate was 8 per cent. Interest rates on repurchase agreements ranged from 2⅜ per cent to 5⅛ per cent during the year. The District earned $32,180 in interest on this investment. Active cash funds are used for these purchases until needed for District expenses.

Financial and economic reports are studied to keep informed of prevailing interest rates and yields so as to make a comparison with bank interest, assuring highest return on District funds.

Electric revenue bond principal and interest totalling $2,010,661 were paid during 1972, which included $1,570,000 principal and $440,661 interest.

Electric revenue bonds, issued from 1937 to 1954 to aid in financing the District's long-range power development program, including additions and improvements to its expanding power system, amounted to $37,963,000. The total remaining unpaid on December 31, 1972, was $13,222,000. Funds used to retire the electric revenue bonds are obtained from sale of electric energy in Imperial and Coachella Valleys.

FIVE-YEAR FINANCIAL COMPARISON

1968 - 1972

Year	*Receipts*	*Expenditures*
1968	$19,960,416	$27,331,602*
1969	20,906,260	19,798,848
1970	21,375,018	20,739,681
1971	22,910,742	21,274,791
1972	24,200,438	23,645,444

***Includes El Centro Steam Plant Construction**

ELECTRIC REVENUE BONDED INDEBTEDNESS

Year	*Indebtedness Beginning of Year*	*Bonds Retired*	*Indebtedness End of Year*
1968	$20,660,000	$1,428,000	$19,232,000
1969	19,232,000	1,391,000	17,841,000
1970	17,841,000	1,529,000	16,312,000
1971	16,312,000	1,520,000	14,792,000
1972	14,792,000	1,570,000	13,222,000

FUND BALANCES

POWER FUNDS	December 31, 1972	December 31, 1971	
POWER OPERATING REVENUE FUNDS:			
Cash Balances	$ 900,138	$ 1,213,192	($ 313,054)
POWER BOND FUNDS:			
Cash Balances	3,094,758	3,267,193	(172,435)
POWER CONSTRUCTION FUNDS:			
Cash Balances	5,048,023	3,839,796	1,208,227
MISCELLANEOUS POWER RESERVE FUNDS:			
Cash Balances	238,604	218,475	20,129
TOTAL POWER DEPARTMENT CASH BALANCES	$ 9,281,523	$ 8,538,656	$ 742,867

WATER FUNDS			
WATER OPERATING FUNDS:			
Cash Balances	$ 2,417,158	$ 2,966,393	($ 549,235)
WATER CONSTRUCTION FUNDS:			
Cash Balances	1,676,720	1,204,207	472,513
MISCELLANEOUS WATER FUNDS:			
Cash Balances	2,296,868	2,408,019	(111,151)
TOTAL WATER DEPARTMENT CASH BALANCES	$ 6,390,746	$ 6,578,619	($ 187,873)

ALL FUNDS			
TOTAL CASH BALANCES	$15,672,269	$15,117,275	$ 554,994

COMPARATIVE STATISTICS
WATER

WATER DEPARTMENT EARNED FROM:	1972	1971	1970	1969	1968
Redemption of Delinquent Assessments			$ 3,351	$ 6,248	$ 26,743
Interest on Redemption of Delinquent Assessments			828	1,119	2,545
Sales and Rentals of Land Held Under Assessment Deeds	$ 9,062	$ 15,675	14,488	9,583	8,471
Water Deliveries and Gate and Pipe Service Charges	5,780,560	5,797,188	5,864,697	5,786,741	6,090,877
Water Availability Charges	799,476	790,403			
Rental of Land, Buildings and Equipment	176,667	155,162	164,322	148,642	186,809
Other Sources	154,159	135,201	129,678	125,014	114,382
Earned from Operations	$6,919,924	$6,893,629	$6,177,364	$6,077,347	$6,429,827
Interest on Reserves	315,945	378,180	404,830	313,367	254,465
Total Earned from All Sources	$7,235,869	$7,271,809	$6,582,194	$6,390,714	$6,684,292
WHICH WAS USED OR SET ASIDE FOR:					
Operating Expenses	$5,253,945	$4,956,516	$5,129,150	$4,730,587	$4,393,004
Taxes	7,338	6,701	5,715	13,076	10,517
Accounting for Operating Expenses and Income Deductions of	$5,261,283	$4,963,217	$5,134,865	$4,743,663	$4,403,521
Leaving a Differential of	1,974,586	2,308,592	1,447,329	1,647,051	2,280,771
WHICH WAS USED FOR:					
Additions to Canal System	$ 941,748	$1,148,860	$ 791,648	$ 874,761	$1,252,899
Additions to Drainage System	483,846	475,215	513,656	506,189	536,116
Additions to Buildings and Land	9,262	176	8,372	3,096	19,978
New Equipment	503,962	489,153	62,617	159,106	326,244
Additions to Inventory		7,031			
Additions to Operating Funds	35,768	188,157	71,036	103,899	145,534
	$1,974,586	$2,308,592	$1,447,329	$1,647,051	$2,280,771
WHICH ACCOUNTS IN FULL FOR	$7,235,869	$7,271,809	$6,582,194	$6,390,714	$6,684,292

COMPARATIVE STATISTICS
POWER

POWER DEPARTMENT EARNED FROM:	1972	1971	1970	1969	1968
Power Sales	$15,445,996	$14,211,391	$13,652,153	$13,147,188	$12,150,519
Rental of Electric Property	30,633	26,637	26,340	25,749	22,507
Other Sources	136,803	94,098	133,466	126,769	129,852
Earned from Operations	$15,613,432	$14,332,126	$13,811,959	$13,299,706	$12,302,878
Interest on Reserves	425,428	430,457	460,937	282,864	302,548
Total Earned from All Sources	$16,038,860	$14,762,583	$14,272,896	$13,582,570	$12,605,426
WHICH WAS USED OR SET ASIDE FOR:					
Operating Expenses	$ 9,874,320	$ 8,884,839	$ 8,207,710	$ 7,921,612	$ 7,250,647
Interest on Bonds	418,512	462,787	507,735	551,203	591,538
Lease of Power Rights	31,272	25,286	27,027	81,950	39,445
Taxes	25,974	24,793	22,887	21,464	20,848
Accounting for Operating Expenses and Income Deductions of	$10,350,078	$ 9,397,705	$ 8,765,359	$ 8,576,229	$ 7,902,478
Leaving a Differential of	5,688,782	5,364,878	5,507,537	5,006,341	4,702,948
WHICH WAS USED FOR:					
Retirement of Electric Revenue Bonds	$ 1,422,500	$ 1,542,500	$ 1,510,000	$ 1,460,000	$ 1,380,000
Additions to Plant	2,182,576	2,137,579	2,078,252	1,522,959	1,993,964
Increase of Material and Supplies	237,053				113,541
Payment into Special Electric Plant Construction Fund	1,235,065	1,045,040	1,290,070	1,569,342	388,918
Additions to Other Reserve Funds	16,466	17,244	14,155	12,038	28,748
Deposit with the United States on All-American Canal Contract	83,553	100,714	101,356	237,117	171,837
Payment into Contract Fund — All-American Canal	476,447	419,286	348,644	182,883	218,163
Additions to Operating Funds	35,122	102,515	165,060	22,002	407,777
	$ 5,688,782	$ 5,364,878	$ 5,507,537	$ 5,006,341	$ 4,702,948
WHICH ACCOUNTS IN FULL FOR	$16,038,860	$14,762,583	$14,272,896	$13,582,570	$12,605,426

CONSOLI

OPERATING REVENUES:	Power	Water	Consolidated
Realized Revenue from:			
Sales of Land Held Under Assessment Deeds		$ 6,545	$ 6,545
Interest on Tax Deed Sales Contracts		1,330	1,330
Rental of Land Held Under Assessment Deeds		1,187	1,187
Total Revenues Derived from Delinquent Assessments		$ 9,062	$ 9,062
Water Sales		$5,679,981	$ 5,679,981
Gate Service Charges		61,097	61,097
Pipe Service Charges		39,482	39,482
Water Availability Charges		799,476	799,476
Rental of Buildings		94,249	94,249
Rental of Electrical Property	$ 30,633		30,633
Rental and Sales of Operative Land		56,294	56,294
Rental of Equipment		26,124	26,124
Contributions for Operation and Maintenance of All-American Canal		144,971	144,971
Power Sales:			
Residential or Domestic Sales	$ 6,898,824		$ 6,898,824
Rural Sales — Agricultural Power	598,810		598,810
Commercial Sales	6,378,567		6,378,567
Industrial Sales	1,102,188		1,102,188
Public Street and Highway Lighting	162,596		162,596
Other Sales to Public Authorities	194,682		194,682
Interdepartmental Sales	110,196		110,196
Sales to Other Electric Utilities	133		133
Total Power Sales	$15,445,996		$15,445,996
Miscellaneous Revenue	136,803	9,188	145,991
TOTAL OPERATING REVENUES	$15,613,432	$6,919,924	$22,533,356

TED REVENUE AND EXPENSE STATEMENT

January 1, 1972 - December 31, 1972

	Power	Water	Consolidated
Total Operating Revenue — Brought Forward	$15,613,432	$6,919,924	$22,533,356
OPERATING REVENUE DEDUCTIONS:			
Operating Expenses:			
Operation and Maintenance of Water System		$4,355,085	$ 4,355,085
Operation and Maintenance of All-American Canal		827,816	827,816
Operation and Maintenance of Imperial and Laguna Dams		66,353	66,353
Operation and Maintenance of Power System:			
Production Expenses	$ 3,445,553		$ 3,445,553
Power Purchased	2,403,089		2,403,089
Transmission Expenses	327,693		327,693
Distribution Expenses	1,396,892		1,396,892
Accounting and Collecting Expenses	624,425		624,425
Sales Promotion Expenses	96,757		96,757
Administrative and General Expenses	1,579,911		1,579,911
Total Power Operation and Maintenance	$ 9,874,320		$ 9,874,320
Miscellaneous Expenses		4,691	4,691
Total Operating Expenses	$ 9,874,320	$5,253,945	$15,128,265
Depreciation and Amortization:			
Depreciation of Equipment and Facilities		$ 77,781	$ 77,781
Depreciation of Buildings		71,194	71,194
Depreciation of Canal Structures		330,546	330,546
Depreciation of Power System	$ 2,741,686		2,741,686
Losses or Gains on Sales and Retirements of Assets		4,822*	4,822*
Taxes	25,974	7,338	33,312
Total Operating Revenue Deductions	$12,641,980	$5,735,982	$18,377,962
Net Operating Revenue	$ 2,971,452	$1,183,942	$ 4,155,394
OTHER INCOME:			
Interest on Securities		$ 1,198	$ 1,198
Interest on Bank Deposits	$ 425,374	312,085	737,459
Miscellaneous Interest	54	2,662	2,716
Total Other Income	$ 425,428	$ 315,945	$ 741,373
GROSS INCOME	$ 3,396,880	$1,499,887	$ 4,896,767
INCOME DEDUCTIONS:			
Interest on Power Bonds	$ 418,512		$ 418,512
Lease of Power Rights	31,272		31,272
Total Income Deductions	$ 449,784		$ 449,784
INCOME RETAINED FOR PLANT EXPANSION	$ 2,947,096	$1,499,887	$ 4,446,983

*Indicates Gain

COMPARATIVE INCOME AND EXPENSE STATEMENT AND BALANCE SHEET

WATER

	1972	1971
Operating Revenue	$ 6,919,924	$ 6,893,629
Operating Deductions	5,735,982	5,450,923
Operating Income	$ 1,183,942	$ 1,442,706
Other Income	315,945	378,180
Gross Income	$ 1,499,887	$ 1,820,886
Retained for Plant Expansion	$ 1,499,887	$ 1,820,886

8ALANCE SHEET

	1972	1971
Current Assets	$ 3,886,733	$ 4,437,225
Investment and Fund Accounts	3,973,588	3,612,226
Fixed Assets	74,264,503	72,561,713
Other Assets and Deferred Charges	682,227	601,941
Total Assets	$82,807,051	$81,213,105
Current Liabilities	$ 770,381	$ 746,316
Long-Term Liabilities	15,615,585	16,325,385
Deferred Credits and Reserves	573,661	516,131
Net Worth	65,847,424	63,625,273
Total Liabilities and Net Worth	$82,807,051	$81,213,105

POWER

	1972	1971
Operating Revenue	$15,613,432	$14,332,126
Operating Deductions	12,641,980	11,606,970
Operating Income	$ 2,971,452	$ 2,725,156
Other Income	425,428	430,457
Gross Income	$ 3,396,880	$ 3,155,613
Income Deductions	449,784	488,073
Retained for Plant Expansion	$ 2,947,096	$ 2,667,540

BALANCE SHEET

	1972	1971
Current Assets	$ 3,638,846	$ 3,630,823
Investments and Fund Accounts	8,062,518	6,998,989
Fixed Assets — Electric Plant	55,979,053	56,502,253
Other Assets and Deferred Charges	12,871	12,944
Total Assets	$67,693,288	$67,145,009
Current Liabilities	$ 581,994	$ 971,839
Long-Term Liabilities	14,117,615	15,723,416
Deferred Credits and Reserves	505,790	509,837
Net Worth	52,487,889	49,939,917
Total Liabilities and Net Worth	$67,693,288	$67,145,009

CONSOLIDATED STATEMENT OF ASSETS, LIABILITIES AND NET WORTH

DECEMBER 31, 1972

ASSETS

Funds for:		
Operation and Maintenance	$ 3,317,296	
Payment of Bond Principal and Interest	3,094,758	
New Construction	6,724,742	
Reserve Funds for Replacement and Emergencies	1,819,498	
Other Special Funds	715,975	
Total Funds		$ 15,672,269
Accounts Receivable		1,784,794
Water Availability Accounts Receivable		375,590
Materials and Supplies		1,583,126
Tax Deed Land		9,492
Deferred Charges and Prepaid Expenses		831,512
Properties (Water and Power Systems)		130,243,556
Total Assets		$150,500,339

LIABILITIES

Current Liabilities	$ 1,350,375	
Outstanding Bonds	13,222,000	
Deferred Contract Installments	16,513,200	
Reserves	29,080	
Deferred Credits	1,050,371	$ 32,165,026
NET WORTH		118,335,313
Total Liabilities and Net Worth		$150,500,339

The Net Worth is 78.6 per cent of Total Assets

AUDITOR'S REPORT

We have examined the balance sheet of the Imperial Irrigation District as of December 31, 1972, and the related statements of revenue and expense, surplus, and changes in financial position for the year then ended. Our examination was made in accordance with generally accepted auditing standards, except as noted, and accordingly included such tests of the accounting records and such other auditing procedures that we considered necessary in the circumstances. The verification of the physical inventories of materials and supplies was limited to a sampling of the counts shown by the perpetual inventory card records and a test of the reconciliation thereof to the general ledger balance. No written confirmation of the receivables was made. We considered the systems of controls in effect adequate to properly reflect the balances of these accounts.

In our opinion, the accompanying balance sheet and statements of revenue and expense, surplus, and changes in financial position present fairly the financial position of the Imperial Irrigation District at December 31, 1972, and the results of its operations for the year then ended, in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

HUTCHINSON AND BLOODGOOD
Certified Public Accountant

WATER

Imperial Irrigation District is the largest desert irrigation development in the entire western hemisphere. The project was initiated under water appropriations made in 1890 by the California Development Company, and irrigation began in June 1901 when Colorado River water was first delivered from the river to Imperial Valley through an old converted riverbed.

Because of topographic obstacles, the first diversion works were only a short distance above the Mexican boundary. The canal ran about 50 miles through Mexico before reentering the United States. Since 1940, the District has been served by a canal lying entirely within the United States, known as the All-American Canal. This canal was built by the U.S. Bureau of Reclamation at a cost to the Imperial Irrigation District of more than $25 million.

The District, successor to the California Development Company, was organized in 1911 and now comprises over one million acres of which more than half are irrigated. Annual crop yields and livestock feeding have made Imperial Valley the fifth highest agricultural producer in the nation.

The Water Department's responsibility starts at Imperial Dam, about 20 miles northeast of Yuma, where water is diverted from the Colorado River, passes through the All-American Canal headworks and desilting basins, thence into the All-American Canal. Yuma Project water is diverted from the All-American Canal at Siphon Drop and water for Coachella Valley in Riverside County is diverted at Drop 1 twenty miles west of Yuma.

The District's gravity-flow canal and drainage system serves 474,900 acres of farmland. The total gross area within the District's boundaries is 1,062,290 acres, including undeveloped areas, cities, towns, airports, feed lots, etc.

CANAL SYSTEM

	Miles
All-American Canal	80
Coachella Branch (IID-Maintained Portion)	49
New Briar	3
Canals	1,640
Drains	1,396
TOTAL	3,168

WATER DIVERSIONS TO IID SYSTEM

	Acre-Feet
1972	2,846,613
1971	2,883,960
1970	2,754,898
1969	2,675,833
1968	2,806,124

All-American Canal, Imperial Valley's lifeline, winds its way through desert sand dunes.

WATER

Water Department responsibilities include operation and maintenance of the All-American Canal headworks and desilting basins, 80 miles of All-American Canal, 49 miles of the Coachella Branch, a 1,640-mile network of other main canals and laterals, and a 1,396-mile system of drains.

Water conveyed in the District's canal system serves agricultural, industrial and domestic requirements. All Imperial Valley cities and towns receive Colorado River water from District canals.

Total diversion through the All-American Canal headworks in 1972 was 4,839,701 acre-feet (an acre-foot of water equals 326,000 gallons), including 175,145 acre-feet used in desilting operations and returned to the river. Water diversions for all agencies served by the All-American Canal totaled 4,664,556 acre-feet, an increase of 8,971.

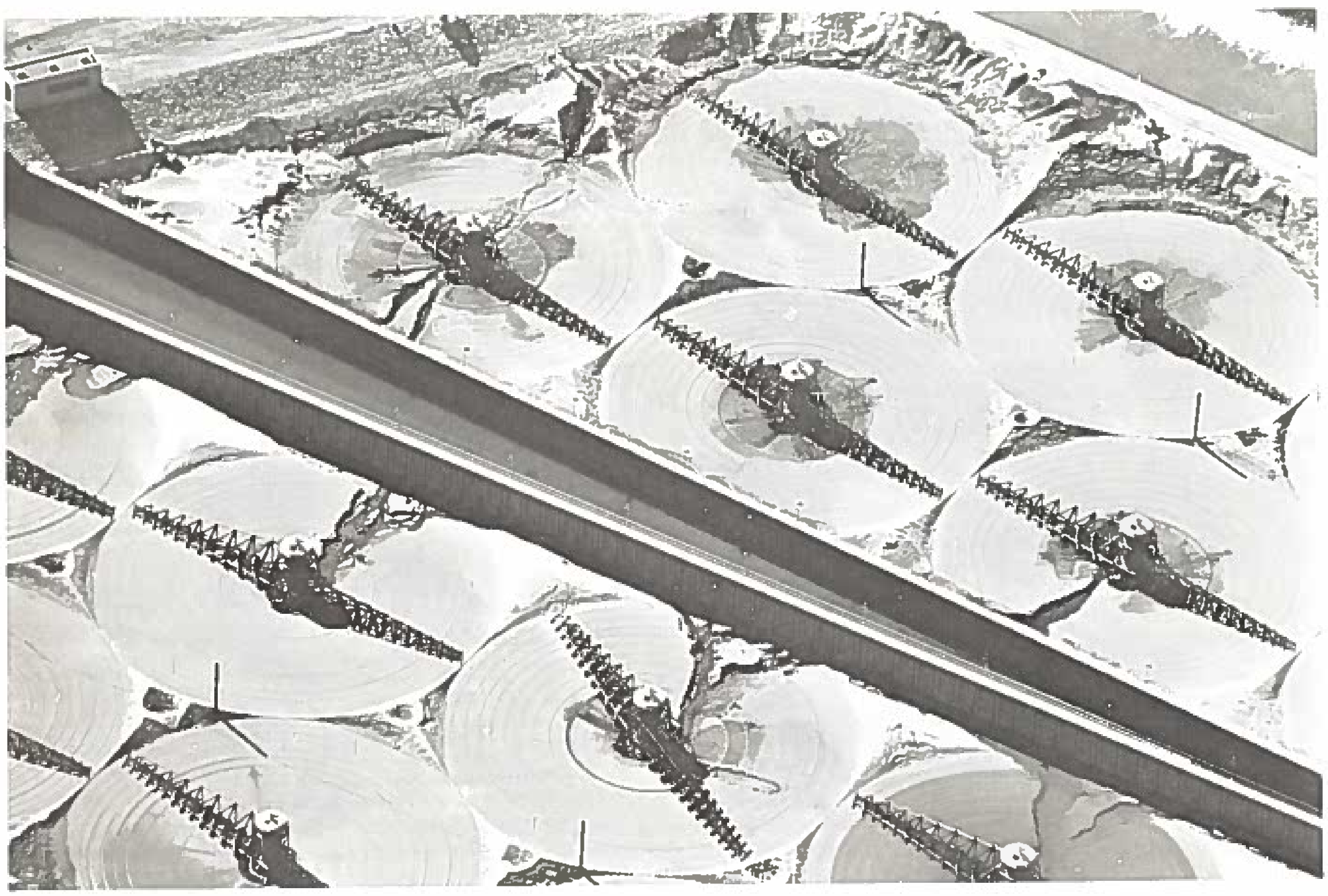
Water delivered to Imperial Valley users totaled 2,531,343 acre-feet, a decrease of 3,256 from 1971.

Close to 13,000 acre-miles of canals and drains were treated with herbicides for brush and weed control. A total of 4,624 miles of channel in the main and lateral canal system and main and lateral drainage system was disked, plowed, or chained for acquatic weed control.

The biological control of aquatic weeds by the introduction of the African fish *tilapia mossambica* has proved very beneficial in areas where water temperatures remain above 60 degrees Fahrenheit. The California Department of Fish and Game supplied 200 *tilapia zillii*, considered tolerant of lower temperatures, for further studies.

Salton Sea, located in Riverside and Imperial Counties, is the repository of drainage and storm runoff water from both counties and from Mexicali Valley, Baja California, Mexico. The present salinity of the sea is slightly greater than ocean water, with 53.06 tons of salt per acre-foot of water, compared to the ocean's 47.80 tons.

For the twenty-third straight year, a favorable salt balance was maintained in Imperial Valley soils. A gain of approximately 9.75 per cent was registered in the removal of salt from Imperial Valley farmland through the District's drainage system. A major portion of the salt removed resulted from installation of underground drain tile in individual fields.



Desilting works at Imperial Dam showing two half-basins drained for inspection. Desilting basins have a designed capacity to remove 70,000 tons — dry weight — of sediment in a 24-hour period, equivalent to fourteen 100-car train loads per day.

SOIL CONSERVATION SERVICE

Soil Conservation Service, in cooperation with Imperial Irrigation District, provided assistance to farmers in improving crop production during 1972.

In agreement with the U.S. Department of Agriculture, the IID Board of Directors also serves the Soil Conservation District and sets policy, in part, for operations in Imperial Valley.

The District and SCS, upon request, assisted farmers with drainage investigation and preparation of tile designs resulting in 1,019.4 miles of underground drainage being installed in 1972 – the second highest annual figure on record – at an estimated $2.2 million cost to farmers. This makes a total of 17,834.15 miles installed within District boundaries since 1929. Broad acceptance of 3-inch plow-in plastic pipe was probably responsible for the strong drainage installation activity during the year.

Seventy-seven conservation plans were prepared during the year covering 16,284 acres. The plans record the farmer's decision on how he plans to use, treat, and improve his land. Farmers are now becoming familiar with various soil textures and work with the SCS to include more detailed information in their plans.

Soil Conservation Service personnel also assist homeowners, other than farmers, by analyzing soil samples.

Upper Colorado River Basin officials inspect tiling machine.

TILE DRAINAGE INSTALLATION — 10-YEAR PERIOD

	Acres	Since 1929	Miles	Since 1929
1963	10,129	308,248	766.02	10,405.96
1964	12,707	320,955	993.97	11,399.93
1965	7,958	328,913	734.52	12,134.45
1966	6,634	335,547	527.38	12,661.83
1967	6,419	341,966	634.00	13,295.83
1968	6,046	348,012	754.33	14,050.16
1969	6,010	354,022	808.64	14,858.80
1970	8,230	362,252	1,036.61	15,895.41
1971	7,552	369,804	919.34	16,814.75
1972	7,311	377,115	1,019.40	17,834.15

Almost $44 million has been expended on the installation of drainage tile in Imperial Valley since 1929. While the laterals bring the water to the fields, tile drainage has helped carry the salts away thus preserving a favorable balance between the salt brought into the land by water from the Colorado River and that washed out into the sea. Tiling machines crawling across the fields digging trenches into which tile is placed helped install 1,019.40 miles of tile for landowners in 1972, compared to 919.34 miles in 1971, a total of 17,834.15 miles since inception of the program. Expenses for tiling run high and are estimated at approximately $2,200 per mile, bringing the total expended by farmers for this operation last year alone to approximately $2.2 million.

GEOTHERMAL

The year 1972 marked a milestone in the development of geothermal resources underlying Imperial Valley.

The Geothermal Resources Council, organized to stimulate the continuing development of geothermal energy in the United States, held its first national conference in Imperial Valley in February.

At the conference, potential geothermal power generation in Imperial Valley was estimated to be "up to 30,000 megawatts," nearly equal to the total electrical energy output in all of California.

For many years, Imperial Irrigation District has been involved in the development of geothermal resources in Imperial Valley and has leased its land to corporations trying to develop the geothermal potential of the area. The District has been in constant communication with various developers and has kept abreast of the progress made in geothermal research the world over.

Development of geothermal wells in Imperial Valley began in 1927 and, while no steam was produced, limited amounts of carbon dioxide were extracted from the wells. Production was curtailed in 1954 but exploratory work was resumed three years later.

More recent geothermal development started with the Texas organization of Joseph O'Neill, Jr., Ashmun and Hilliard which entered into a contract with the District in 1960, amended in 1963 to permit mineral and chemical recovery. In 1965, the O'Neill group entered into an agreement with Morton International allowing that firm's subsidiary, Imperial Thermal Products, to conduct operations on the geothermal leasehold in the Niland area.

Geothermal power was generated on a limited scale in 1965; however, the highly corrosive action of the brine on pipes, and especially on turbine blades, made production of power economically impractical. Exploration and experimentation have continued.

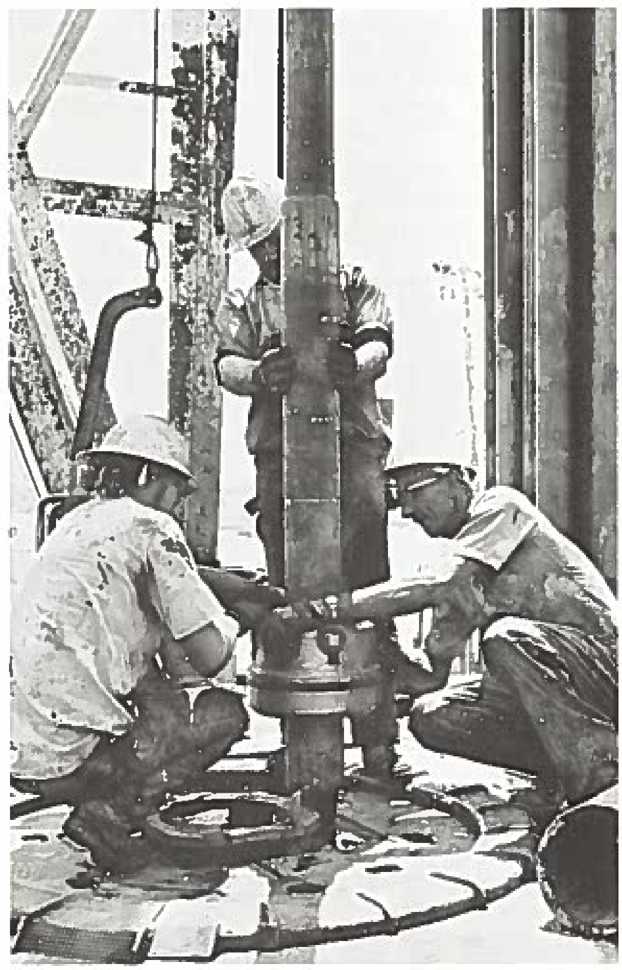
Geothermal exploration by the Mexican government proceeded in the Cerro Prieto area south of Mexicali, Baja California, Mexico, where a $12 million 75-megawatt ultimate capacity plant is now under construction.

On June 23, the U.S. Bureau of Reclamation began drilling a well on the East Mesa seven miles southeast of Holtville. Temperature and geological observations were made, after which plans were formulated to bring a portable desalting plant to the well site to produce clean water from the geothermal brine.

Scientists were encouraged by the fact that just 2,000 parts per million of dissolved solids were found throughout a substantial part of the East Mesa area, with a temperature of 350 degrees Fahrenheit, indicating that desalting operations would be successful.

Exploratory test wells were drilled in different areas of the Valley, both by the federal government and by private industry, to determine not only the power potential, but the possibility of producing clean water as well. The latter would be of immense value in augmenting Colorado River water to alleviate the salinity problem.

While USBR is testing the possibilities of producing clean water, private companies are primarily interested in power generation.



Bureau of Reclamation's deep geothermal exploratory well is being drilled on East Mesa seven miles southeast of Holtville. Well will tap hot brines underlying Imperial Valley, a potential source of augmenting Colorado River with high quality water.

POWER

The Power Department's top priority for the year was to provide additional capacity for increased load without raising rates, despite continued inflationary pressures on fuel, wage and equipment costs.

The average cost of electricity to the residential customer per kilowatt-hour in 1972 was 1.68 cents, as against a national average of 2.30 cents. Comparable figures for the previous year were 1.70 cents and 2.19 cents, respectively.

Not just residential rates, but commercial and industrial rates as well were maintained, which is important in an area where agriculture is the leading economy. Because of the increase in the size of farms and changes in labor conditions, automated farm operations become more prevalent. New uses of electricity on farms are being developed constantly, helping the farmer to achieve increased efficiency and productivity.

The power construction program continued to meet present and future requirements for electric energy. Three new distribution substations were constructed in El Centro, Calexico and Coachella. Transmission voltage was raised on two major substations in Coachella.

In October, preparation of the site for installation of three General Electric gas turbine power generating units in Coachella was begun on an 8.5-acre lot directly south of the switching station adjacent to the Coachella Power Division office. The project will cost an estimated $6 million and will provide additional power during periods of increased load.

The first two units, 20,000 kilowatts each, are expected to be ready for service by June 1973. The third will be installed in 1974. The units will be integrated with the District's generating facilities, bringing the total available power to 423,000 kilowatts.

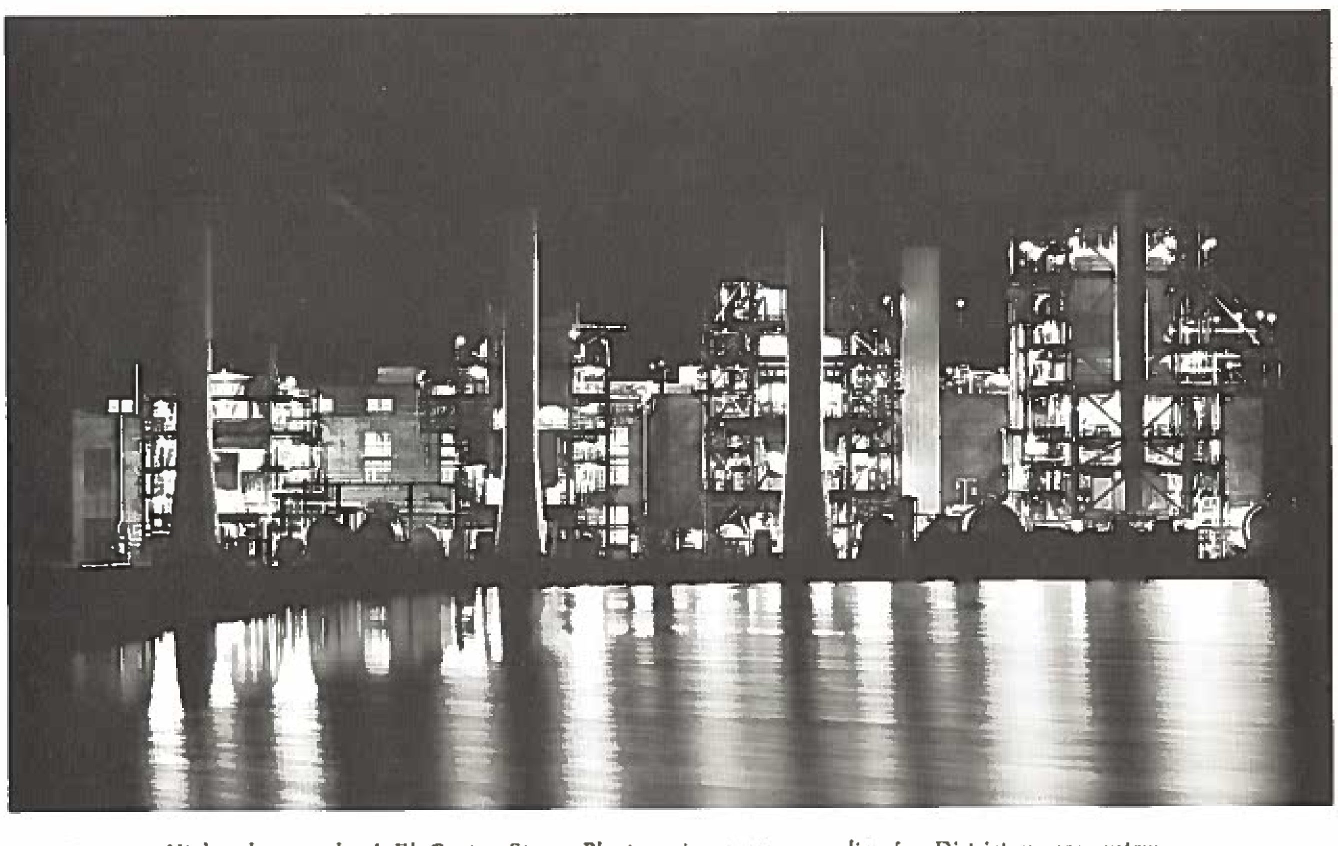
At the end of the year, the District had 960 miles of transmission and subtransmission lines and 94 substations. Peak load of 270,100 kilowatts occurred July 31 at 6:00 p.m.

The total number of residential customers in 1972 was 34,104, an increase of 1,554 over the previous year.

Total power revenue was $16,038,860, an increase of $1,276,277 over 1971.

Operation and maintenance costs were $9,931,566, an increase of $996,648 over 1971.

Capital improvements were $2,221,217, a decrease of $53,770 from 1971. (From revenue fund, $2,182,575, an increase of $81,745 over 1971; from special electric plant construction fund, $38,642, a decrease of $135,515 from 1971.)



Night photograph of El Centro Steam Plant, major energy supplier for District power system.

POWER

POWER SALES

		Per Cent 1972	Per Cent 1971
Ultimate Consumers			
Domestic	$ 6,898,824	44.7	44.8
Commercial and Industrial	7,480,755	48.4	48.1
Agricultural	598,810	3.9	4.1
Street Lighting	162,596	1.0	1.1
Public Authorities	194,682	1.3	1.2
Inter-Departmental	110,196	0.7	0.7
Total Ultimate Consumers	$15,445,863	100.0	100.0
Other Utilities	$ 133	.0	.0
Total Revenue	$15,445,996	100.0	100.0

POWER REVENUE

	1972	1971
Imperial Valley	$ 9,703,622	$ 8,875,551
Coachella Division	5,316,903	4,942,772
Colorado River	275,151	246,992
Salton Sea	150,187	145,645
	$15,445,863	$14,210,960

Hydro-electric generating plant on All-American Canal.

MAJOR DISTRIBUTION PLANT EXPENDITURES

Transformers	$384,112
Poles and Fixtures	318,574
Conductors and Devices	255,413
Meters	100,665
Services	61,935
Station Equipment	252,142
Underground	158,533
Street Lights	72,404

AVERAGE NUMBER OF CUSTOMERS

Residential	33,303
Commercial and Industrial	7,132
Agricultural	750
Other	789
TOTAL	41,974

Gain of 1,448 over 1971.

ANNUAL RESIDENTIAL KILOWATT-HOUR USAGE

Average	12,355

Gain of 687 over 1971.

SOURCES OF POWER REQUIREMENTS

Hydroelectric	23%
Steam Generation	47%
U.S. Bureau of Reclamation	21%
Axis Plant, Yuma	9%

CAPITAL EXPENDITURES ON CURRENT ADDITIONS AND IMPROVEMENTS

Production Plant	$ 31,214
Distribution Plant	1,655,123
Transmission Plant	273,626
Engineering and Supervision	201,169
General Plant	21,443
Fuel Oil Storage Tank	4,353
Gas Turbines - Preliminary	34,289
TOTAL	$2,221,217

SPECIAL SERVICES

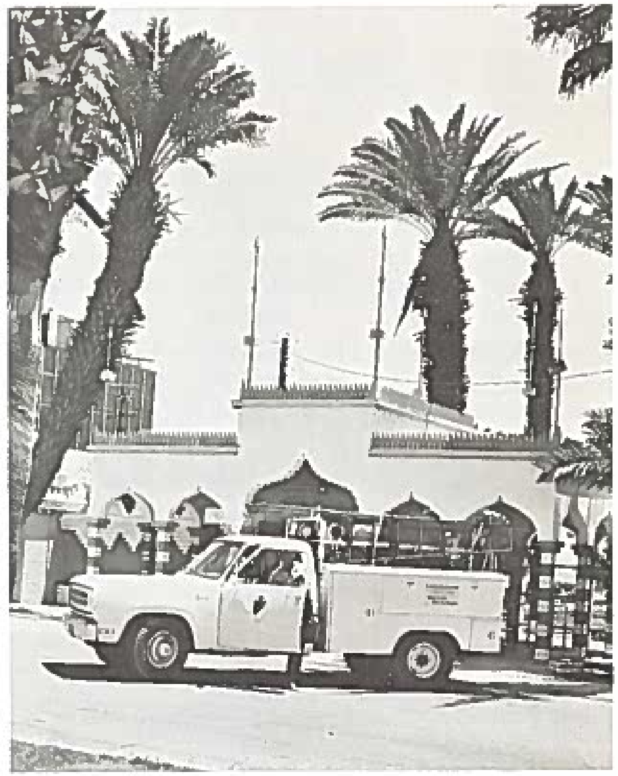
Long before the advent of heightened consumer interest in business and industry, the District was spending time and money on improvement of its service. Also, progress has continued toward better communication with our customers.

In terms of customer contact during 1972, the Home Economics Section reached 6,300 people, either in person or in cooking demonstrations in the Electric Living Center in El Centro.

The Home Economist presented 220 programs to audiences that ranged from youth groups to adults. Subjects included nutrition, food preparation, meal planning, and care of appliances.

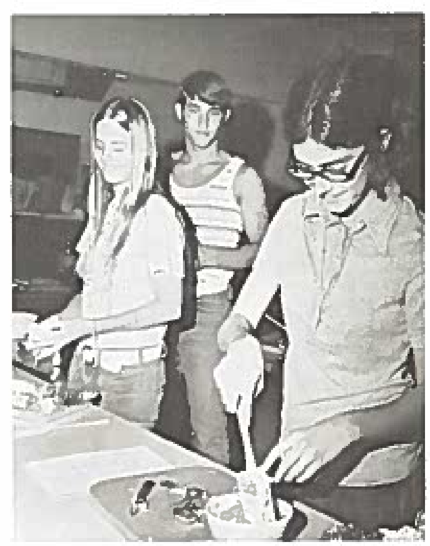
The power service section services electric ranges and water heaters at no cost to customers. Over 3,600 appliance repair service calls were made during the year in Imperial Valley and Coachella Valley.

School tours conducted by the Community and Special Services Section were participated in by nearly 2,000 Imperial Valley students. During the year, 19 tours were made to Imperial Dam, the All-American Canal headworks and the desilting basins on the Colorado River. In addition, there were 26 local tours to District facilities and various agricultural operations.



Service is our business.

Agricultural tours for school children.



Teenage cooking school.

WATER SAFETY

The District's water safety program, first presented in 1959, was carried to more than 20,000 children of both Imperial and Coachella Valleys in 1972. Included were preschool and kindergarten pupils, as well as first through fourth grade, with fifth and sixth graders added in some schools.

In Imperial Valley, 10,650 children attended 150 programs presented in more than 40 schools.

Although the District does not distribute water in Coachella Valley, a large part of the Valley is within the District's power service area. The water safety program was, therefore, presented in that area as well as in Imperial Valley.

The cities of Coachella, Indio, Palm Desert, Mecca, Oasis and Thermal were visited by a District representative who brought the water safety campaign to 9,450 children in 22 different schools.

The program was developed to educate school children as to the dangers of playing in or around canals.

Supporting the District's program, Imperial County a few years ago adopted an ordinance which prohibits swimming or other forms of body-contact sports in canals, complementing a similar provision in the state Health and Safety Code.

The program has received several national safety awards and has been commended in the California Legislature. It has, with some changes, been adopted by other districts in both California and Arizona.

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