

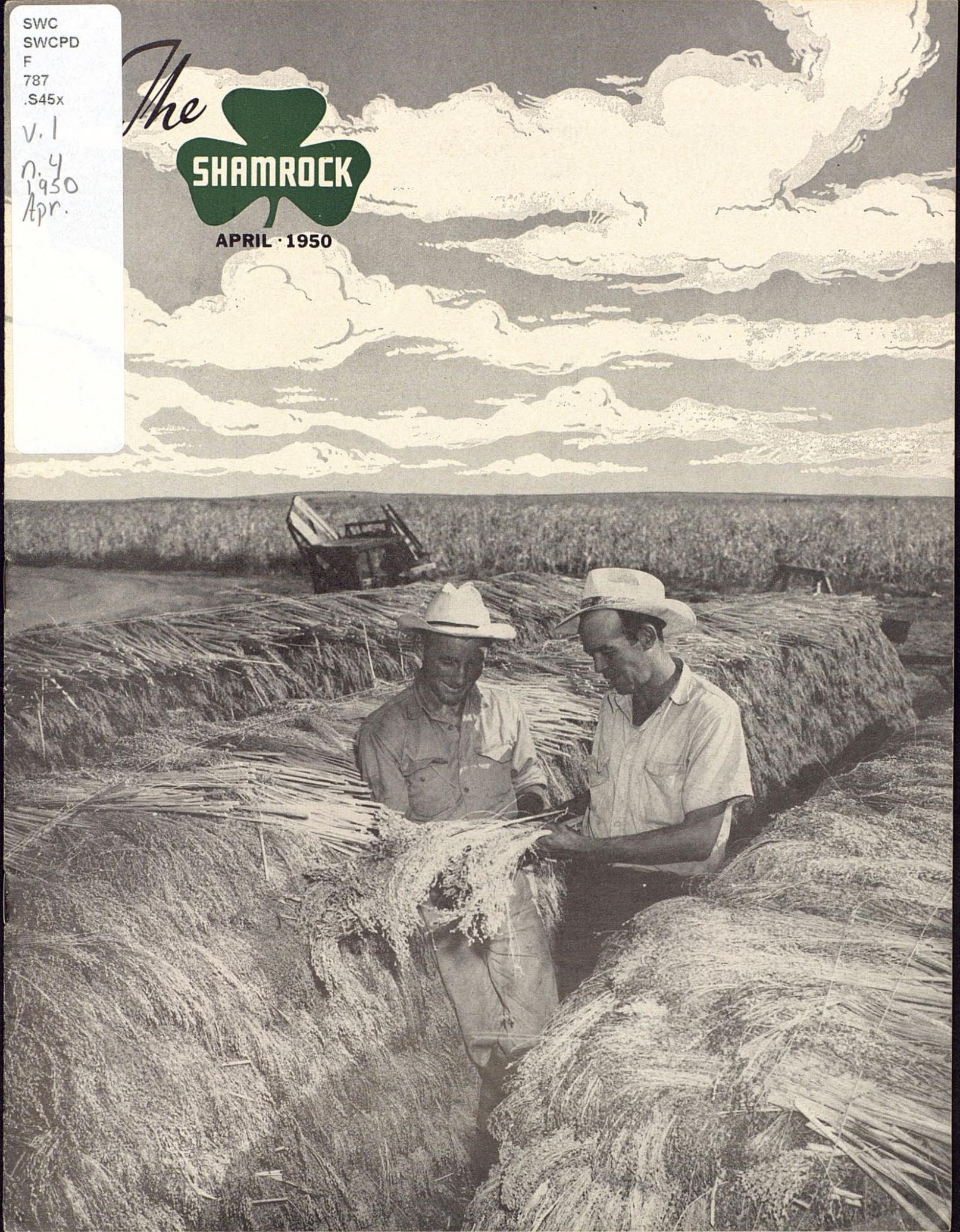
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The Tucumcari Irrigation Project, utilizing water from the Conchas Reservoir, has made it possible for Quay County, New Mexico, farmers to reap abundant harvests.

Harnessed Water--Abundant Harvests

For hundreds of years, the occasional adventurous farmers who settled in the Canadian River Valley in eastern New Mexico periodically watched their crops dry up while thousands of acre-feet of precious water from as far away as the high Sangre de Cristo mountains flowed unmolested past their parched fields.

Not until the Corps of Engineers completed the Conchas Dam and Reservoir on the Canadian River, just below its confluence with the Conchas River, could most of the fertile lands around Tucumcari, New Mexico, be used for anything but grazing lands. In 1935 the Conchas Dam was completed, and in 1940 the Bureau of Reclamation, a division of the Department of Interior, began construction on the 45,000 acre Tucumcari Irrigation Project. Work on the Project was halted in 1942 because of

World War II and was resumed again in 1944 as a war emergency food project. The first water was made available to farmers within the area in the summer of 1945.

Four years ago (Feb. 1946), Shamrock brought to its readers a report on the first year of operation of this promising experiment in the irrigation of the dry but fertile lands of the Arch Hurley Conservancy District in Quay County, New Mexico. At that time about 7,000 acres of land in the District were being irrigated. Since then many additional families have settled in the area and approximately 15,000 more acres have been supplied with water, bringing the total acreage under irrigation up to approximately 22,000.

More than 250 families are now making their homes within the project area. Ten years ago this

same region was supporting only six families. Within the next two years, it is expected that virtually all of the Project will be under cultivation, and the number of families who earn their livings from the production of irrigated crops in the area will be increased to between three and four hundred.

Making skillful use of the valuable water stored up behind the huge Conchas Dam, these farmers are rapidly transforming the gently rolling hills around Tucumcari from a sparsely populated community of scattered ranches into one of the most productive agricultural areas in New Mexico. Last year these farmers raised approximately 9,400 acres of cotton.

Other crops produced last year by the progressive Quay County farmers included grain sorghums (5,000 acres), small grains (2,700

acres), forage crops 2,000 acres), and alfalfa (1,000 acres). Crops such as sugar beets, corn, beans, garden and truck crops, and broom corn were also produced in smaller quantities.

Ten years ago, practically none of the 45,000 acres in the Project were in cultivation.

All major construction on the extensive irrigation system which has made this agricultural development possible was completed in 1949. The irrigation system consists of 300 miles of main and lateral canals. The Conchas Canal, longest of the two main canals, originates at the Conchas Reservoir, 35 miles northwest of Tucumcari, and winds generally southeast for 77 miles. The Hudson Canal branches off from the Conchas Canal at the southeast corner of Tucumcari, 54 miles below the reservoir. This canal is 32 miles long and supplies water to the extreme northeast portion of the Project.

One of the men responsible for getting water through this system of canals and laterals from the reservoir to the farms is Ed Cerney, Watermaster on the Project. Cerney is a tall, friendly person who knows practically all of the farmers in the Project by their first names. He has worked on the Tucumcari Project since construction was begun in 1938 and has a

detailed knowledge of the entire system from beginning to end.

With justifiable pride, Mr. Cerney explains that there are more than 3,500 structures in the system, including the canals, laterals, tunnels, and siphons. There are five horse-shoe shaped tunnels which transport the water directly through hills and ridges. The total length of these tunnels is slightly under six miles. The shortest is 2,500 feet long and the longest is almost two miles in length. The 34 siphons in the system transport the water under such obstructions as railroads and creek beds. These siphons are concrete tubes, 11 feet 6 inches in diameter, which dip down under the obstruction and come up on the opposite side. They range in length from 300 feet to one mile.

To keep the water flowing smoothly through this intricate network of irrigation facilities, a crew of Ditch Riders, under the supervision of the Watermaster, constantly patrol the entire system. It's the job of these men to make certain that the water users get water when and where they need it. Because of the necessity of maintaining a communications system that will be available at a moment's notice in case of emergency, two-way radios are installed in vehicles operated by Ditch Riders, the Watermaster, Project Engineers and others. This communication system has paid for

itself many times over through the valuable time saved in reporting and correcting troubles, according to Project Superintendent Ray C. Lyman. When a mile long siphon shows signs of clogging up, extensive damage may be prevented by saving a few minutes in reporting the trouble after it has been discovered.

Eventually a large part of the cost of the Tucumcari Project will be paid for by the water users. Prior to construction of the Project, provision was made to charge the land owners within the irrigable area for the water delivered to them. The rate at which this charge was to be made was adjusted so that over a period of years the farmers would pay for most of the construction and maintenance costs of the project.

By law, no single water user may obtain water from the Project for the irrigation of more than 160 acres. The purpose of this law is to keep farms small enough to provide as many persons as possible with the benefits of the development and, at the same time, to allow each farmer to own enough land to enable him to make a living.

In addition to the various official agencies such as Soil Conservation Service, State Extension Service, and County Agent, serving farmers, an Association of Water Users has also been formed. Through participation in this as-

Bruce Weiing looks over an irrigated field of sweet Spanish onions on his farm near Tucumcari. With the help of irrigation, Quay County farmers raise a variety of crops.



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sociation, farmers in the Project work out problems involved in the actual irrigation and operation of their farms.

Indicative of the interest of Quay County farmers in the promotion of better farming methods is the active 4-H Club program. Quay County ranks first in the State of New Mexico in 4-H Club enrollment of the eligible rural youth with more than 400 boys and girls participating in the program. One of the significant features of Quay County's 4-H Club activities, according to Paul Kemp, Associate County Agent, is the active interest of the parents in the projects their sons and daughters undertake. As Mr. Kemp points out, this parent participation is the backbone of any youth activity.

The availability of an adequate supply of water to Quay County farmers has been the most important contributing factor in the agricultural development of the area. This abundant water supply will continue to attract more farm-

ers into the area and to increase the productivity of Quay County farms. Within two or three years, it is expected that between 40,000 and 45,000 acres will be under irrigation, and between four and five hundred families will be living in the project area. But even after water has been supplied to all of the irrigable area, the work of the various federal, state, and local organizations, the youth training provided by the 4-H Clubs and other groups, and the progressiveness of the farmers themselves will continue to stimulate the development and improvement of Quay County agriculture. This improvement will be reflected in the steady building up of the soil, in the establishment of marketing facilities for additional crops, and in the development of a greater variety of crops suitable to irrigation farming.

Probably the most striking example of the effect of harnessing the waters of the Canadian and Conchas Rivers is the growth of the City of Tucumcari. Bordered

on three sides by the irrigation project, Tucumcari has experienced phenomenal growth in the past ten years. The 1940 census placed the city's population at 6,194. The present population, according to conservative estimates, is almost 12,000. Since this population increase has been achieved without the benefit of any World War II encampment and without the establishment of any industrial plant connected with the war effort, it can be attributed largely to business and employment opportunities created by the irrigation project.

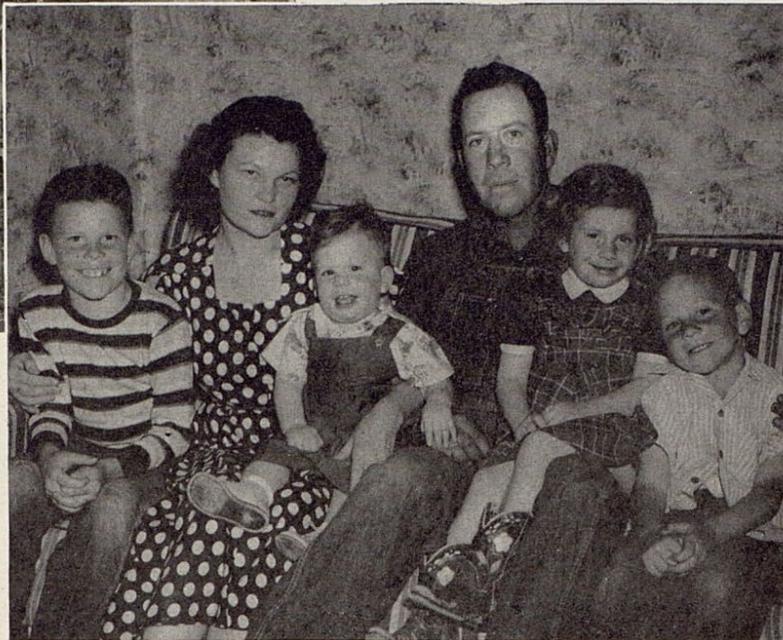
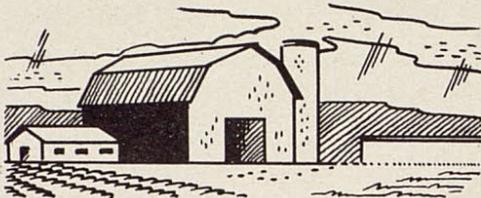
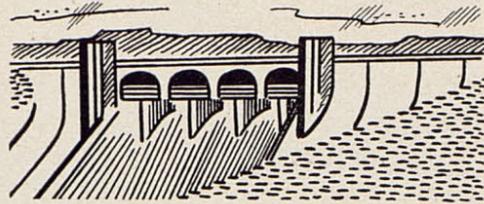
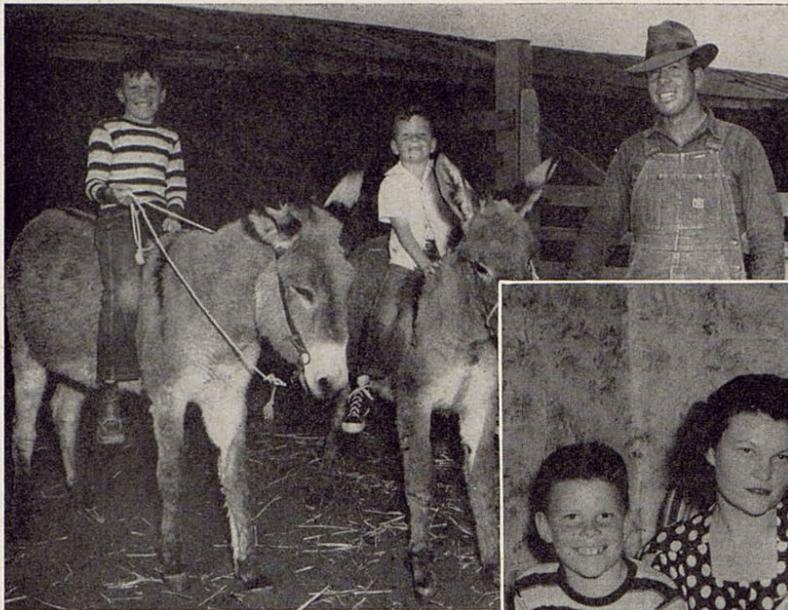
Not only in the City of Tucumcari, but throughout the surrounding area, the worthwhile results of adequate water supply and scientific farming methods is readily apparent. Attractive farm homes, abundant harvest, and the generally prevailing atmosphere of civic growth testify to benefits resulting from making use of valuable water that once was allowed to flow past dry but fertile fields.



Ed Cerny, Watermaster on the Tucumcari Project inspects sugar beets raised on the J. A. Carr farm.



M. L. Allen displays the full cotton bolls from the crop of irrigated cotton produced on his farm.



Above—Mr. and Mrs. C. L. O'Quinn with their four children. The youngsters, left to right, are: Laighton, Timothy, Sharon, and Pat. Upper left — Laighton and Pat astride their Mexican burros.

Farming for the Future

The establishment of successful farm operations is merely the first step in the planning of most farmers in the Tukumari Irrigation Project in eastern New Mexico. In addition to managing their farms profitably, these farmers are also keenly interested in building homes for their families and in developing a progressive community in which to bring up their children.

One of these modern pioneers is C. L. O'Quinn, a tall, good-natured former Texan who has been farming in the Project for the past three years. This progressive farm family includes O'Quinn, his wife, and four husky children ranging in age from 8 years to 13 months.

The O'Quinns moved from San Angelo, Texas, to a 120-acre farm

southeast of Tukumari in December 1946. Although the irrigation project had not been completed at that time, they proceeded with the preparation of their land, expecting to be able to begin irrigation the following spring. Because of construction delays, however, they were unable to obtain the necessary water until the spring of 1949.

"We had pretty rough going those first two years," O'Quinn relates, "but we knew we had good land and if we could hold out until we could get water, we would be all right."

An experienced farmer, O'Quinn managed to raise enough crops without the irrigation water for the family to get by during those lean years. Then last year he rais-

ed the first irrigated crops on his farm. Like other farmers growing their first crops in the area, he planted most of his 1949 acreage to a cash crop—cotton—in order to build up his operating capital. This year, however, he plans to plant soil-building crops on most of his land.

"I'll put almost the entire farm into alfalfa," he explains, "because it has a pretty good market and it builds up the soil."

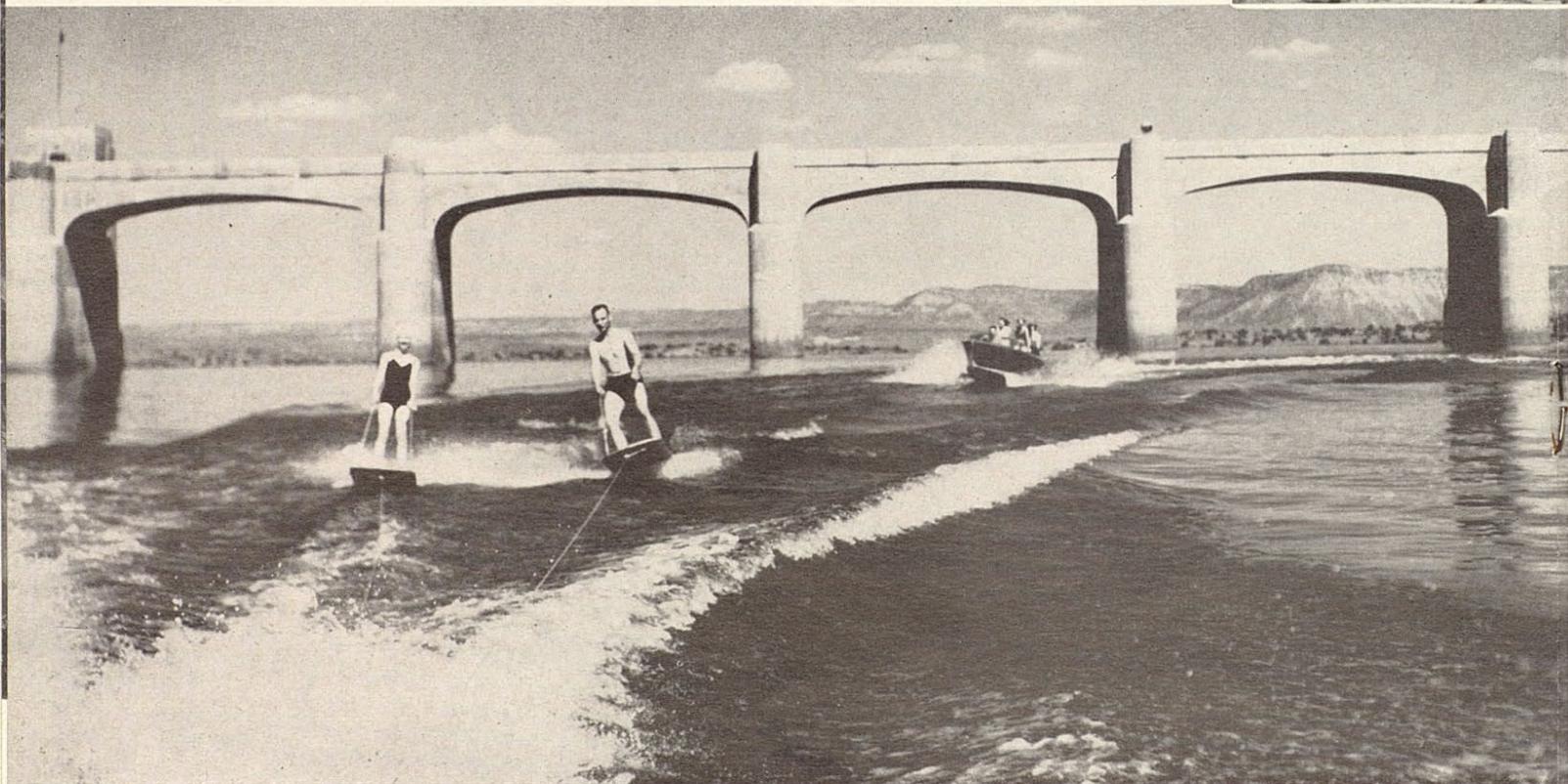
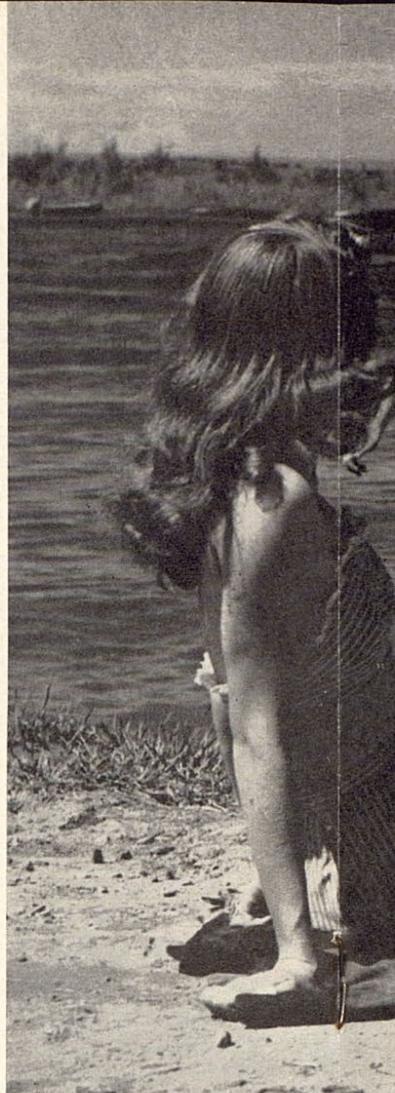
Mrs. O'Quinn is an attractive woman who is as much interested in the development of the community as her husband. Like most farm wives, she appreciates the value of good neighbors.

"When we came here, we were the first people to move into this

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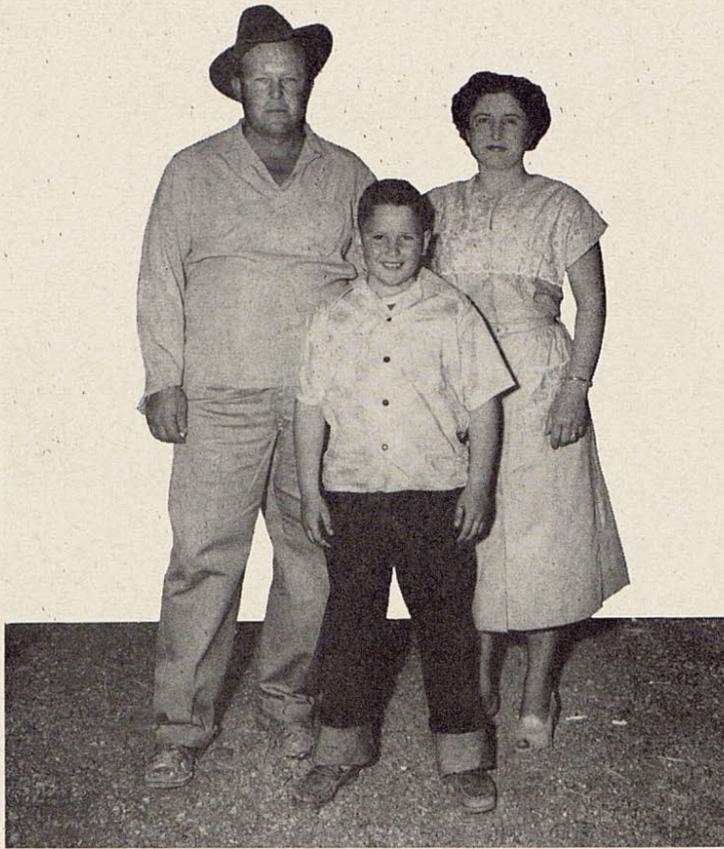
Tops in Water Sports





The 16,000-acre lake created by the huge Conchas Dam, 35 miles northwest of Tucumcari, New Mexico, provides residents of the Southwest with superb recreational facilities. Sportsmen and vacationers from everywhere enjoy the tops in swimming... fishing... boating... and camping in the healthful, sunny climate of eastern New Mexico.





Mr. and Mrs. Greer Cottingham with their 8-year-old son, Leon, are among the progressive families on the Tucumcari Project.

To reduce the hazard of wind erosion, he plants his crops in ten-acre strips. He is also a strong proponent of crop rotation.

"I never plant the same thing on the same plot of ground two years in a row," he explains.

In planning his crops, Cottingham is concerned primarily with raising feed for his dairy herd. Last year most of his acreage was planted to grain sorghums. This year he is reducing production of these crops and is increasing the acreage planted to alfalfa.

Although numerous official agencies and organizations, since beginning of the Project, have provided Quay County farmers much-needed technical advice and services, it is the determination, enterprise, and resourcefulness of a great many farm families like the O'Quinns and Cottinghams that has insured the success of the Tucumcari Project. Because of their efforts to increase the value of their land through modern conservation practices and because of their active interest in the development of the community, these farmers are helping to make Quay County, New Mexico, one of the brightest spots in the Southwest.

FARMING . . .

part of the Project," Mrs. O'Quinn recalls. "The roads were poor and we had no close neighbors. Usually no more than one or two cars a day passed by. Now we have good neighbors all around us. The roads have been improved and we no longer feel isolated."

Another Quay County farmer who is typical of the progressive home builders in the Tucumcari Project is Greer Cottingham. Cottingham, his wife, and son moved into the area in 1946 from the Texas Panhandle. Starting with 80 acres of undeveloped land and seven cows, the Cottinghams now own 320 acres of irrigated farmland and 69 head of fine dairy cattle.

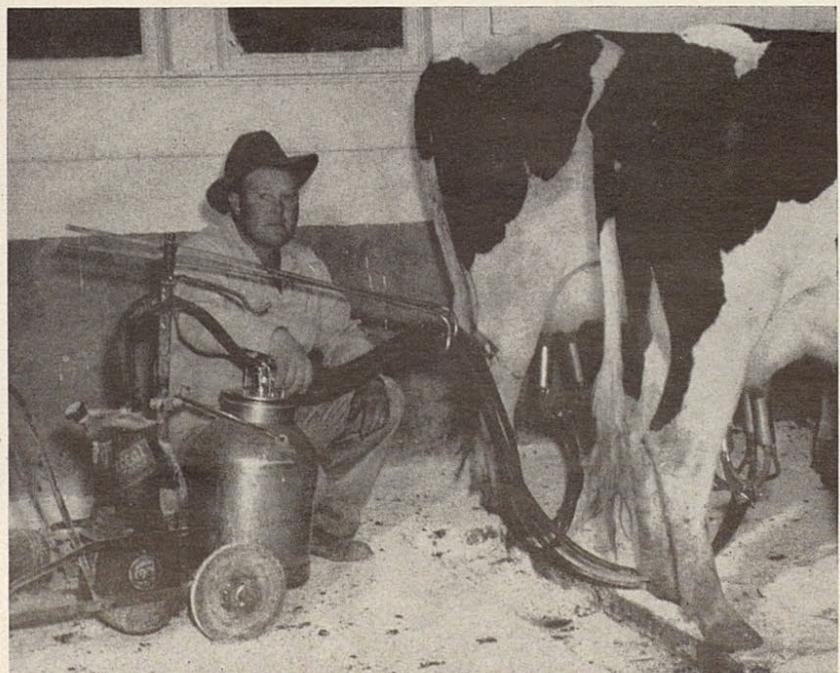
An interesting feature of Cottingham's farming operations is the absence of pasture land on his farm. Cottingham confines his entire herd of cattle to a 3½-acre plot and grows the necessary feed for them on the remaining acreage.

Although the Cottinghams have an enviable record of achievement, they have had to put in many hours of hard work. Irrigation farming, as a rule, involves con-

siderably more labor than the "plant, pray, and harvest" type of operation. Because of the expense of preparing the ground to receive the water, it also usually requires more investment per acre to get started than do other types of farming.

As a farmer concerned with the future, Cottingham makes use of proved conservation techniques.

Greer Cottingham demonstrates a milking machine on his dairy farm near Tucumcari. Cottingham owns 320 acres of irrigated farm land.



One-Day Miracle Transforms A Farm



The Quay County farm of J. C. White, lanky World War II veteran, is dramatic evidence of the miracles scientific farming, community-wide cooperation, modern machinery, and water are achieving on the Tucumcari Irrigation Project. Through the volunteer efforts of many persons, this farm was completely "re-made" in one day.

Because the comparatively rough terrain and uneven contours of the 40-acre White farm provided irrigation and erosion problems typical of many other farms in the Tucumcari Project, officials of several federal, state, and local agricultural agencies selected it to demonstrate the most advanced methods of preparing an irrigation farm for profitable operation. The agencies sponsoring the project included the Canadian River Conser-

vation District, the Bureau of Reclamation, the Soil Conservation Service, and the New Mexico State Extension Service.

Volunteering their skills, their tools, and their labor in accomplishing the one-day project were implement and equipment dealers from all over the State, contractors, farm supply dealers, as well as a great many of White's neighbors. Thousands of visitors from 11 states looked on as these volunteers rebuilt the White farm.

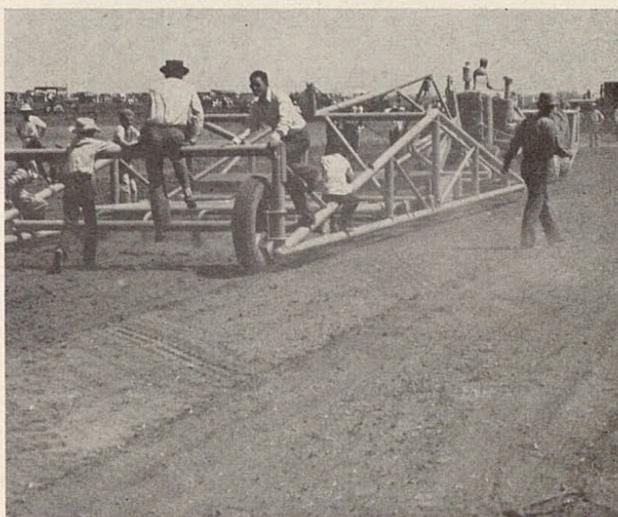
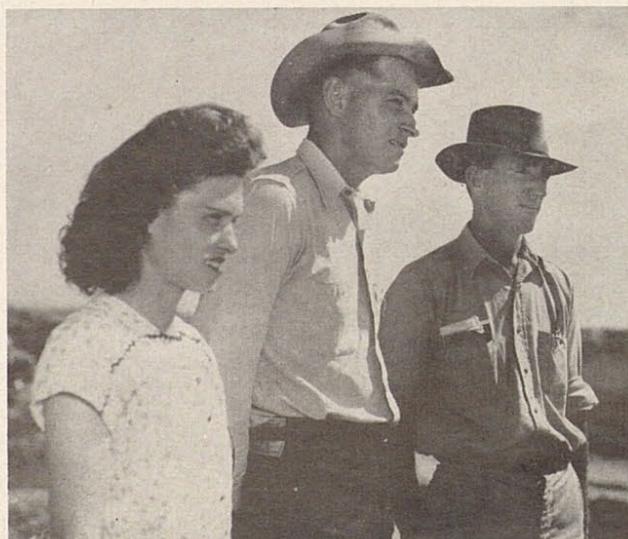
Some time before the actual operation began, engineers and soil experts from the Soil Conservation Service and the Bureau of Reclamation had made careful surveys of the farm. Terrace lines were run, ground levels calculated, and machinery assembled.

Shortly after dawn on Labor Day, 1948, dozens of tractors, land

planes, road graders, plows, and other equipment began the task of preparing farmer White's land to make the most efficient use of irrigation water from the Conchas Dam. Within the next 12 hours, fields were levelled and bordered and a new irrigation system with 35 structures was installed. Approximately 125 feet of irrigation ditches were lined with concrete.

The land was then planted to wheat, alfalfa, and pasture. By dusk the job was virtually completed and water began to flow onto the fields from nearby irrigation channels constructed by the Bureau of Reclamation. In one day, an estimated \$2,500 worth of work had been applied to the White farm. It was also estimated that the value of the 40-acre farm had been increased by a minimum of \$4,000.

Below—Mr. and Mrs. J. C. White, with District Conservationist Wayne Miles (right) of the Soil Conservation Service, watch as their farm is re-made. Right—Plenty of men and machinery make quick work of the job.

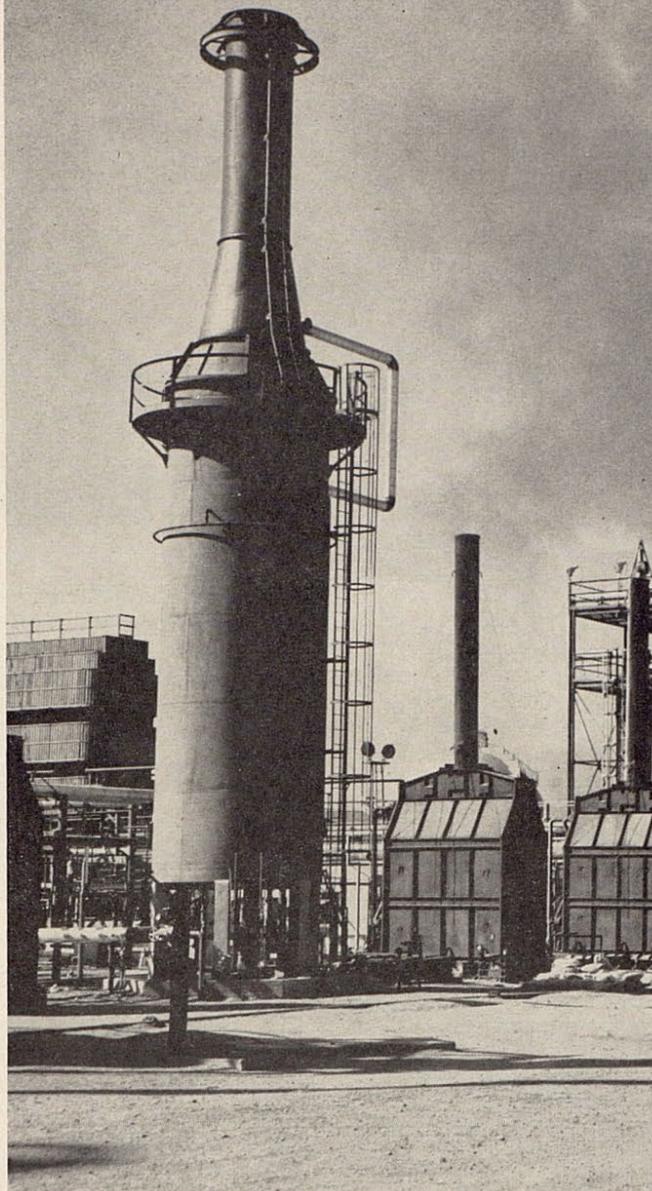
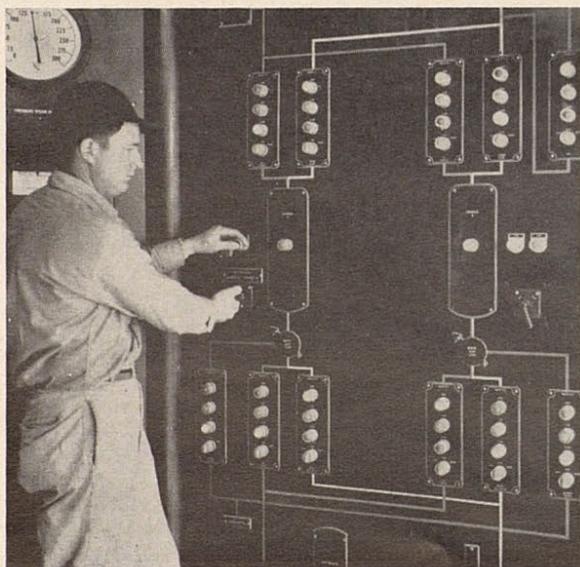


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ABOVE—Partial view of Shamrock's new Cycloverversion equipment. LEFT — This automatic control panel insures a high degree of accuracy and precision in the operation of Cycloverversion equipment.

PHOTO CREDITS — The U. S. Bureau of Reclamation, the U. S. Soil Conservation Service, and the Tucumcari Chamber of Commerce.

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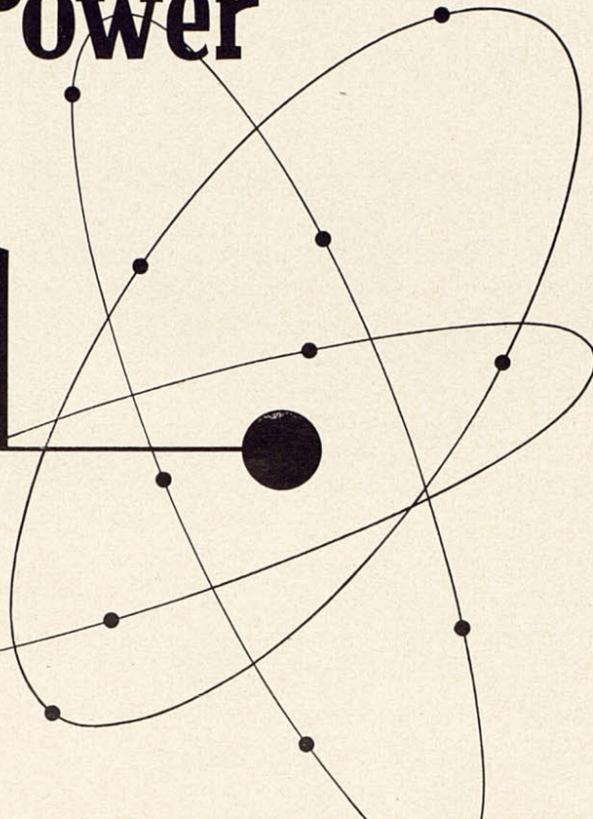
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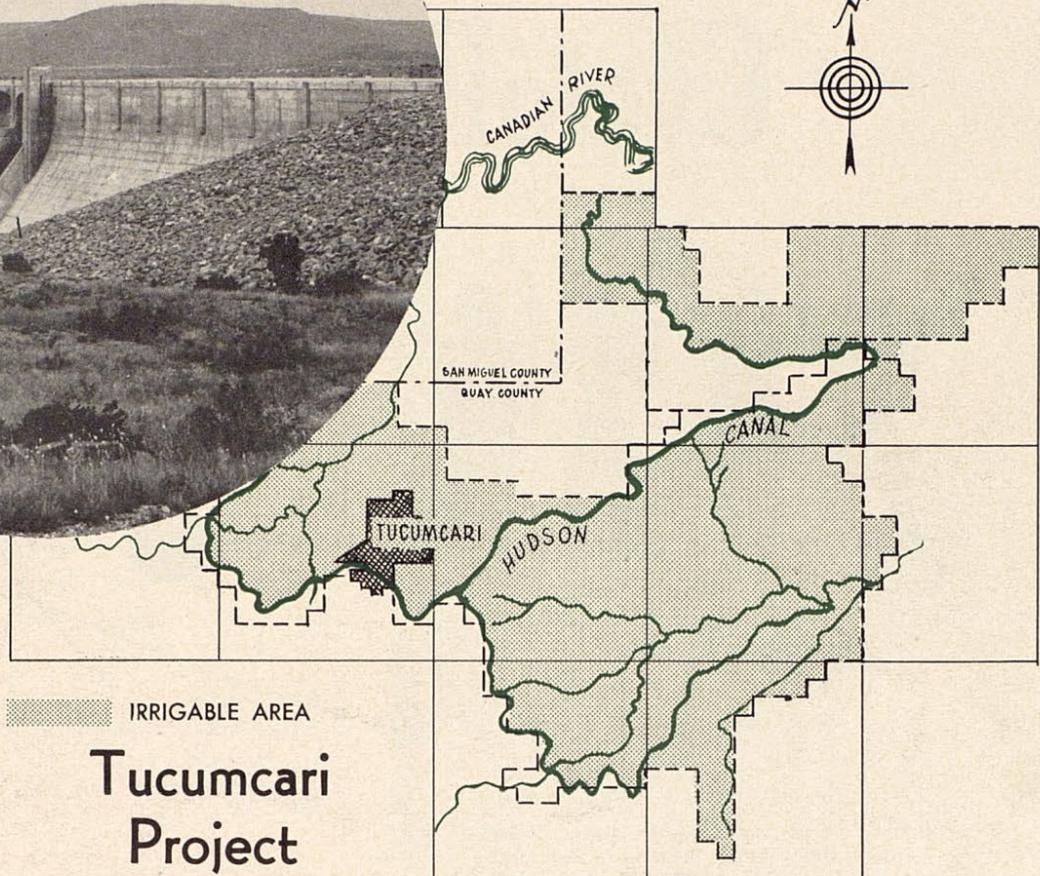
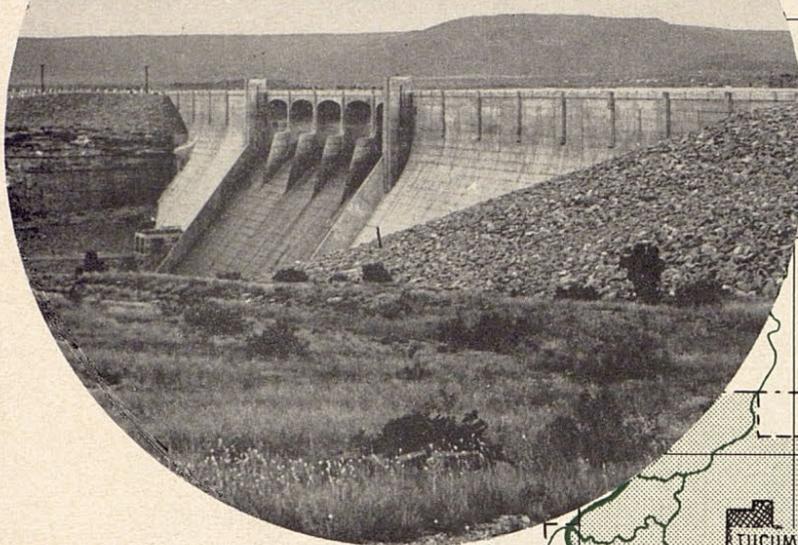
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IRRIGABLE AREA

Tucumcari Project

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