MUELLER Record

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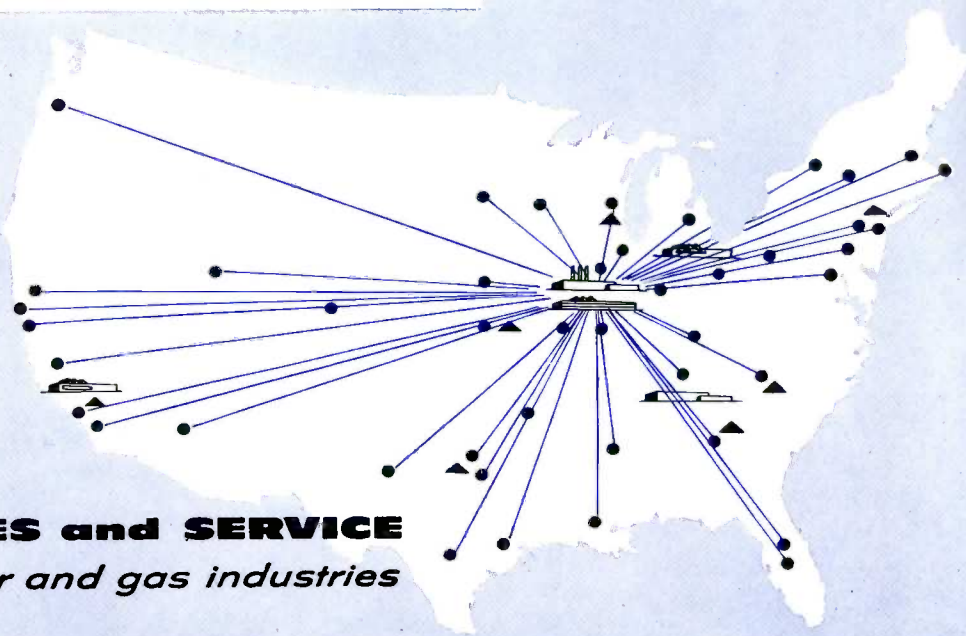
Contents



Natural Gas Crowns Fair's Awesome Symbol

Gas Heats, Marks Time, Cools Visitors

The world of tomorrow is emerging today at the Seattle World's Fair. Helping to symbolize this dramatic probe into the future is a 40-foot natural gas torch that is perched atop the 600-foot tall Space Needle.

Gas is not only showing what it can do through its huge exhibit, but it is proving its worth in a practical manner in that more than 200 uses of natural gas have been put into practice at the Century 21 Exposition. Gas will be used for heating, cooling, cooking, symbolizing and even the marking of time at the first world's fair to come to the United States since 1939. The Fair runs from April 21 to Oct. 21.

One memorable architectural feat has distinguished every past World's Fair. At the London Exposition it was the Crystal Palace. The Eiffel Tower survived the 1889 Fourth French International, and the last U. S. Fair in New York City had the Trylon and Perisphere.

The newest symbol, the daring Space Needle, has a circular, glass-enclosed revolving restaurant which is at the "eye of the needle." Here gas furnishes the energy for heating, cooking and cooling in the 94-foot diameter restaurant. The pinnacle of this symbolic wonder is lit by a dependable torch of gas, naturally.

At the $500,000 Century 21 Gas Exhibit, all phases of the natural gas industry and gas uses are depicted for the visitors. The electricity is produced by a gas- fueled turbine, and even the building ma-

Long before the Needle of Flame was mounted on the Space Needle 550 feet above the Seattle fairgrounds, it went through a series of ground-level tests to assure engineers that it would meet the requirements.

The $500,000 Century 21 Gas Exhibit (arrow) can be seen at the base of the fabulous Space Needle. The 9500-square foot exhibit depicts all phases of the natural gas industry, from its gas clock to the building materials which come from gas by-products or are produced by processes in which natural gas plays a part.

terials are from gas by-products or produced by processes in which natural gas is important.

10 Million Expected

60-story-high Space Needle is but the crown of the $80,000,,000 attraction which is expected to thrill 10 million persons as they receive a preview of tomorrow—a swift glance of man's life in the space age.

On this glittering fairground of 74 acres, visitors will see a panorama of exhibits ranging from a trip a billion light years into outer space to a fun-paced Gayway, with custom rides more complete than any other World's Fair.

Forty nations of the world will have on display models of the best of their technical predictions in pavilions ringing the landscaped malls. On boulevards lined with colorful shops, bazaars and restaurants, their craftsmen will sell native food and goods, and in new theatres and a huge stadium, they will perform in a continuous parade of music, dance and legitimate plays.

First Monorail

Another point of interest in the exposition is the first public-transit monorail in the United States. Visitors will be able to reach the fairgrounds from downtown Seattle (a distance of one mile) in 96 seconds. This single-track, overhead transit system will transport 10,000 persons an hour, taking them over the city's traffic and streets.

The selection of gas to be used as the crowning jewel on the Fair's symbol was natural. The source of light for this spire had to be safe, sure, attractive and easily controlled.

The designers of the Space Needle were searching for the top for this most unique building in town until Charles D. McMillen of the Washington Natural Gas Company suggested a gas torch. Another Washington Natural Gas Company man, Robert L. Beardsley, was assigned to design the

system which contained many problems that had to be licked.

Clarence Swanson of the gas company suggested that the flame be wrapped with a stainless steel screen so that the winds wouldn't blow it out.

A narrow spear of flame was desired rather than an over-sized "luau-type" torch. This is how engineers went about getting this desired effect.

Steel Screen

The Needle of Flame is a 40-foot tripod of six-inch stainless steel pipe. Inside the tripod and closely paralleled to each leg are three 26-foot long, drilled two-inch stainless steel pipe gas burners which fire horizontally into the center of the tripod. The converging flames form a column of fire up the middle. The stainless steel screen between legs protects the column of flame from excessive wind and yet permits it to be viewed from any direction. Just below this tripod is a small equipment room with an airblower that forces air into each leg.

Atop this 40-foot spire is mounted an aircraft warning beacon. This presented another problem, because it had to be protected from the heat of the flames. A curtain of air from the seven horse-power airblower comes up the legs of the tripod to the bottom of the beacon. An additional precaution has been added for hot weather. Water piped up inside one leg can flow over the light if necessary.

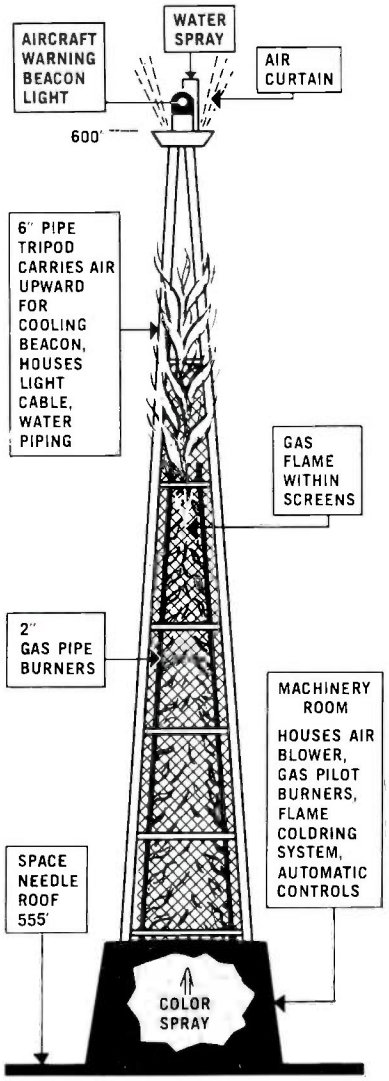
In case of a flame-outage, the entire gas system is automatically shut off in four seconds.

The flame is colored by chemicals in a water solution which are sprayed into the flames from the base of the tripod.

The Needle of Flame will be used to mark the time of day; it will be turned on for a short time each quarter hour. With this use it becomes the second clock at the Fair to use gas flames as time indicators.

Heat 125 Homes

In the Needle of Flame the natural gas is fired at the rate of 12,500,000 BTU per hour—a quantity sufficient to heat 125 average size homes. The gas pressure on the burners is about ¼ pound per inch, about the same as for home appliances.



William P. Woods, President of Washington Natural Gas Company and head of Gas Exhibit, Inc., said, "This bold concept is a most unusual and dramatic use of natural gas, which will create nationwide attention. The torch will be one of the dramatic high points of visual interest throughout the whole exposition."

There is no doubt that this tallest structure west of the Mississippi will attract interest throughout the fair. Its three pairs of skinny steel legs seem to defy engineering principles.

Tapered to a slim waist at about 373 feet, it flares out slightly to the 500-foot level where it is crowned by a mezzanine, observation deck and a 260-seat restaurant. Diners will make one complete revolution per hour and embellish their menu with the extraordinary panorama of the Cascade Mountains, Mount Ranier, Puget Sound and the Fair below, from this 94-foot diameter platform.

High-speed capsule-shaped elevators will race patrons up and down the Needle and provide an

At the left is a diagram of the Needle of Flame and below is the Needle of Flame after it was mounted on the Space Needle.

The $3,500,000 Space Needle is the center of the 74-acre glittering fairground. The photo above gives only a hint of what diners will see from the restaurant atop the spindle legged Needle.

overwhelming view for those with enough nerve to look out.

The leg design of this $3,500,000 structure is a masterpiece of simplicity: three 36-inch wide-flange beams are welded together flange-to-flange to form each leg.

3,400 Tons of Steel

There are 3,400 tons of steel in the tower alone, but its center of gravity is close to the ground, where the foundation, 30 feet deep, contains 250 tons of reinforcing steel and 72 steel anchor bolts four inches in diameter and 31½ feet long, buried in more than 5,600 tons of concrete. Leg sections were up to 90 feet long and weighed up to 90,000 pounds.

A derrick crane designed to lift 35 tons, climbed its way inside the core of the Space Needle, unfolding its boom and reaching over the side to work as the tower rose.

Gas Exhibit

Near the base of the Space Needle is the Century 21 Natural Gas Exhibit. Measuring 110 feet in diameter, the building's 9,500 square feet of exhibit space will be used to depict all phases of the natural gas industry.

E. H. Smoker, President of the American Gas Association, said, "The building will contain exhibits revealing the science and technology of the industry and others that will take an interesting and even startling look into the future of this form of energy."

The natural gas industry exhibit is sponsored by utility members of the AGA, the natural gas pipeline companies and manufacturers who supply appliances and equipment to the gas industry. Mueller Co. is one of the manufacturers participating in this program.

The natural gas pavilion is a circular building designed to utilize the maximum space provided. The roof is a white plastic-covered prismatic wheel, supported at the perimeter by 12 gold columns topped with continuously burning gas lights. At the center it is attached to a 16-foot diameter blue cylinder which penetrates through and above the roof to a height of 10 feet. This cylinder contains the building's all-gas mechanical core.

The exterior walls, up to seven feet, are of a warm grey-beige brick building panel. Between the brick panels and the roof is a continuous band of glass which, with the building interior intensely lit at night, makes the roof seem to float independently.

Gas Clock

On the roof, above the central tower, and dominating the structure is the gas clock. It is composed of a central mast which has 12 flaming arms stretching out from the mast. The central mast

is made from a standard outdoor lamp pole for stability and the 12 radials are made from two-inch gas pipe. All 13 members conceal copper gas piping and low voltage wiring for electronic remote control by a programmer at the base of the clock.

Time is indicated by the number of spokes which are lighted. The hours are "struck" by bursts of flame from the central column rising higher than the other spokes.

Washington Natural Gas Company not only furnishes the gas for the World's Fair but also did its part in promoting the exposition. The company had 1,800,000 colored stamps printed which showed scenes from the Fair or from Washington state. It distributed these to its customers, employees, news media, service clubs and Chambers of Commerce for use on out-of-state mail.

The following officers and directors of Century 21 Gas Exhibit, Inc. are primarily responsible for the industry's participation in the Seattle World's Fair. They are:

William P. Woods, President (President, Washington Natural Gas Company)

B. T. Poor, Vice-President (Executive Vice-President, Washington Natural Gas Company

O. Marshall Jones, Treasurer (President, Cascade Natural Gas Company)

J. Wilson Gaw, Secretary (Vice-President, Washington Natural Gas Company).

Members of the Board of Directors and their firms:

Alan R. Bailey, Southern Counties Gas Co.

W. J. Bailey, Day & Night Manufacturing Co.

H. G. Dillin, San Diego Gas & Electric Co.

O. R. Doerr, Pacific Gas & Electric Co.

Dr. Martin A. Elliott, Institute of Gas Technology

Ralph Gibson, Intermountain Gas Co.

C. H. Gueffroy, Northwest Natural Gas Co.

O. Marshall Jones, Cascade Natural Gas Co.

Paul Kayser, El Paso Natural Gas Co.

J. E. Kern, Pacific Coast Gas Association

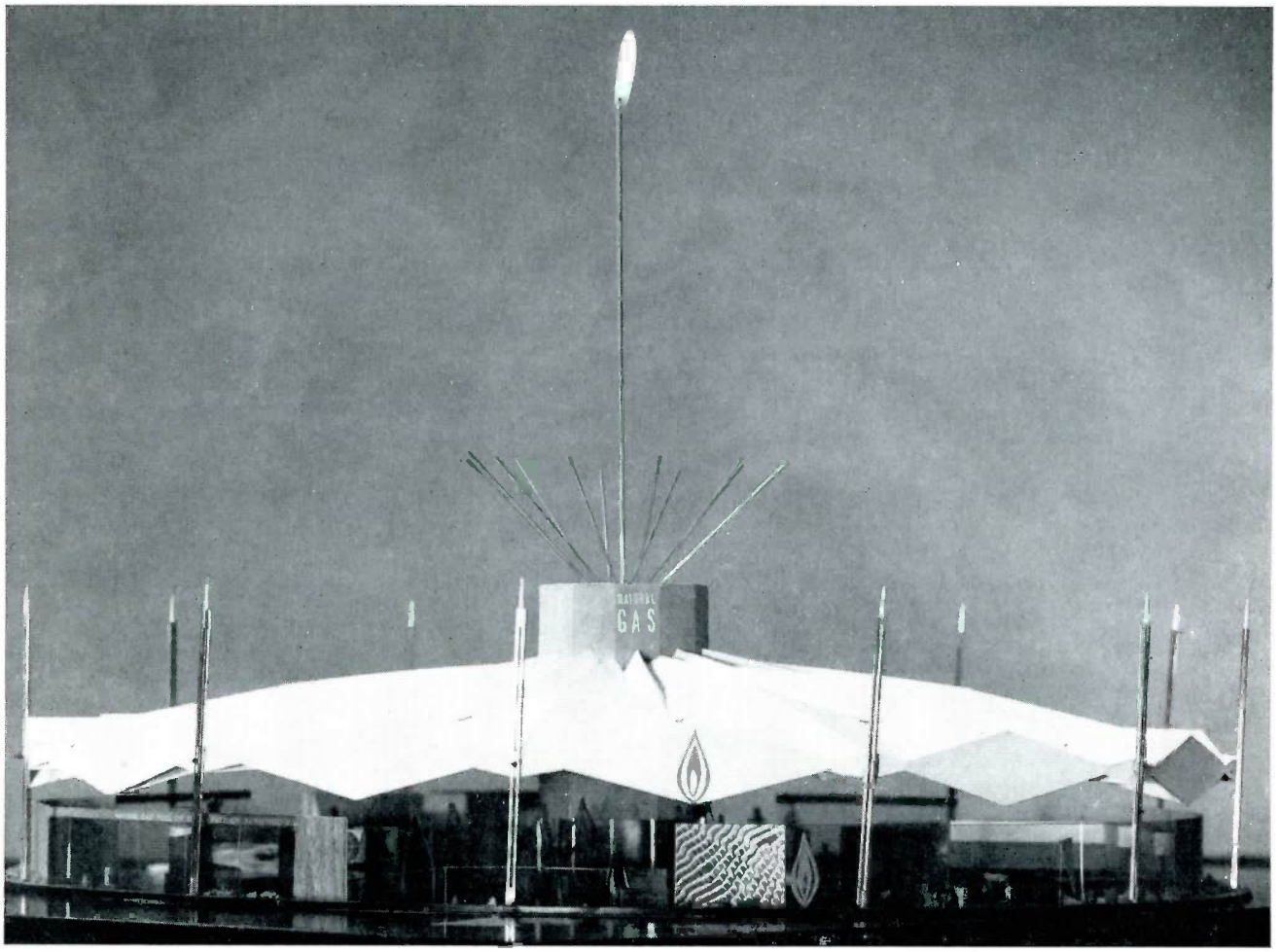
H. G. Laub, Southwest Gas Corporation

Walter T. Lucking, Arizona Public Service Co.

Ralph T. McElvenny, Michigan Consolidated Gas Co.

W. T. Nightingale, Mountain Fuel Supply Co.

How natural gas will furnish the energy source for home, office and industry in the years ahead, is the subject of the gas industry's exhibit. In the building like this model is being shown new power generators, new transportation facilities, new cooking, heating, cooling and incinerating appliances for the homeowner and industrialist.



Santa Claus and this Texas-type "Christmas tree" were the signal for the December ground-breaking ceremonies for the natural gas exhibit pavilion at Seattle. Pictured left to right are: O. Marshall Jones, as Santa, A.G.A. President E. H. Smoker, and W. P. Woods

B. T. Poor, Washington Natural Gas Co.

Richard A. Puryear, Alabama Gas Corporation

Kinsey M. Robinson, Washington Water Power Co.

C. S. Stackpole, American Gas Association

George W. Stevenson, American Meter Co.

C. M. Sturkey, Washington Natural Gas Co.

William P. Woods, Washington Natural Gas Co.

D. K. Yorath, Northwestern Utilities, Ltd.

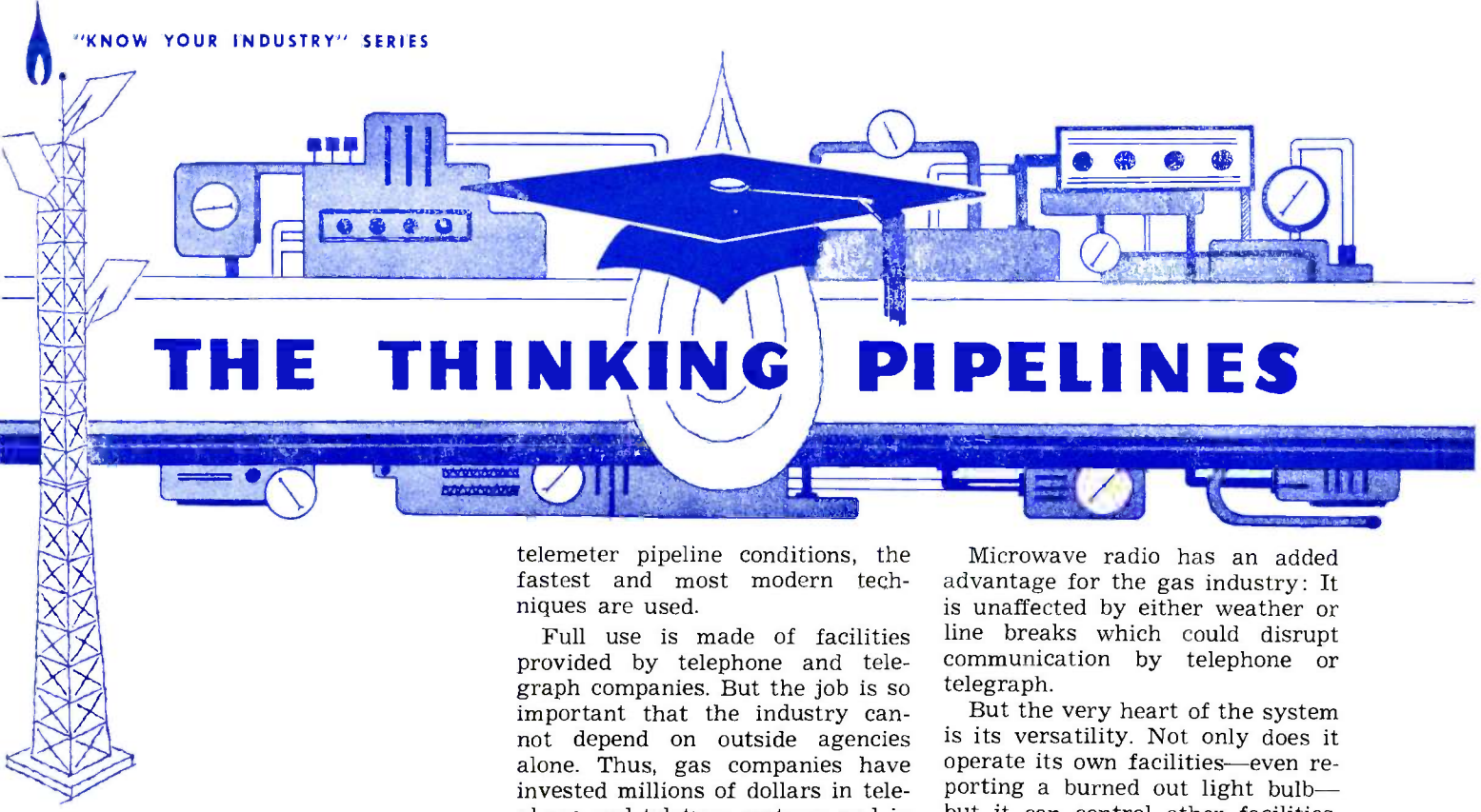
Once the Fair closes in October, some of the structures will remain as part of the new permanent Seattle Center.

The Washington State Coliseum, built by the State of Washington, provides nearly four acres of unobstructed viewing space under a roof soaring to a height of 11 stories. After the Exposition, it will become part of the Center, serving as a convention and sports palace seating 18,000 persons.

The Space Needle must serve as a sound commercial venture for its private financiers who put $3,500,000 into it, and who will retain it as a permanent attraction in the Seattle Center.

The $4,200,000 full-scale monorail from downtown Seattle to the Fair site could be merged into Seattle's transit system, and could help demonstrate for the first time the potential of this new way to solve mass-transit problems facing expanding cities.

On hand for the "tree lighting" ceremony were: from left, O. Marshall Jones, William P. Woods, B. T. Poor, J. Wilson Gaw and Charles Sturkey. The tree is located right at the base of the Space Needle.



THE THINKING PIPELINES

To keep millions of pilot lights steadily aglow, America's pipelines maintain even pressure, constantly supplying natural gas by making split-second adjustments as far back as the producing well.

When weather changes, the demand for gas soars. Orders go out calling for an increase in flow. Unmanned compressor stations, operated by remote control, receive instructions by wire or microwave radio. At each station, instruments translate these instructions into changes in gas volume and pressure, opening and closing valves and speeding up compressors—all automatically.

Automatic "telemetering" instruments will relay data back to the dispatching offices so that flow and pressure at all points can be read at a glance.

Farther down the line, mobile crews are called into action by two-way radio to increase gas flow from the wells.

The entire process takes place in seconds.

This instantaneous action is a triumph of gas industry communications.

To flash orders for increased or reduced gas pressure, or for extra supplies from holders or reservoirs, to dispatch emergency crews and telemeter pipeline conditions, the fastest and most modern techniques are used.

Full use is made of facilities provided by telephone and telegraph companies. But the job is so important that the industry cannot depend on outside agencies alone. Thus, gas companies have invested millions of dollars in telephone and teletype systems and in private broadcasting hook-ups for microwave radio.

Microwave radio is like television in that its ultra-short waves follow a straight line rather than the curve of the earth. Therefore, microwave repeater stations, like a series of giant "ears," may parallel the pipelines for many hundreds of miles.

Each station can basically be compared to a standard radio broadcasting station, except that instead of carrying only one program at a time, it transmits several conversations or signals simultaneously. The message is picked up miles away at the next station, where it is boosted and re-broadcast to the next station.

The signal fires of the Greeks and the smoke signals by which the Indians sent messages swiftly from mountain-top to mountain-top employed the same idea. Microwave radio simply adapts this age-old method of communication to the modern science of electronics. With its instantaneous transmission of complex signals, including the human voice, it is of course immeasurably more efficient.

The system telescopes time and distance. It takes only the duration of a spoken word to reduce a thousand miles of pipeline to zero.

Microwave radio has an added advantage for the gas industry: It is unaffected by either weather or line breaks which could disrupt communication by telephone or telegraph.

But the very heart of the system is its versatility. Not only does it operate its own facilities—even reporting a burned out light bulb—but it can control other facilities, such as compressor stations, valves, emergency power generators, etc.

With only an occasional job from technicians in the central control rooms, the system is a pipeline police force and trouble shooter, as well as traffic director.

If it is in difficulty, for example, it sends out a distress signal telling the technician exactly what the trouble is.

When strangers enter the stations, an alarm is automatically sounded. Those entering must advise the control center that they are in the station. If no such call is received or proper identification is not made, the central control can take steps to investigate.

The system also has a memory. If one station is making a report and a second station begins a similar report, the second report is delayed and the station must politely wait its turn. The memory section then goes into operation and when the first report is completed, the second station—which has stored up its report may begin its signal.

Thus, the gas industry communications system is almost human in that it "thinks" for itself. The most modern techniques and facilities have been harnessed to provide dependable transmission of trillions of cubic feet of natural gas.

An Eye Toward Improvement

New Warehouse Planned For Better Service

A large new warehouse at Mueller Co.'s main plant in Decatur has been designed to facilitate the storing, location and shipping of approximately 9,500 separate catalog items.

The shipping room and warehouse areas—a considerable portion of which have been put into use—will be increased by more than sixty percent when proposed plans are completed. The dock area will be several times the size it was prior to expansion.

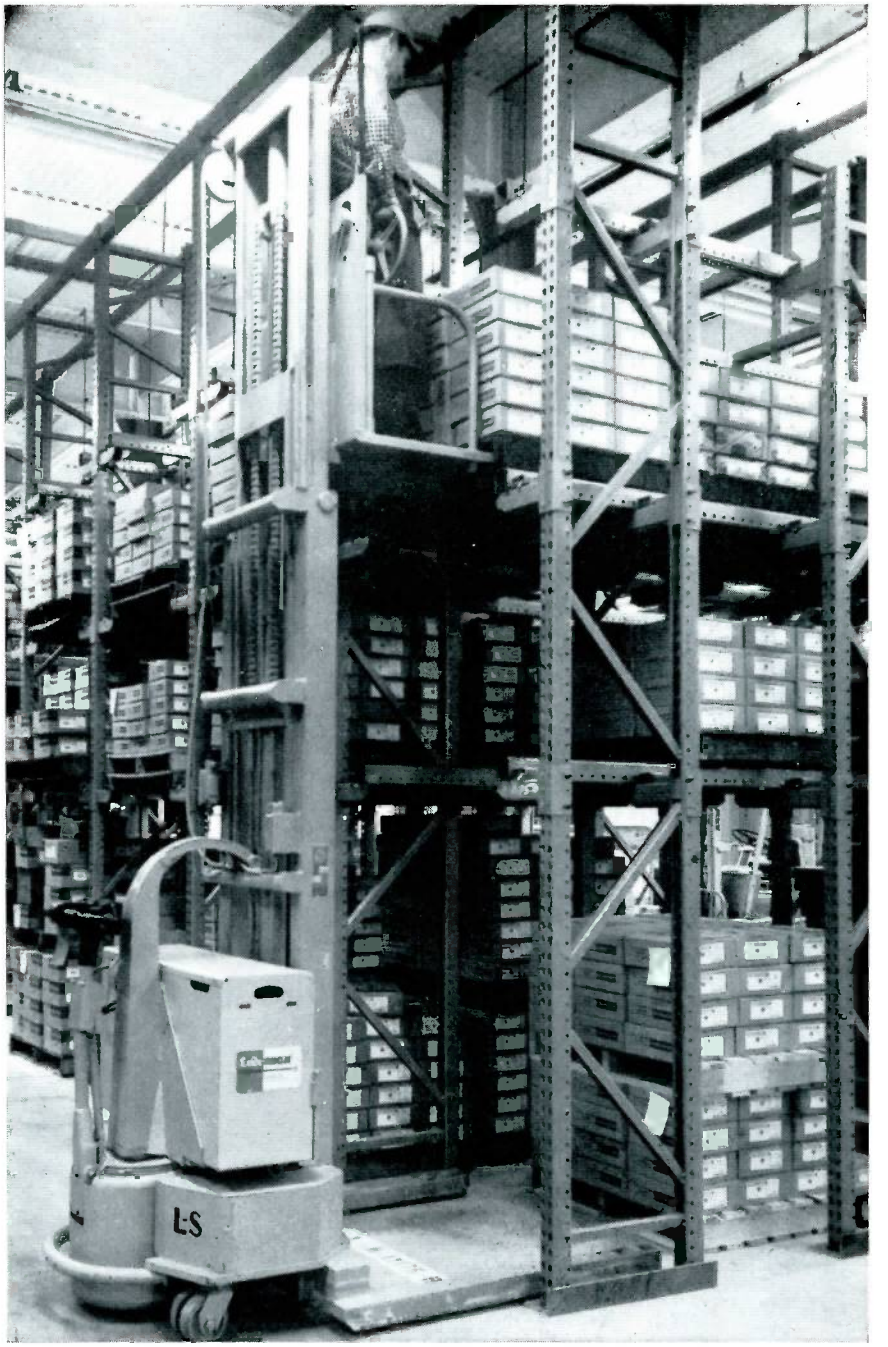
In addition to physical increases, the expansion program provides for consolidation of carton storage, warehouse area, docks, shipping and traffic offices, and truck and rail loading facilities.

Products on hand range in size from set screws and washers for a CC-36 drilling machine to the 500-pound machine itself. A fraction of an ounce gasket sets the minimum weight of an item, while the heaviest article stocked in Decatur is a 1,300-pound, 14-inch gate valve for a 4-SW line stopping unit.

From the concrete floor, which is reinforced with tiny steel chips for longer wear, to the 10-

The shipping area of the new warehouse is shown above while the lower photo shows some of the vastness and diversity of the warehousing area. Three kinds of stocking racks are shown below.

(Photo Courtesy Decatur Herald & Review)



This remote controlled order picker was recently put into use at Mueller Co. in Decatur as part of an overall effort to speed service and shipments to customers.

inch-thick roof, the warehouse has been planned and designed with potentially-greater customer service in mind.

The new warehousing facilities are expected to provide the physical capacity for more expeditious handling of products and orders.

As aids to more efficient operation, Mueller Co. has introduced some equipment and methods which are relatively new. These include new racks and shelving, modern equipment for filling certain orders, and packing and weighing tables which eliminate many heavy chores.

The most interesting and unusual piece of equipment is a remote-controlled "order picker." This device lifts its operator to a maximum height of fifteen feet, where he can remove a single item from a shelf or rack, or maneuver the equipment so that it can lift a pallet or skid which contains a maximum weight of 4000 pounds. The novel feature of the order-picker is its ability to scoot through the warehouse aisles while the driver's platform raises or lowers according to the operator's needs.

An innovation for the new warehouse is a specially-designed packing table. After an order has been filled, it is taken to a packing table where the items are assembled, labeled and

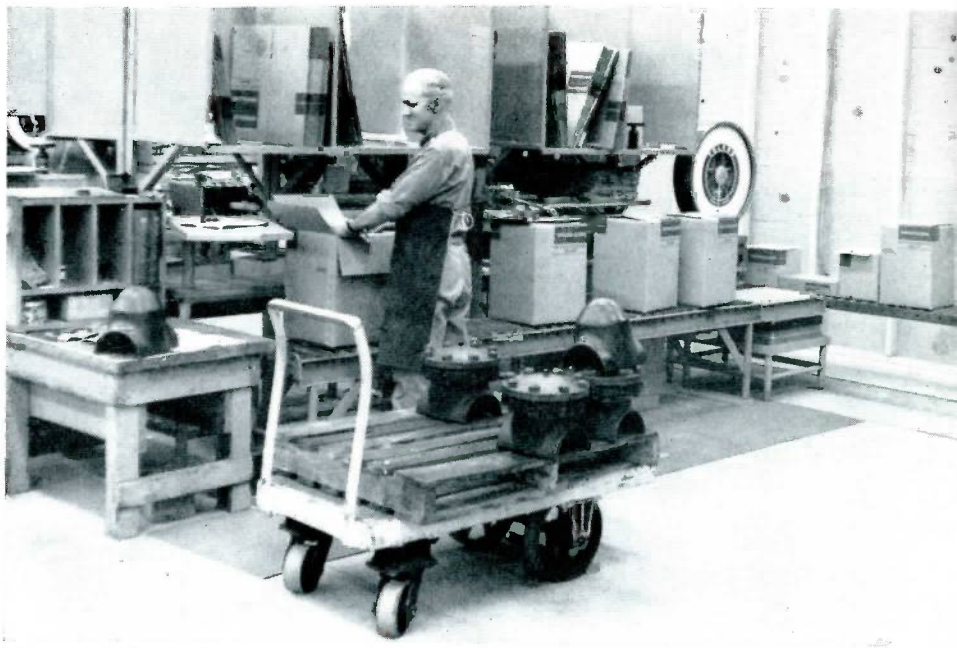
weighed for shipment. The worker doesn't lift a carton once he begins the packing and doesn't have to move but a few steps to get necessary materials. His packing table has various size cartons, labels, stuffing and products at arm's length.

Once a carton is filled the checker pushes the carton along a conveyor, which has a built in scale and then moves it on where it rolls out to the dock area.

Another addition to the warehouse is a drive-in type pallet rack. These racks are built so that lift trucks can drive right into them if necessary. Each bay holds 20 pallets; four deep and five high. These racks hold high volume items which are stored in super market fashion, that is, a certain products in a designated spot.

The drive-in rack is just one kind specially selected for particular products and uses. Some shelves or bins are arranged for small products and others are designed for the large, unwieldy and odd-shaped products.

This labyrinth of steel, bins, shelves, cartons and equipment contains thousands of items varying in shapes and weights.

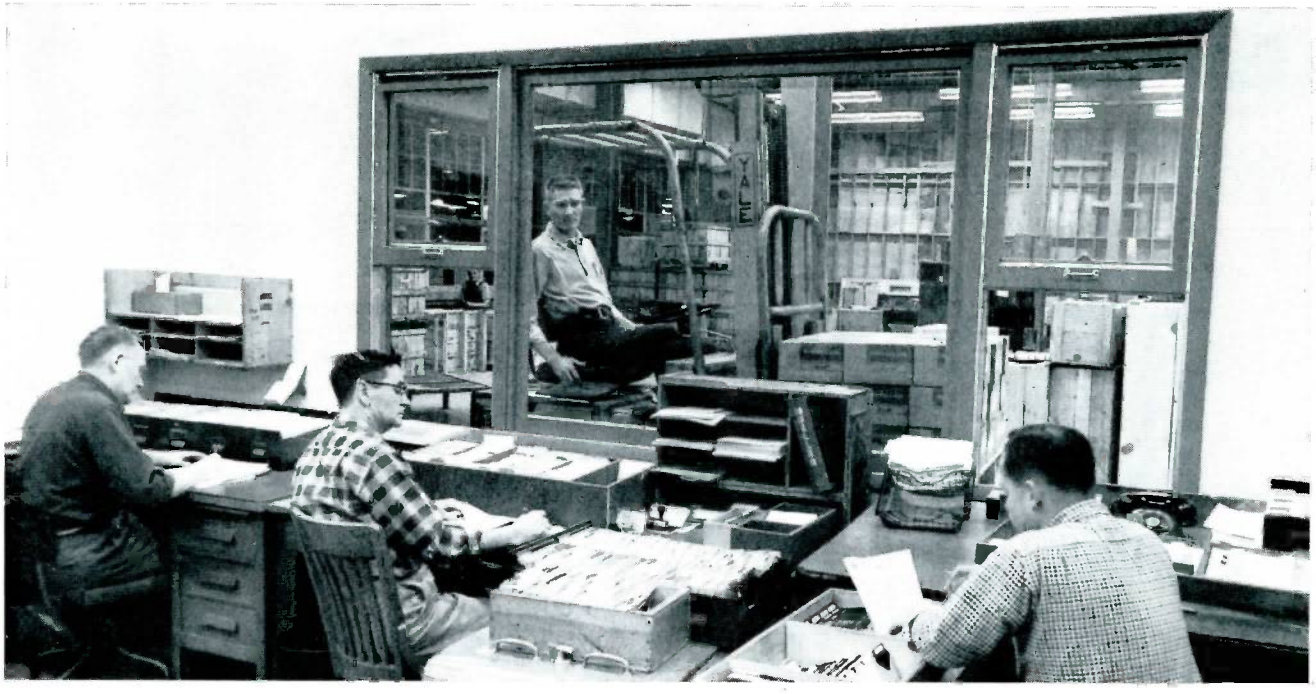


This specially designed packing, checking and weighing table provides the workman with all necessary materials at arm's length. The checker doesn't have to lift a carton once the packing begins. He just slides it along the rollers, with built-in scales, to the shipping dock.

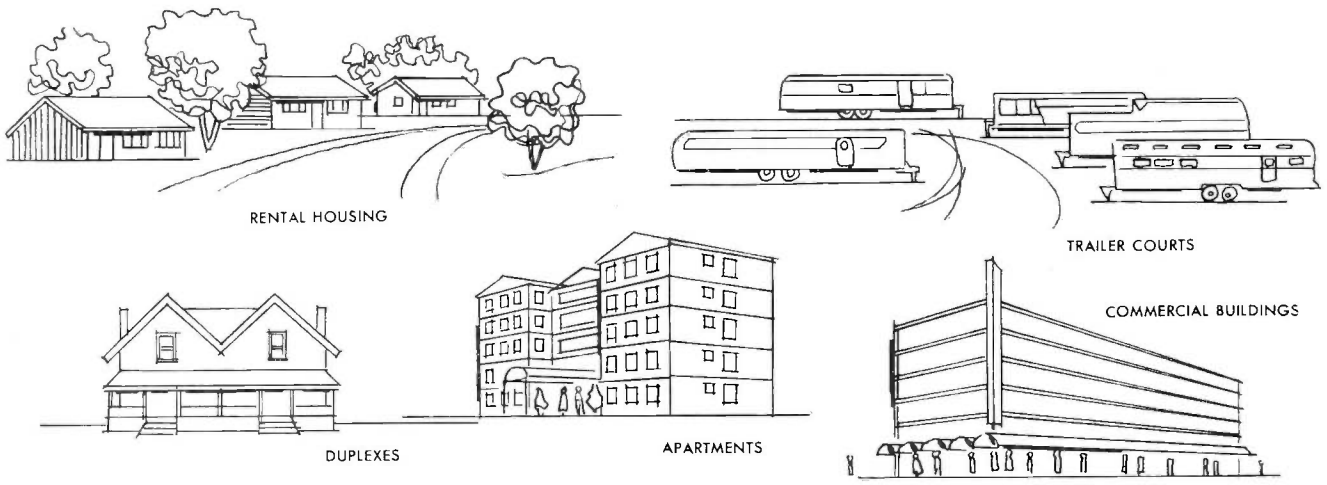
A casual observer, unfamiliar with warehouse arrangement, would be quickly convinced that the entire building was arranged with no great thought given to detail.

A visit to the Dispatch Office —the nerve center of the warehouse—quickly dispels this idea. Here, everything is classified and carefully located; and from this point on, the warehouse "maze" suddenly becomes a well-organized operation.

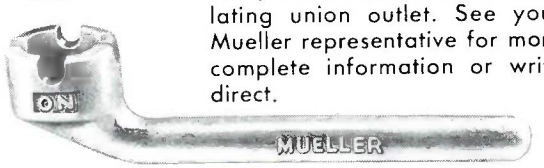
The operations of the warehouse center around the Dispatch Office. At this point records are maintained which locate each item in stock. These men check products as they come from production centers and then locate each item for the customer's order.



are Multiple Meters a headache to your service department?



Now you can stop dangerous turn-ons in rental housing, trailer courts, duplexes, apartments and commercial buildings with the Innerlock gas meter stop!



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1400-MILE LONG GAS LINE DEDICATED

Canadian and American governmental and business leaders gathered in San Francisco recently to dedicate the 1,400-mile long Alberta-California natural gas pipeline.

More than 1,500 persons attended a banquet in the Fairmont Hotel to hail the completion of the $300 million project, which introduces a new gas supply to northern and central California from Canada.

Governor Edmund G. Brown and Norman R. Sutherland, president of Pacific Gas & Electric Co., put the 36-inch line—one of the longest and largest ever built—officially "on stream" by turning on gas lights in the ballroom. They were assisted by Canada's representative and James B. Black, chairman of the PG&E Board of Directors.

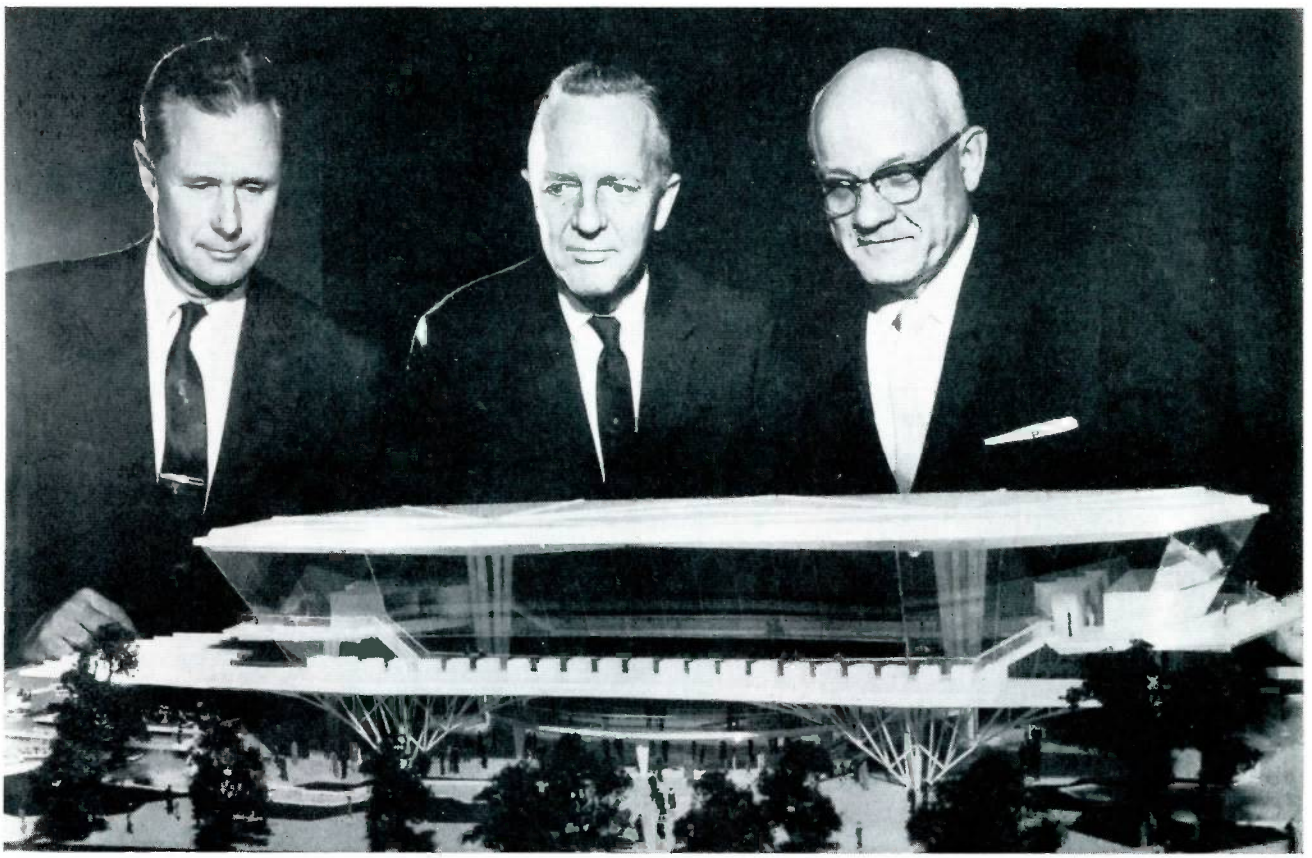
The pipeline was built in 14 months and during peak times there were 5,000 men at work on the project. Deliveries of gas to California will average 415 million cubic feet.

Construction required nearly 16,800 railroad carloads of steel pipe, totaling about 500,000 tons of steel. The pipeline is served presently by one 13,600-horsepower compressor station in British Columbia but three others are under construction.

The pipeline begins in the gas fields in the eastern foothills of the Rocky Mountains, about 125 miles northwest of Edmonton, Alberta, goes south through Alberta, across the southeast corner of Washington, through central Oregon and northern California to PG&E's terminal station at Antioch, outside San Francisco. It crosses 14 major rivers and altitudes vary from 7,000 feet in B.C. to 47 feet under the San Joaquin River at Antioch.

The great transmission system, a product of American and Canadian teamwork, represents the efforts of several related companies, with PG&E as the project sponsor.

To purchase gas in Canada and to operate the pipeline outside California, PG&E organized affiliated companies.



Building with an air, in fact, with the world's longest air curtain wall, is previewed here by gas industry executives. John E. Heyke (center), president of Gas Inc., which will build and operate the industry's exhibit at the 1964-65 New York World's Fair, views the model with William G. Hamilton, Jr., (left) president of the Gas Appliance Manufacturers Association; and Lester T. Potter, past president of the American Gas Association.

Columbia's Gas Turbine Passes Experimental Runs

The world's first industrial jet-powered gas turbine successfully completed 8,000 hours of operation in a 15-month experimental run and may soon be placed in the operational category. The 10,500 hp turbine, using natural gas for fuel drives a natural gas pipeline compressor.

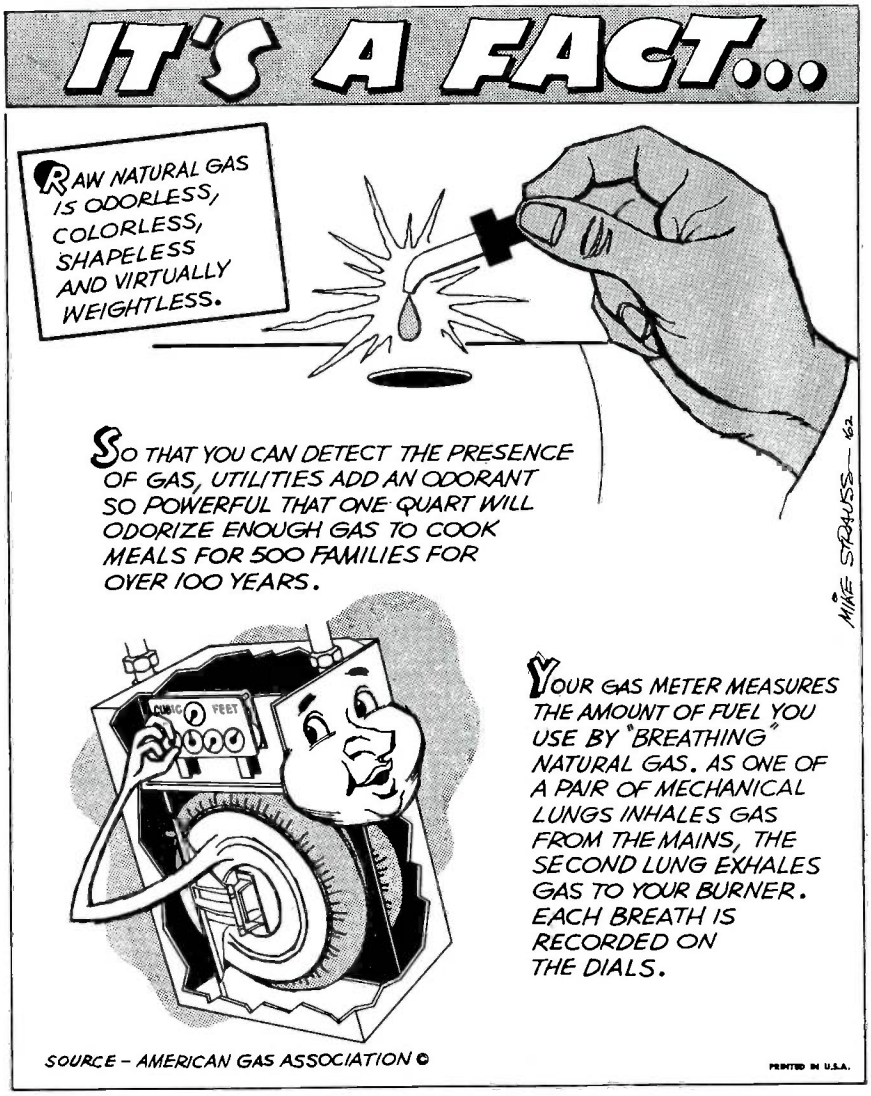
The Columbia Gulf Transmision Co., a subsidiary of the Columbia Gas System, Inc., New York, which installed the system, announced the experiment has proved the practicality of adapting the tremendous thrust of jet engines to stationary industrial power.

Operation of the turbine began on Oct. 31, 1960 and completed 8,000 hours of operation on Jan. 31, 1962. During this period the same jet engine pumped over 205 billion cubic feet of gas from Louisiana fields to Columbia customers in seven Appalacian Area states and the District of Columbia.

The unit uses a Cooper-Bessemer Corp. free turbine with a Pratt and Whitney engine that is similar to those used in jetliners.

The compressor is located at Clementsville, Ky. and has been adapted to remote control from a control center in Nashville, Tenn., 120 miles away.

Experience has shown the annual cost of operating the gas jet turbine to be lower than the most modern conventional gas transmission power plants.



Russian Visitors Reschedule U. S. Tour

A tour of the United States by Russian gas experts has been rescheduled from April to May.

The month-long visit was postponed because one of the Russian delegates is a member of the Supreme Soviet, the legislature of the U.S.S.R., which has been called into session.

During their visit to the U.S., the Russians will see equipment and facilities similar to types shown a group of leading American gas experts who toured the Soviet Union last July. The tours by the Americans and Russians were arranged under a 1959 agreement providing for scientific and cultural exchanges to promote better understanding between the East and West.

The Russian specialists will arrive in New York where they will meet the A.G.A. staff and then go to Washington, D. C. to visit the Federal Power Commission office and the Washington International Center.

Following this, the Russians will observe operations of the Columbia Gulf Transmission Co. and the Columbia Gas System, Inc., in Kentucky and Tennessee. In Texas they will see installations of the Texas Eastern Transmission Corp. and the Transcontinental Gas Pipe Line Corp.

The group will also visit Oklahoma Natural Gas Co. in Tulsa, the Institute of Gas Technology and The Peoples Gas Light and Coke Co. in Chicago and the Philadelphia Gas Works, a division of the United Gas Improvement Co.

Heyke, Chandler Named To FPC Gas Advisory Group

John E. Heyke, president The Brooklyn Union Gas Co., and Marvin Chandler, president, Northern Illinois Gas Co., have been named to the Federal Power Commission's new Natural Gas Advisory Council as representatives of the American Gas Association.

Mr. Heyke is first vice-president of A.G.A. and Mr. Chandler is second vice-president of A.G.A.

Alternate A.G.A. members of the advisory council are E. H. Smoker, president of A.G.A. and of the United Gas Improvement Co., Philadelphia, and Donald Bittinger, an A.G.A. director and president of Washington Gas Light Co., Washington, D. C.

Strictly *Off the Record*

A mother, annoyed because her 14-year-old daughter had been calling her boy friend too frequently, took a tip from a former wartime advertisement and posted a sign over the telephone: "Is this call necessary?"

Next day there appeared, penciled on the card a brief but logical reply: "How can I tell till I've made it?"

The cute little blond talking to the wealthy Texan..."How much did you say your name was?"

Teen-ager received heart shaped box of chocolates from current boy friend with card. "Valentine greetings to Pearl—with all my allowance, Bert."

Texan: "Good mornin'. It's a big, bright, wonderful day, ain't it?"

Automobile Dealer: "Yes, sir. Can I help you?"

Texan: "I hope so. My wife's coming down with the sniffles and I'm lookin' for some sort of get-well car."

It was at a large party in Fairbanks, Alaska, that a native Texan was regaling his companions with story after story of the wonders of his state. Finally a poker-faced native spoke up.

"Up here in Alaska where I come from, it's foggy all summer long—real pea-soupers. Then in the fall we have beautiful weather until the snow flies.

Curiosity got the better of the long-winded Lone Star Stater.

"What happens to the fog?" he asked.

"Oh," replied the Alaskan with a happy smile, "we hire a Texan to come up and blow it all away."

A man arose early one morning in order to surprise his family with hot oatmeal for breakfast.

He was dishing out a bowl for Jimmy, 3, when Jimmy walked into the kitchen.

"Want honey on it?" his dad wanted to know.

"Yes," said Jimmy.

"And milk?"

"Yes."

"Butter in it, too?"

"Yes."

He gave the bowl to Jimmy. The youngster stared at it, then pushed it away.

"What's wrong? I put everything you want in it," his dad said.

Answered Jimmy, "I don't like oatmeal."

During a recent convention in Miami Beach, a man walked into a women's dress shop and silently handed a saleslady a slip of paper which read:

"To whom it may concern: Since I am tired of returning black nightgowns, off-the-shoulder blouses, and similar articles after every convention, and since the bearer of this note seems to think I am exactly the size of the current sales person, here are some statistics and information: I am five-feet-three-inches tall, weigh 135 pounds, wear a size 13 dress and size 10 stocking. I do not like the color green, wide stripes, polka dots, or nylons without seams. Please do not sell him the most expensive gift in the store as we have to eat next week too. Thanking you in advance, I am, Sincerely, Wife of the Bearer."

A communist Party organizer wrote this despairing note to his Kremlin bosses:

"It is becoming increasingly difficult to reach down-trodden American masses.

"In the spring they are forever polishing their shiny new cars.

"In the summer they take vacations.

"In the fall they flock to baseball and football games.

"And in the winter I can't get them to leave their warm, cozy homes and TV sets to hear my lectures.

"How can I make these slaves

"How about letting management put up the signs around here?"

of Capitalism see how oppressed they are?"

A little girl wrote in answer to a question at an examination: "The Armistice was signed on Nov. 11, 1918 and since then we have had two minutes of peace every year."

The perfect bridge lamp is one that gives enough light and is too heavy to throw.

A bowlegged man moved so slowly on the golf links that he delayed those behind. An irritated player deliberately shot a ball between the curved legs. The man was offended and said: "Do you call that golf?" "No," was the reply, "but it's darned good croquet."

"Dad, what was your greatest ambition when you were a small boy?"

"To wear long pants, son—and I got my wish, too. I don't know anybody who wears his pants longer than I do."

Before he was married he had six theories about bringing up children . . . but now he has six children and no theories!

"References okay. Now, find the needle and the filing job's yours"

"Say, Lee, why don't you take your wife out once in a while?" asked Joe.

"I do," replied Lee, "I take her every place . . . but, darn it, she always finds her way back!

"That 'pip-pop, wippity-wappity, bip-bop,' is great, but the rest of the lyrics just don't make sense, Eddie"

The football player was having trouble with his grades. Since his services were needed, he was called into the president's office for re-examination. A one-question examination was decided on. The question was, "What is the capital of Florida?" The lad sweated over the question and finally wrote "Monticello." He passed. The officials, in checking the answer, said that 100 was perfect, and Monticello is 25 miles from Tallahassee. Twenty-five from 100 leaves 75—and 75 is passing.

We know a fellow who gave his wife a $1,000 check for Christmas. If business is good next year—he'll sign it.

The father, passing through his son's college town late one evening, thought he would pay his son a surprise visit. Arriving at the son's fraternity house, he rapped on the door but was unable to rouse anybody. Then from a second floor window came a sleepy voice.

"Whaddyah want?"

"Does Steve Jones live here?" asked the father.

"Yeah," replied a voice. "Bring him in."

History-Making Copper Is Core Of Modern Era

Next time you read about a wondrous electronic "brain" . . . or about complex scientific "eyes" and "ears" that track tiny missiles hurtling through outer space . . . or about ingenious new appliances whose wire "veins" bring music and pictures into the home, give thought to a hut-dweller who lived so long ago that his name, if he had one, has long since been forgotten.

His contribution: **copper,** core of electronic brains, eyes, ears and veins.

No one can say with certainty how copper was discovered, but the best guess is that our hero chanced to pick up a "stone" that felt different from other stones. When he tried breaking it against a larger rock, it didn't split or chip, but it changed shape. And when he hammered it into an axe-head, it was harder than when he started—and far sharper than ordinary stone!

The discoverer didn't know it, but when he first whacked his copper axe into a wooden log, he ended the Stone Age. The Age of Metals, with all it wonders, had been born.

Egyptians were the first to hammer copper into sheets, and from these they fashioned the jewelry, armor, tools and surgical instruments that made theirs the greatest culture of the time.

Copper tools, which made possible the building of the pyramids, impressed Egyptian laborers with their durability. Soon the "ankh" —Egyptian symbol for everlasting life—became the symbol for copper. It's a symbol that is used to this day.

The Romans gave copper its modern name, which they derived from the island of Cyprus, where the purest copper was mined.

Romans were also the first to find that copper could be melted and poured into molds. Bronze shields and swords helped keep the legions of Caesar invincible. Indeed, control of the great copper mine at Rio Tinto, Spain, accounted for much of the strength—and grandeur—of ancient Rome.

EARLY COPPERSMITHS

The most impressive use of copper—in this case combined with tin to form bronze—was its casting as a gigantic statue of Apollo, handsome Greek god of music and healing. Straddling the entrance to the Greek harbor of Rhodes, this "Colossus of Rhodes" was one of the seven wonders of the world and stood 105 feet tall. Ships, with sails fully unfurled, could sail between its legs with no difficulty. Beacon lights in each of its upstretched hands guided ships into port at night. It was finally destroyed by an earthquake in 224 B.C.

But copper continued to make history. When Columbus arrived in America (on a ship covered below its water line with sheet copper), he found Indians making tools, fishhooks, ornaments and arrowheads from the red metal. In the Revolutionary War, Paul Revere, a coppersmith, contributed to victory by producing copper fittings for the famous ship, "Old Ironsides." Later, he resheathed this with the first copper sheet rolled in this country. He also advanced the shipping industry by producing copper boilers for Fulton's first steamboat.

It was a brass key at the end of his kite that enabled Ben Franklin to prove, in 1752, that lighting flashes are electrical discharges. Copper also served Samuel Morse, who wound 1,700 feet of copper wire around his room, then transmitted the first telegraph signals from one end of the room to the other.

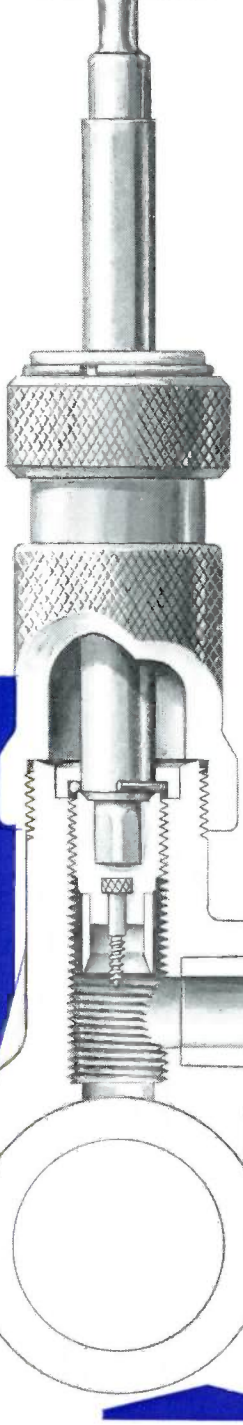
In 1876 Alexander Graham Bell put the human voice on copper wire when he invented the telephone. In almost all of his 1,200 inventions, Thomas Alva Edison also relied on copper.

Oddly enough, everything ever made from copper—unless melted by someone who cast it into another shape—still exists! Copper is rust-proof. In 1929, when a Roman ship was uncovered after 1,000 years of immersion in Lake Nemi, Italy, the copper nails and spikes were perfectly preserved and could have been used to build a new ship. A 5,500-year-old pipe, once used to convey water to an Egyptian Pharoh's swimming pool, was recently found in a pyramid. This pipe can **still** carry water. Indeed, our Statue of Liberty, bare to winds and rain for more than 72 years, is made of copper only one thirty-second of an inch thick!

the inside story

MUELLER® PLASTIC VALVE TEE

- CAB, ABS I OR PVC II Plastic.
- Permanently corrosion-free.
- 1½" through 8" for mains.
- ½" through 1" for services.



1 install tee
The tee is solvent welded to the main and service line is installed and tested.

2 drill main
Plug, with hardened stainless steel cutter, is advanced with Drilling Machine and rachet brace.

3 retract cutter
Combined plug and cutter, retaining the coupon, is retracted until O-ring compresses against top of plug, providing positive, gas-tight seal.

4 cap tee
When cap is screwed into place, flange in cap presses against O-ring to gain second seal.

5
Line can be stopped off by removing cap, attaching machine, and advancing plug and cutter. Beveled edge of plug seats into bottom of tee.

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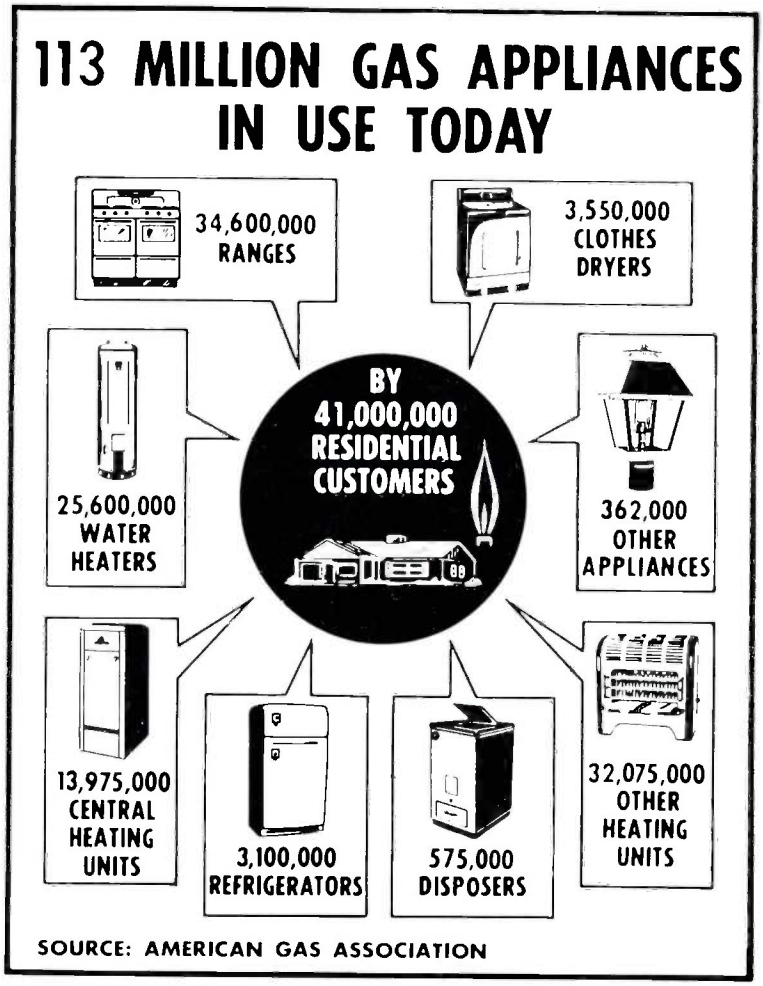

More than 113 million gas appliances now are in daily use in U. S. homes. The 41 million families using gas – 31.2 million served by utility companies and the remainder by LP "bottled" gas – average about three gas appliances each. Finding increased use each year are home-size gas air conditioners which now total about 37,000.