

P. G. and E. Progress

Published by the Pacific Gas and Electric Company
A California Corporation Operated and Managed by Californians

Vol. XXVIII

SAN FRANCISCO, JANUARY, 1951

No. 2

Texas—New Mexico Gas Is Here

World's Record "Super Inch" Pipeline in Operation

THE world's greatest gas transmission pipeline—the P. G. and E.'s "Super Inch"—now is in operation, delivering great quantities of natural gas from Texas and New Mexico into the company's far-flung system, which serves more than a million homes and businesses in Northern and Central California.

Extraordinary in several ways is the "Super Inch." It extends from Topock, on the California-Arizona border, to Milpitas, near the southern end of San Francisco Bay, where it feeds into the company's great network of mains. The pipeline is 502 miles long and is part of a 1600-mile system tapping natural gas fields in Texas and New Mexico. It is 34 inches in diameter—the largest diameter pipeline in the world for high-pressure transmission of natural gas. Its cost, including compressor stations and companion facilities, is \$63,000,000 and the cost of the entire 1600-mile system totals \$150,000,000. The eastern portion of the system—in Arizona, New Mexico and Texas—was built by the El Paso Natural Gas Company of Texas, which delivers the gas to the P. G. and E.

Construction of the "Super Inch" represents a realistic response by the P. G. and E. to an urgent need of the people of Northern and Central California. The company was confronted with steadily increasing gas demands from a rapidly growing population and expanding industry and, at the same time, faced a considerable decline in the availability of natural gas within California. The choices were to arrange for a supply of natural gas from outside the state or to curtail the use of natural gas and resort to more costly and less desirable manufactured gas. The company decided to go to the Texas and New Mexico fields. Hence the "Super Inch," which now is



This picture of the P. G. and E.'s pipeline was taken on the Mojave Desert. The size of the main can be gauged by comparison with the workmen.

delivering 200 million cubic feet of gas per day to the company and next fall will deliver 400 million cubic feet daily.

Construction of the "Super Inch," which began in June, 1949, was a strenuous and spectacular contest of men and machines against terrain and weather and time.

From the Colorado River, which the pipeline crosses on a bridge acquired for the purpose, the route of the "Super Inch" includes rugged mountains, great canyons, desert, more mountains, rivers, hills and valleys. For the first seven miles it traverses rough eroded terrain on the flank of steep rocky mountains.

Then it crosses the Mojave Desert. In the Tehachapi Range it reaches its highest elevation—approximately 4600 feet—and in the next 25 miles it drops sharply, in the roughest country of the entire distance, to an elevation of only 200 feet in the San Joaquin Valley. Then it scales the Panoche Hills and runs through the Santa Clara Valley to Milpitas.

Building the pipeline was a tremendous job.

Benches 54 feet wide had to be carved around mountains and hills to provide working space for construction equipment.

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Texas-New Mexico Gas

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In several places hilltops had to be cut away to avoid sharp bends in the pipe.

In some areas drilling and blasting were necessary to dig the trench.

The job involved the transportation of more than 200,000 tons of pipe, fittings and other materials.

To cross the Kern River, a 4000-foot section of pipeline was laid under the river bed, with 4000-pound weights every 15 feet to hold it in place.

Because of the record size of the pipe, more than \$1,000,000 worth of construction equipment had to be made to order for the job. Other machines were rebuilt to make them big enough and powerful enough for the work.

Steel and concrete structures were built across several canyons to support the main.

Dust and desert heat imposed severe hardships on the crews. Heavy, dust-laden winds frequently hindered operations and sometimes forced shutdowns. At times the heat was so intense that much of the work had to be done at night.

On the Tehachapi slope the gradients ranged as high as 57 degrees.

All this and more!

But the men and machines triumphed. The "Super Inch" was completed ahead of schedule.

And the present fuel problem of Northern and Central California has been solved.

Cooperation on Community Christmas Tree Projects

Following a custom of many years, P. G. and E. employees in several cities and towns did much of the work of cutting, transporting, erecting and decorating community Christmas trees.

Redding and Red Bluff were typical examples.

At Redding eighteen P. G. and E. men joined about twenty other citizens to provide a beautiful tree 105 feet tall. The company workers felled the tree and, with the assistance of the California Highway Patrol, trucked it forty miles to the city. The Bureau of Reclamation furnished the derrick with which the tree was erected and the City Electric Department decorated it with 1025 colored lights and a five-foot neon star at the top.

At Red Bluff there was similar cooperation by P. G. and E. folk, with correspondingly beautiful results.

Twentieth Anniversary

Electric shavers now are 20 years old. One manufacturer estimates that they are used by 20 per cent of the 54 million men who shave.

Two Championships for 4-H Boy

Electric Project Wins State And National Awards

AS A result of opportunities and incentive provided by a training program conducted by the P. G. and E., James F. Fagerskog, a 4-H youth of Carmichael, Sacramento County, has won two championships—state and national—for farm efficiency through the use of electricity.

In the 1950 Westinghouse 4-H Farm and Home Electric Program young Jimmy took first place in the California competition for electrical ingenuity and thereby won a free trip to Chicago for the 4-H Congress. At Chicago, competing with champions from forty states, he was one of the six national winners who received \$300 scholarships.

Jimmy, aged 18 and a 4-H member for three years, participated last summer in the annual 4-H Club Electricity Project—a continuing program of demonstrations, chalk talks and actual experience to emphasize the numerous advantages of electric power on the farm. This program is supervised and directed by the California Agricultural Extension Service, sponsored by the Pacific Coast Electrical Association and conducted in



James F. Fagerskog

Northern and Central California by the P. G. and E.

In the Westinghouse competition Jimmy won the state and national awards for constructing two electric pig brooders, helping to build an electric honey extractor and repairing motors, radios, electric clocks and lamps.

Including the 1950 awards, Westinghouse has donated a total of 81 scholarships to farm boys and girls in fifteen years of cooperation with 4-H programs.

A Cat Always Comes Back, They Say. Well, Not This One

Most of the world believes that evicting a cat is next to impossible—that no matter how forcibly it is ejected, how far from home it is taken or how circuitous the route, the cat comes back.

Well, the Coalinga Record knows of a cat in the Panoche Hills that didn't—and won't—come back.

This cat, as the Record tells the story, unwisely made its home in a newly completed section of the "Super Inch"—the huge pipeline built by the P. G. and E. to bring natural gas from Texas and New Mexico to Northern and Central California.

But the cat didn't live there long. A couple of days after it moved in, the

pipeline was purged to clean out the dust and dirt that had unavoidably accumulated inside during construction. And the purging was done by sending enormous quantities of gas through the main at a pressure of 600 pounds per square inch and a speed of a mile a minute.

Out of the pipe and high into the air came the dust and dirt.

Ditto the cat—scared stiff and yowling double fortissimo.

However, none of its nine lives were snuffed out. It landed on all fours, running at top speed the moment it touched terra firma.

When last seen it was going over the top of a hill into the wild blue yonder.

Million-Volt X-Ray

The Mercy Hospital Institute of Radiation Therapy at Chicago has installed a new million-volt X-ray machine to help in its battle against cancer.

A Thousand-Year Lamp

Theoretically, engineers say, a light bulb could be designed to burn continuously for a thousand years. But it would be useless for lighting purposes, because it would give less illumination than a firefly.

Extra "Eyes" for Motorists

New automobiles are equipped with hundreds of "eyes" to sharpen motorists' vision at night. Westinghouse engineers explain that the checkerboard pattern of each sealed beam headlight is made up of 121 lens-like prisms.

Talc particles 55 times smaller than can be seen by the human eye are produced by a new type of electric pulverizing mill in the plant of the Gouverneur Talc Company, Gouverneur, New York.

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