MUELLER
Record
FEBRUARY • 1963

1962 WAS YEAR OF SUCCESSES FOR THE GAS INDUSTRY

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MUELLER RECORD

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Contents

1962 Was Year of Successes For Gas Industry

TOTAL GAS UTILITY INDUSTRY
CUSTOMERS, SALES AND REVENUES

Preliminary 1962 Compared With 1961

	1962	1961	Percent Change
Customers (at December 31)			
Residential	32,432,400	31,651,300	+ 2.5
Commercial	2,671,000	2,609,300	+ 2.4
Industrial	159,700	152,700	+ 4.6
Other	38,100	38,100	-
Total	35,301,200	34,451,400	+ 2.5
Customers (Average)			
Residential	31,877,800	31,118,500	+ 2.4
Commercial	2,586,000	2,528,500	+ 2.3
Industrial	156,700	146,300	+ 7.1
Other	38,100	36,700	-
Total	34,658,600	33,830,000	+ 2.4
Sales (Thousands of Therms)			
Residential	35,115,600	33,209,900	+ 5.7
Commercial	10,935,400	9,880,700	+10.7
Industrial	50,682,300	47,856,100	+ 5.9
Other	4,981,400	4,942,500	-
Total	101,714,700	95,889,200	+ 6.1
Revenues ($000)			
Residential	$3,567,773	$3,376,781	+ 5.7
Commercial	870,923	789,202	+10.4
Industrial	1,808,401	1,658,276	+ 9.1
Other	170,002	168,620	-
Total	$6,417,099	$5,992,879	+ 7.1

Source: American Gas Association

by
JOHN E. HEYKE, JR.
President, American Gas Association
and
President, The Brooklyn Union Gas Company

The nation's gas industry made strong gains in all areas in 1962, paced by record gas sales which exceeded 100 billion therms for the first time.

Gas sales during the year reached 101.7 billion therms, a 6.1 per cent gain over the 95.9 billion sold last year. This is a substantial improvement over the growth from 1960 to 1961, which was 3.2 per cent.

Revenues from gas sales rose 7.1 per cent to $6.4 billion.

Almost 850,000 new customers were added during the year, bringing the average number to 34.7 million. This is a 2.4 per cent gain over 1961.

New facilities built to serve these additional customers and the increasing demand for gas by others cost the industry $1.7 billion during the year. This brought the gross plant worth of the nation's sixth largest industry—based on plant investment—to $24.5 billion.

These gains were made despite the general financial ups and downs of the past year. With a steadier economic situation in 1963, the nation's 1,500 gas transmission and distribution companies should make even greater strides.

SALES AND REVENUES

Of the total 101.7 billion therms of gas sold in 1962, 50.7 billion therms were bought by industrial customers, compared with 47.9 billion therms the previous year. Residential sales totaled 35.1 billion therms, compared with 33.2 billion in 1961, while commercial and other sales reached 15.9 billion, an increase of 1.1 billion therms over last year.

Natural gas accounted for 99.4 billion therms, an increase of 6.2 per cent over the 93.6 billion sold in 1961. Manufactured and mixed gas sales rose 0.4 per cent to 2.3 billion therms despite the decline of these customers, due to switchover to natural gas. Natural gas now accounts for 97.7 per cent of all gas sold by utilities.

Total revenues rose to $6,417 million from $5,993 million. Of this total, natural gas revenues accounted for $6,128 million, up 7.5 per cent from the previous year. Manufactured and mixed gas revenues totaled $277 million, down 1.8 per cent from $282 million in 1961.

CUSTOMER INCREASE

Of the total 34.7 million gas customers, 31.9 million are residential. This is a 2.4 per cent gain over the

31.1 million customers in 1961. Industrial and other customers increased 6.4 per cent from 183,000 to 194,800. Commercial customers rose 2.3 per cent from 2.5 million to 2.6 million.

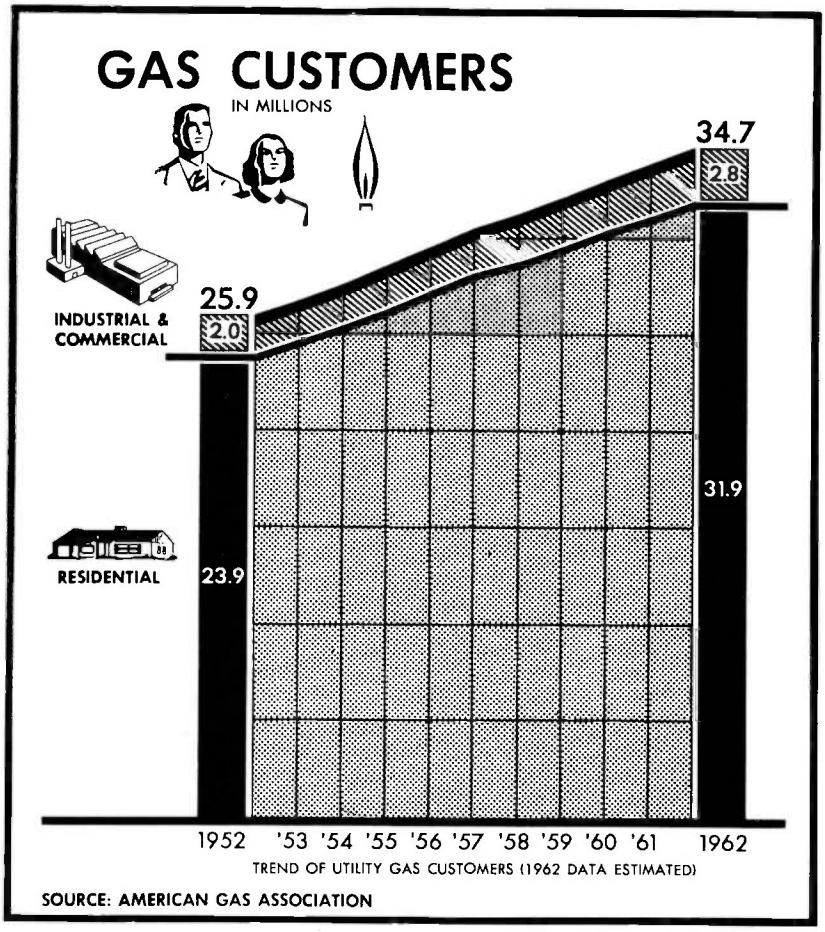
CONSTRUCTION, PLANT WORTH

The gas industry spent $1,671 million on constructon in 1962, bringing the total worth of the gas industry to $24.5 billion, up 6.5 per cent from $23 billion the previous year.

Among the major construction of 1962 was the $69 million project of the Panhandle Eastern Pipe Line Co., Kansas City. This included main loops and lateral lines in Kansas, Missouri, Illinois, Indiana, Ohio and Michigan, and the development of a storage area in Livingston County, Michigan.

Another large project was a $54 million undertaking of the Transcontinental Gas Pipe Line Corp., Houston. This included 253 miles of loop lines and gathering lines in a system from Texas to Pennsylvania.

A.G.A. estimates that a slightly higher amount will be spent on construction in 1963, sending the gross plant over the $26 billion mark. By the end of the decade, it is predicted that the gas industry will be worth $40 billion. Just 10 years ago, the gross plant of the gas industry was $10.4 billion, less than half of what it is today.



PIPELINES AND MAINS

The underground network of pipelines and mains used to transport gas from wells to the customer was expanded in 1962 to keep pace with increased demand. More than 28,000 miles of pipe were added during the year, bringing the total at the year's end to about 687,000.

Extension of pipelines and mains is expected to continue at a rapid pace, keeping abreast with rising customer requirements. At the end of the decade, the total is expected to reach 970,000 miles.

NATURAL GAS RESERVES

Proved recoverable reserves of natural gas, the basis on which all growth of the industry depends, continued to rise to new heights. As 1962 began, there were 267.7 trillion cubic feet of proved reserves.

During the past decade, discoveries, revisions and extensions have increased the nation's reserves extensively. Ten years ago, total reserves stood at 199.7 trillion cubic feet. During this decade, production was 110.3 trillion cubic feet. Despite this increased demand, however, there were 68 trillion feet more of proved, recoverable reserves at the beginning of 1962 than a decade before.

UNDERGROUND STORAGE

At the beginning of 1962, vast underground gas storage areas, now spread across 21 states, had a capacity exceeding 3 trillion cubic feet.

Storage areas are located in depleted gas and oil fields, natural geological formations, and even abandoned coal mines. During the summer when the demand is less than in the winter, gas is moved from distant gas fields through pipelines to storage pools near the point of use.

Because of these reservoirs, distribution companies are able to supply their customers during winter peak days when demand exceeds the delivery capacity of pipelines. On such days, as much as one-quarter of all gas supplied to utility customers is drawn from underground storage.

The growth of underground storage since 1951 reflects the vital importance of this operation of the gas industry. Ten years ago, storage capacity was 916 billion cubic feet, but by the beginning of this year it had jumped to 3.1 trillion cubic feet. A.G.A. estimates the gas industry has a $845 million capital investment in underground storage facilities.

NATIONAL AFFAIRS

During 1962, cosiderable progress was made by the Industry Better Understanding Task Force. This task force is composed of representatives of the production, transmission and distribution branches of the gas industry. Its goals are the better appreciation of problems of all branches of the industry, and improvement of the industry's public image.

To achieve this, a set of guiding principles was developed and distributed throughout the industry. They dealt with customer services, providing adequate supplies of gas at reasonable prices, and free competition among energy suppliers.

Under the direction of the task force, a complete story of the gas industry will be published early in 1963. It will bring together for the first time the full industry story and explain the interrelationships of the three branches.

An important development during the year was the report of the National Fuels and Energy Study Group released by the Senate Committee on Interior and Insular Affairs. The report refuted claims by the coal industry that end-use controls and market allocations are necessary and desirable. The report also noted the importance of interruptible gas sales.

The gas industry gave assistance to the study group in assembling factual information. During 1963, the industry will work for the adoption of fuels and energy study by the Senate Interior Committee.

PAR PROGRAM

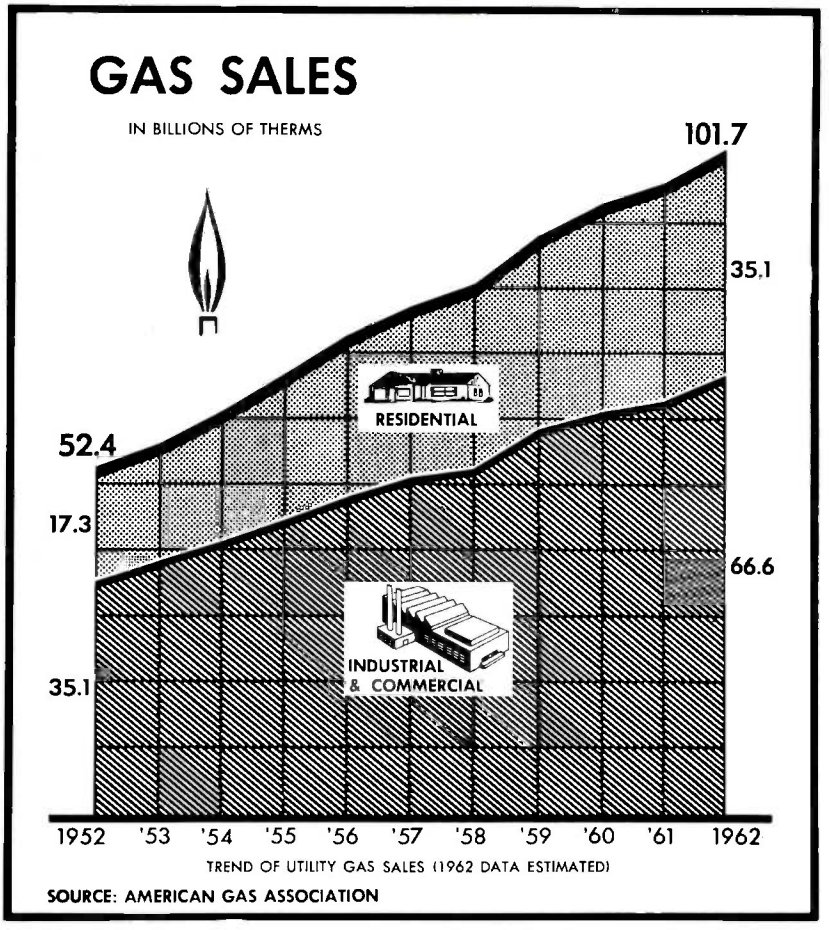
A.G.A.'s Promotion, Advertising and Research Program (PAR) performed extensive services to the entire gas industry during its 18th year. It was made possible by the companies throughout the country which banded together to present a unified national program.

In 1962, these companies subscribed $5,214,353 for PAR activities, in addition to $3 million for television advertising. Included in the 1962 subscriptions was $4,429,-252 for utility research, promotion and advertising; $545,794 for pipeline research; and $239,307 for public information.

Gas sales messages attained a greater readership in 1962 through advertising in consumer and trade publications. Television viewers were reached also in greater numbers through nationally sponsored programs. PAR Public Information provided a constant flow of material to the nation's newspapers and trade and consumer magazines on new gas developments.

RESEARCH

A.G.A.'s $3 million research program, planned to complement research conducted by individual gas companies and manufacturers, aimed in 1962 at placing the gas in-



dustry in the most favorable competitive position.

Results which proved of commercial significance during the year included a baseboard convector; radiant heater for localized heating; long-life upright gas mantle; grease vapor incinerator; and a gas engine driven air conditioner. Among non-utility research accomplishments was the development of a pre-stressed concrete tank for liquified natural gas storage.

In addition to these immediate practical applications, PAR Research undertook many projects which made important contributions to procedures and operations. These included kitchen ventilation recommendations; branch connection code recommendations; and new bell and spigot leak sealing developments.

Continuing research made up much of the A.G.A. research program and represents the basis for future advances. In this category, progress was made on such items as a prototype highspeed food reheater; high-capacity conveyor type toaster, high-temperature fuel cell; steel pipe specifications; and use of pipelines for communications.

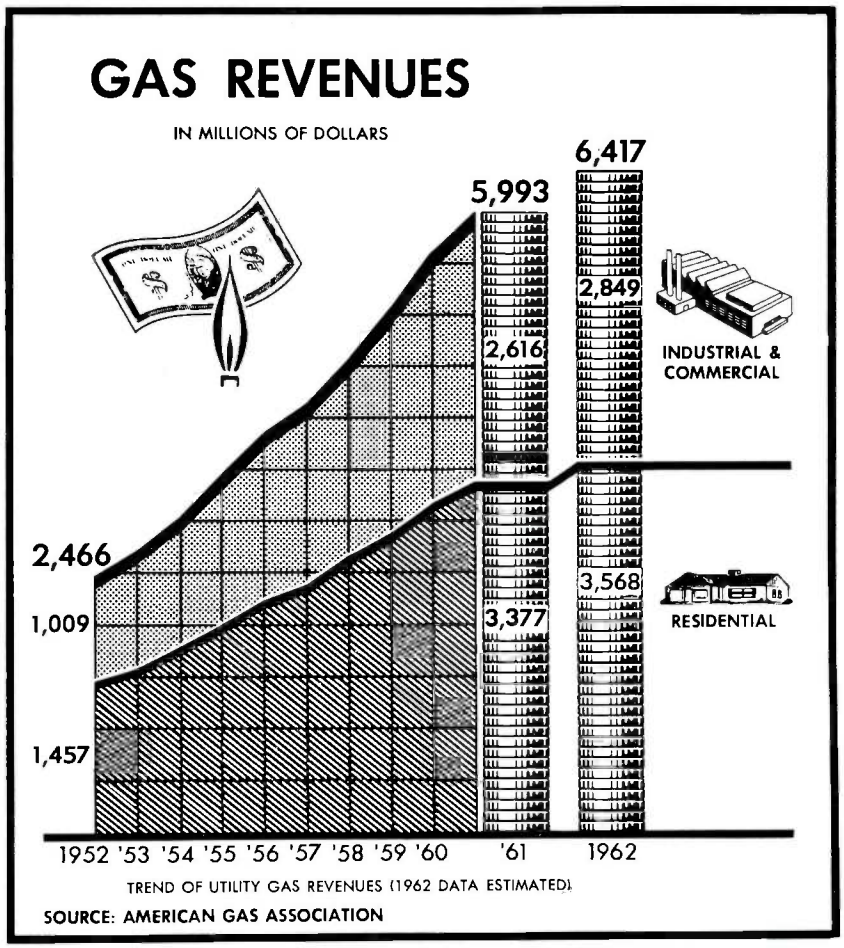
A.G.A. LABORATORIES

A.G.A.'s laboratories in Cleveland and Los Angeles tested thousands of gas appliances and accessories for compliance with American Standard Approval Requirements in 1962. Prototype models which met standards were authorized to display the "Blue Star" Approval Seal.

More than 600 equipment manufacturers used the laboratories' services during the past year. Central heating equipment continued to account for more than 55 per cent of the test work. This was followed by domestic cooking appliances and water heaters.

The five new types of gas equipment approved by the laboratories were: commercial clothes dryers; baseboard heaters; an outdoor type incinerator; gas-fired toilet; and quick connect-disconnect unit.

Inspection personnel traveled over 150,000 miles to examine more than 4,500 basic models. They made about 450 factory inspections for renewals of certification, and 600 unannounced inspections were conducted at production points to assure compliance with "Blue Star" approved models.



Perpetual Spring IS HERE !

Dock workers or men laboring on loading platforms in sub-zero weather no longer need gloves or heavy clothing.

Patio dining can be enjoyed 12 months of the year —even in the coldest section of the country.

Pavilions, circus tents and stadiums—often cold and damp—are becoming warm, pleasant shelters.

The explanation? In all these cases—and there are hundreds more—the answer is radiant gas burners. Only a dull glow gives evidence of gas consumption. But invisible rays, emitted from the burners in a powerful stream, travel through the air without affecting it or being affected by it. When they reach the dock workers, the loading platform, the patio and spectators at the circus or concert, the rays are transformed into heat.

The feeling of warmth which the burners create can be illustrated by stepping from the shade into sunlight. The body is warmed instantly but the air remains cool.

The secret lies in a special gas combustion process.

Certain materials, when heated to the proper temperature, emit quantities of invisible rays. These are called infra-red, because they are waves of energy below those of red light at the bottom of the visible spectrum. That is why we cannot see the heat rays emitted from a gas-fired infra-red burner or those from the sun—which is another form of radiant heat.

The rays themselves are not new. The earth has been heated for billions of years by such rays produced by the sun.

What is comparatively new is our method of converting the energy content of gas into the specific form of infra-red radiant heat and in such a way that we can "aim" it in any desired direction. For, like light, infra-red rays travel in a straight line. They may be reflected and behave like light in other ways.

Practical applications for the burners are almost limitless.

In the food serving industry and in homes, infra-red gas ovens and rotisseries speed baking and roasting, improve food flavor and evenness of cooking and allow kitchens to remain miraculously clean.

Men working in huge, drafty factory buildings are warm and comfortable in spite of the chilly atmosphere around them. Tools and machinery are made warm to the touch.

Patrons at sidwalk cafes are kept cozy even on nippy days.

Spectators at football games and other outdoor events dispense with lap robes and shed overcoats when gas infra-red heaters are strategically placed nearby.

Industry provides an even greater variety of gas applications.

Typical uses today include heat treating of metals; paper, paint and textile drying and finishing; thawing of boxcar loads; ceramic glazing and glass work; grain and lumber drying; curing of masonry and other materials; and foundry work.

Infra-red heaters have many unusual assignments.

A major railroad has banks of the magic heaters above main line junctions. They automatically clear tracks of snow and sleet as fast as it falls, preventing delayed schedules resulting from frozen switches.

In a similar application, stores, restaurants, hotels, hospitals and countless other commercial businesses use infra-red heaters to keep sidewalks clear of snow and ice. Under the soft glow of an infra-red heater, giant snowbanks become trickles of water, which, silently steal away to the nearest drain.

The efficiency of gas radiant heating may cut fuel bills in half. Substantial savings are achieved because radiant heaters expand energy only on the object to be heated. Nothing is wasted in heating up air or other objects.

Yes, these new devices with their unique capabilities are bringing us perpetual Springtime.

Mueller Co. Test Lab . . .

GOES LOOKING FOR TROUBLE

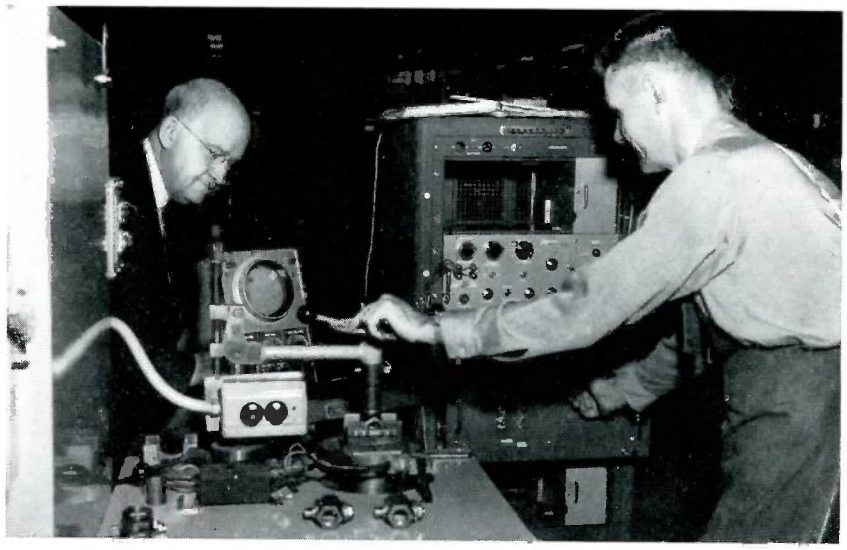
To the average employee or customer a cold chisel is simply a piece of shaped steel with a point and a head. Nothing more, nothing less. Really a rather unglamorous, impersonal, simple tool.

In the Mueller Co. Test Lab in Decatur, even a simple tool like a chisel gets special attention, which includes the beating of its life.

When you consider that Mueller engineers produced a special machine to give something as simple as a chisel more than the beating and wear received in its normal lifetime, think what is necessary to test and check a precision product like a Luboseal, where tolerances are measured in tenths of thousands of an inch.

The Test Lab facilities range from burst chambers, ovens, deep freezes, electronic equipment and special devices to a site near Decatur where products are buried and tested with gas under actual working conditions.

As W. R. Leopold, Director of Engineering, put it: "The Test Lab is only one phase of engineering. It is the proving ground for the ideas and designs that are worked out on paper by our engineers and draftsmen. This is where we find out if our products act as anticipated by our calculations. If a product isn't going to live up to expectations, we must find out in the lab, not after it is put into service."



Using electronic equipment to check assembling methods are Walter J. Bowan, Chief Research Engineer, (left) and Test Lab Operator Vern Ramsey.

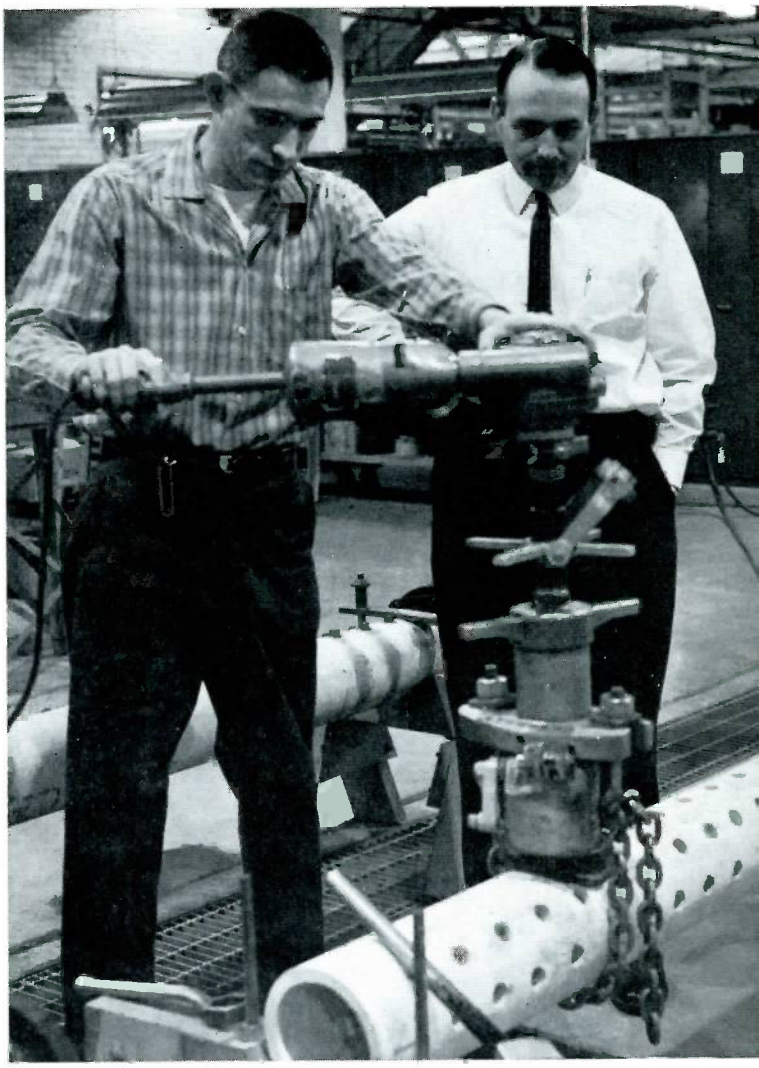
About 50 men and women work in the Engineering Division in Decatur. These include engineers, draftsmen, stenographers, clerks, machinists and Test Lab operators.

SIMULATE, EXAGGERATE

Time and service tests are made, but many times it is impractical to wait 10 or 20 years for the results of these tests before marketing the product. Instead we attempt to simulate and exaggerate the conditions under which a product must operate, and then subject it, in a relatively short time, to the use and

A major portion of the 10,000 square-foot Mueller test laboratory in Decatur is shown above. In this area most of Mueller's exhaustive tests are run on products.

The testing facilities are a part of the Engineering Division of Mueller Co. which is headed by Frank H. Mueller, Vice President for Engineering.



One of the best tests for a piece of equipment is use, naturally. In this case operator Larry Bundy (left) is drilling and tapping hundreds of holes in a piece of pipe to check the performance of a Mueller B-100 machine. Observing the operation is W. R. Leopold, Director of Engineering.

wear that it would get in a lifetime of actual service.

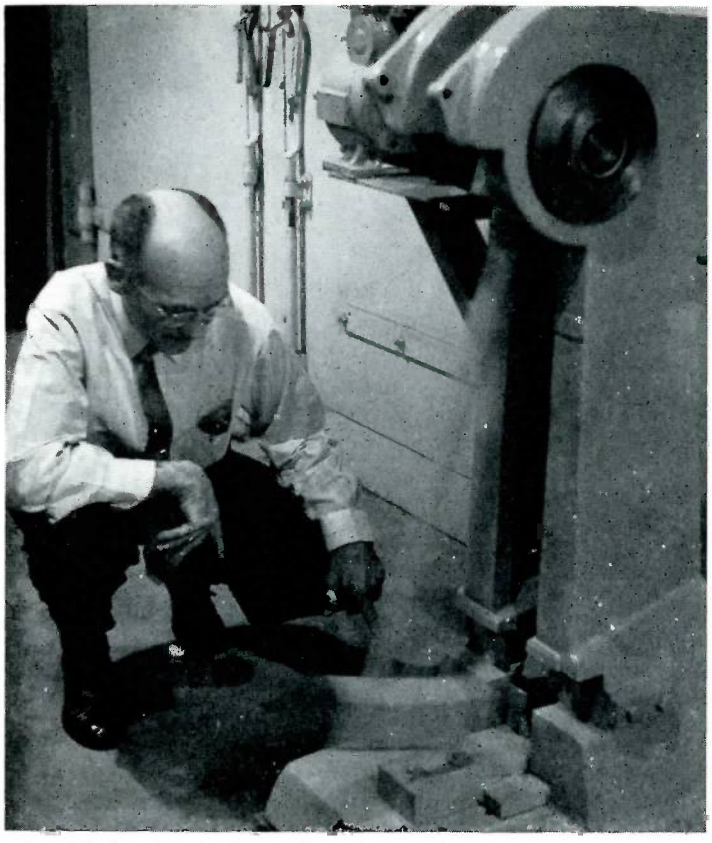
"The results of the accelerated tests are coordinated with the known performance of established products and evaluated in light of our many years of experience. In addition, many tests are done using statistical techniques that can predict in a remarkable manner the operating characteristics of a design and even tell how the separate variables in each design affect its performance," Mr. Leopold said.

The lengths to which Mueller engineers go in producing aggravated tests are characterized in the burst chamber. This chamber, which looks like an oversized cold storage room, is used for exerting pressures that are high enough to break most products found in industry.

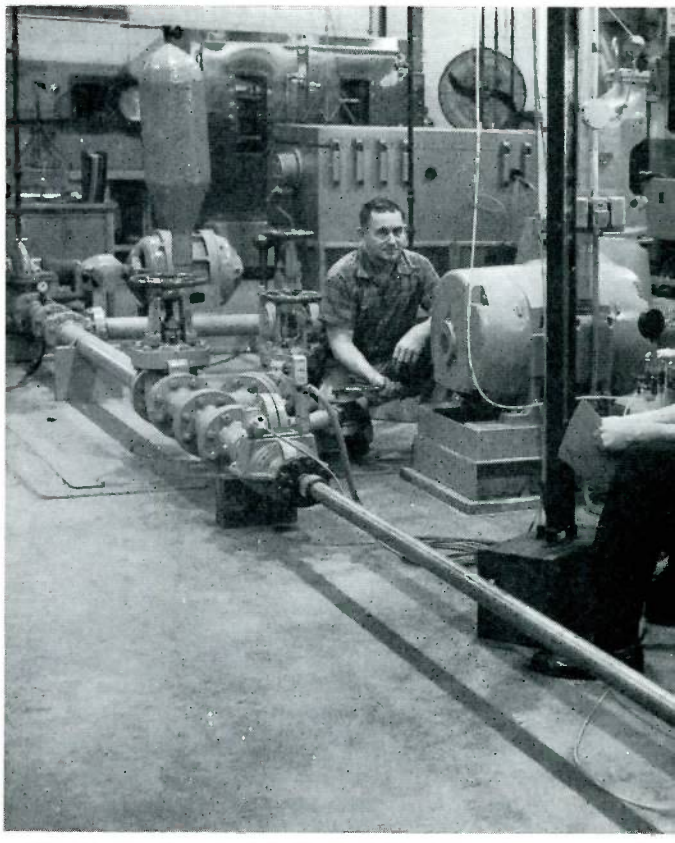
Water pressures up to 30,000 pounds-per-square-inch and air pressures up to 3,000 pounds-per-square-inch are available in this chamber, which has reinforced concrete walls a foot thick.

The room, which is 20 feet long, 12 feet wide and 15 feet high, must be air-conditioned and humidity controlled. Constant temperatures and close control of humidity must be maintained to keep tests as accurate as possible.

From an adjacent control room, observers and technicians are able to watch tests through a narrow, three-layer, bullet-proof window that is 2½ inches thick. Technicians are able to electronically rec-



A cold chisel is in the midst of receiving the "beating of its life" as this calibrated machine hammers away under the watchful eye of Project Engineer Wallace Gould.



Checking a flow test is Project Engineer Lawrence Luckenbill (right) while Test Lab Operator Guy Pruett handles one of the controls. Beneath this test rate in t

ord the data received from the tests and to control pressures in the chamber in the complete safety of the control room.

RUPTURE PRODUCTS

By exerting these high pressures upon products to the point of breaking, engineers are able to determine the weaknesses and strengths of construction and design.

The uniqueness of the chamber is pointed up by the fact that, strictly as an accommodation, Mueller Co. has allowed other manufacturers in Decatur to test some of their products in the room. Embedded in the ceiling is a piece of a product made by another Decatur firm that was shattered in the burst chamber.

The pressures built up in the chamber are exemplified by the loud boom that follows the rupturing of a large product such as a gate valve. This sound is heard throughout the Engineering Building in spite of the foot-thick walls.

Just outside the doors of the burst chamber is the machine to test chisels that was referred to earlier. An electric motor swings a heavy hammer that pounds, hour after hour, upon a chisel. The impact of this hammer has been calibrated so that it has the force of a man wielding a small sledge. During this beating the chisel is examined from time to time to check on wear, strengths, weaknesses and shape.

This examination might take place in the nearby equipment room, where most of one wall is a glass enclosed case which holds dozens of intricate instruments.

These instruments range from the small timers to the man-sized comparator that magnifies the point of a pen so that it looks as big as the head of a cigar.

MILLIONTH OF AN INCH

Two specially designed machines are the pride of the equipment room. These two devices are able to detect imperfections, on ground key plugs or bodies, that are no more than one millionth of an inch.

"There is a great need for such accuracy," Mr. Leopold said. "If you stop to think about the fact that water under 60 pounds of pressure will leak through an opening 1/5 the diameter of a human hair and that gas leaks through a smaller opening, you will realize that such examinations are required."

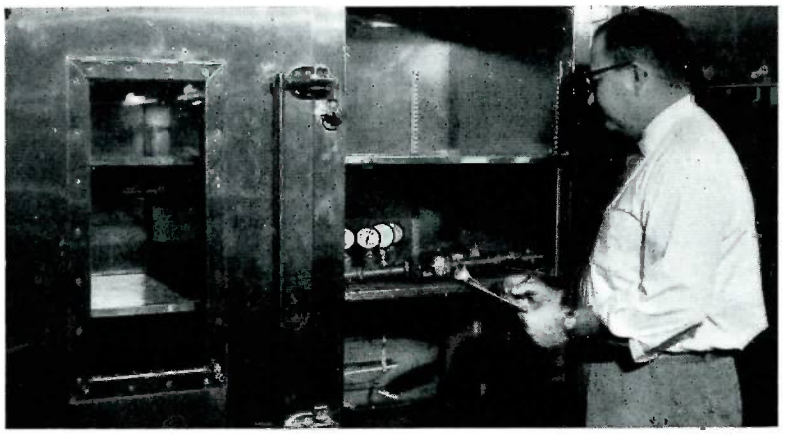
PRECISE, RUGGED

"Most people don't realize that many of our products must have two widely divergent characteristics—precision as well as ruggedness. They must be rugged to withstand rough handling, installation under adverse conditions, and a lifetime of being underground where moisture and temperatures vary and the components of the soil could induce a corrosive effect or mechanical stresses. At the same time this rugged construction must still have the capabilities of allowing a precision fit that comes within one quarter of one thousandth of an inch," Mr. Leopold said.

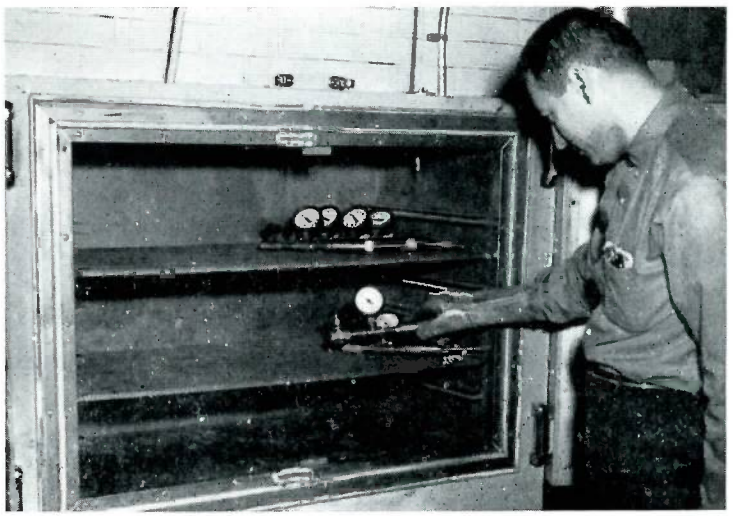
He added, "This precision must be maintained for the normal useful life of the product, to further complicate the design."

area is a 14,000 gallon reservoir where flow of 1,100 gallons per minute can be maintained is system.

Mueller products are tested under pressure in this "deep freeze" that is capable of dropping temperatures to a minus 60 degrees. Test Lab Operator William Hood (foreground) checks the turning torque on some stops as Project Engineer William Hauffe records the data.



George F. Binkley, Manager of Engineering Services, (above) checks readings in a humidity cabinet while (below) Assistant Project Engineer Paul R. Ammann removes some valves from the test oven where temperatures of 600 degrees can be produced.



To test for some of the wide ranges of temperature and humidity, deep freezes, humidity cabinets and ovens are used. "Our products must operate under widely varying ranges in temperature and humidity, so we must test them under these and even more aggravated conditions," Mr. Leopold added.

One cold box used for testing is able to reduce its temperature from 80 degrees above zero to 60 degrees below zero in 25 minutes.

The oven, where water or air can circulate through the valves while the valves are being tested, can boost its temperature to 600 degrees.

The humidity cabinet can duplicate the temperature and humidity in any climate from the steaming jungles to the arid Sahara. Its maximum is 90 per cent humidity and temperatures to 200 degrees.

NEW MEXICO TO DECATUR

Mr. Leopold told of an example where it was desirable to conduct tests under conditions similar to those found in New Mexico. "We

weren't able to take our lab to New Mexico, naturally, so we attempted to bring New Mexico to Decatur," he said.

He explained that a sample of the soil from New Mexico had to be brought to the lab where it was put under temperatures and humidity that corresponded with that area, and the combination of the three produced answers the engineers were unable to find prior to getting the soil.

"Since many of our products have water flowing through them, there is no better test than to do just this. Under the floor of a portion of the laboratory is a reservoir that holds about 14,000 gallons of water. We are able to run flow tests up to pressures of 500 pounds-per-square-inch. Flow rates of 1,100 gallons per minute can be maintained without putting a drain on the outside water system, simply by re-circulating water out of our reservoir," Mr. Leopold said.

These high volumes of water are used to test hydrants and gate valves under as difficult situations as possible. They are opened and closed hundreds of times and then dismantled, and the wear is checked and deficiencies sought.

In addition to testing gas products with air and under unusual conditions that are available in the laboratory, Mueller Co. has built a test station at Mount Zion just outside Decatur.

This test site, which is located on an Illinois Power Co. transmission line, has unlimited amounts of natural gas available for testing. The gas available is either odorized or non-ordorized and goes to maximum pressures of 800 pounds-per square-inch. Fittings, tees and stops are actually buried and put into use here where they are constantly checked.

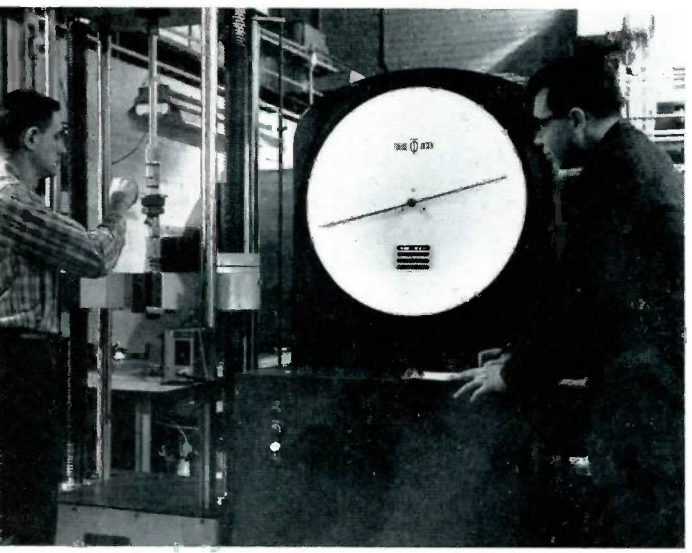
EXCEED NORMS

"Our philosophy is to duplicate working conditions as near as possible and then exceed these. If our products hold up under exaggerated conditions, we know they will withstand normal demands," Mr. Leopold said.

These exaggerated conditions, in addition to the heat, cold, humidity and pressure tests, include flowing of abrasives through stops while they are being cycled; bending compression tests, pulling and others.

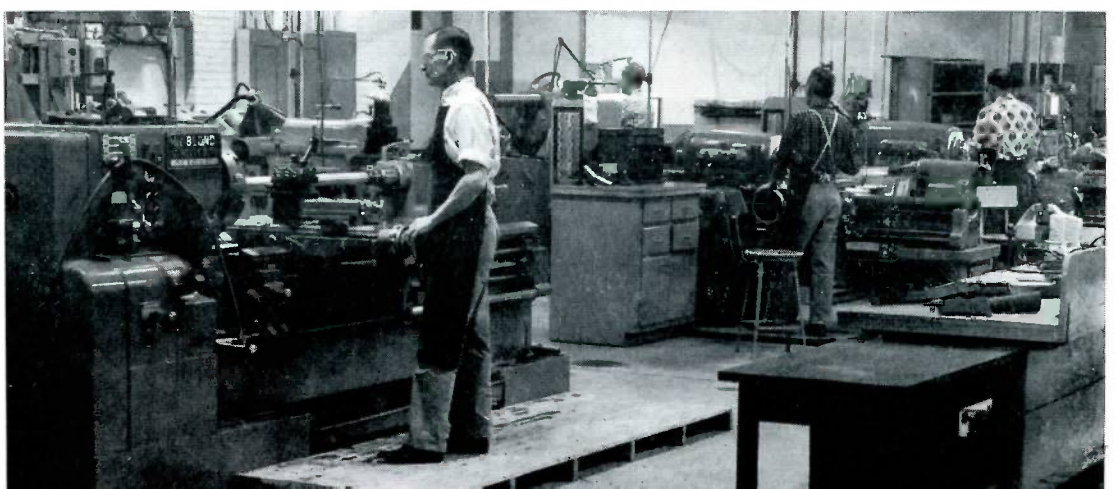
An integral part of the 10,000 square foot Test Lab is the machine shop, which produces prototypes of new products, models and modifications of products.

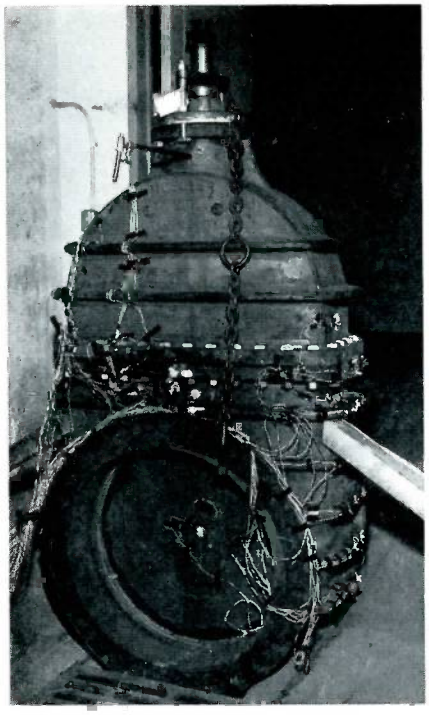
The testing facilities are a major section of the research and development activity at Mueller Co. "The reason for this emphasis on product research and development is apparent. Mueller must continually work to improve its products to better serve the progressive gas and water industries," Mr. Leopold concluded.

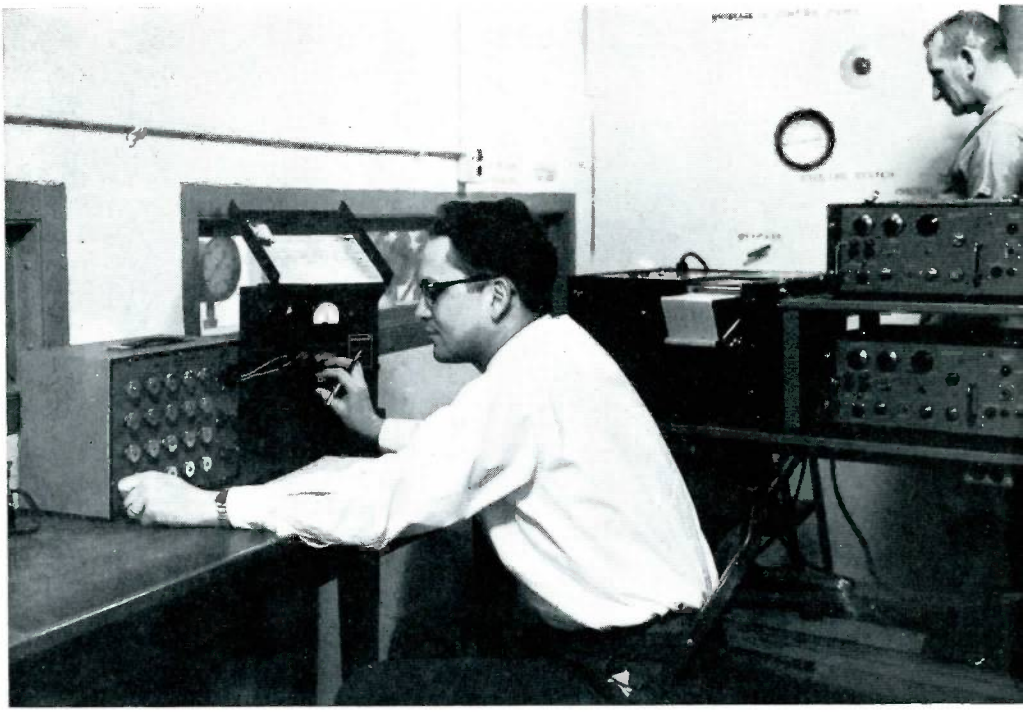


Larry Bundy checks for any distortion while Senior Project Engineer Carl Floren (right) records data during a tensile test. This universal machine can be used for either compression or tensile testing.

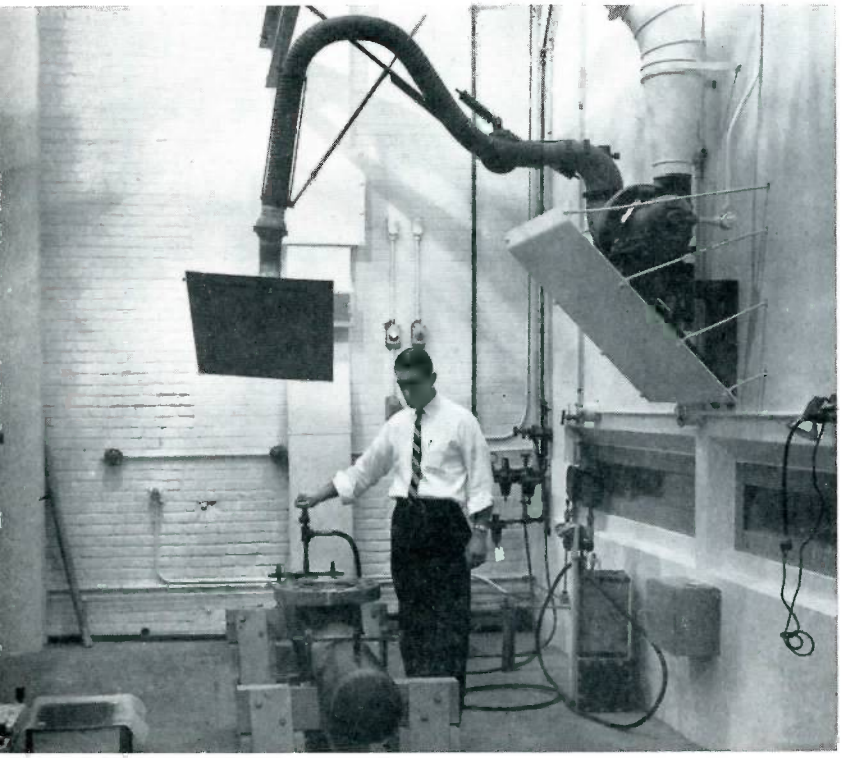
Lindle (Hap) Hockman, Test Lab Lead Man, checks a key on a machine that is able to detect a surface flaw that is no greater than one millionth of an inch. The model shop or machine shop, (below) which is an intricate part of the lab, produces prototypes and makes modifications of products under test and development.



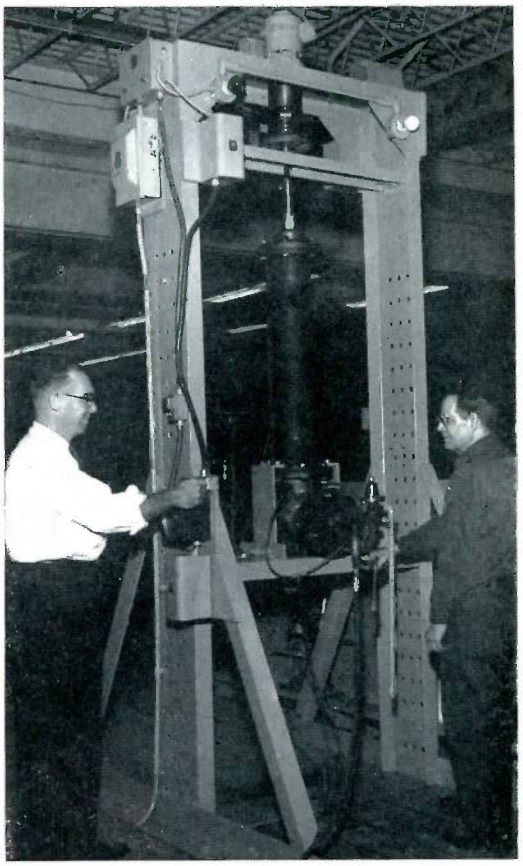




This Mueller gate valve is just short of being wired for sound as strain guages are attached in preparation of making a test in burst chamber. Robert Roos, (left) Project Engineer, manipulates the dials on some of the electronic testing equipment that records and indicates the minutest changes in characteristics of the product being tested. Ed Turner, Lab Operator, operates the test chamber controls as he watches the test through bullet-proof glass.



Preparing a line stopper fitting for a test in the burst chamber is Project Engineer Lynn D. Edwards. Pressures available in this room are capable of rupturing most products found in industry.



This cycling machine opened and closed this fire hydrant part thousands of times during just one test. John J. Smith, Chief Products Engineer, checks the counter while Operator Louis Bland checks the water pressure.

Blue Flame Whispers

Senate Fuel and Energy Study Backs Position of Gas Industry

The importance of interruptible gas sales in making possible lower prices to all natural gas consumers was supported in a report recently transmitted by The National Fuels and Energy Study Group to the Senate Committee on Interior and Insular Affairs, according to E. H. Smoker.

Mr. Smoker, who is President of The United Gas Improvement Co., Philadelphia and A.G.A. president in 1962, said the report, released after a year of work by the Study Group, supports the gas industry's position that interruptible gas sales make a significant contribution toward fixed charges.

Interruptible customers are industrial users whose gas service may be curtailed in the event of abnormally high gas demand by other classes of customers.

"We think," Mr. Smoker said, "that this report will put to rest once and for all charges that interruptible gas sales are 'unfair competition'."

"We also are encouraged by the study finding that gas is not the villain which has caused the decline in coal usuage. In general, we are satisfied with the report," the A.G.A. President said.

Interruptible gas sales was one of the three major policy issues considered by the Study Group. In 1960, according to the report, these sales resulted in a contribution toward fixed charges of about $400 million.

Mr. Smoker pointed out also that "without these sales, cash flow to the producer would diminish, with consequent reduced incentive for drilling and establishing new reserves; and pipeline load factors would worsen with a resulting increase in rates to all other classes of consumer. Those residential, commercial and industrial customers who are now the beneficiaries of pipeline systems made more feasible by interruptible gas sales would, of course, be hit hardest."

The Study Group's report said, "In 1960, total interruptible sales of natural gas totaled 2.1 billion mcf. The price charged for interruptible service is less than that charged for firm service and at least covers the cost of the gas itself plus the out-of-pocket costs of transportation and distribution. This type of service makes a contribution toward fixed charges that would otherwise be borne by firm customers."

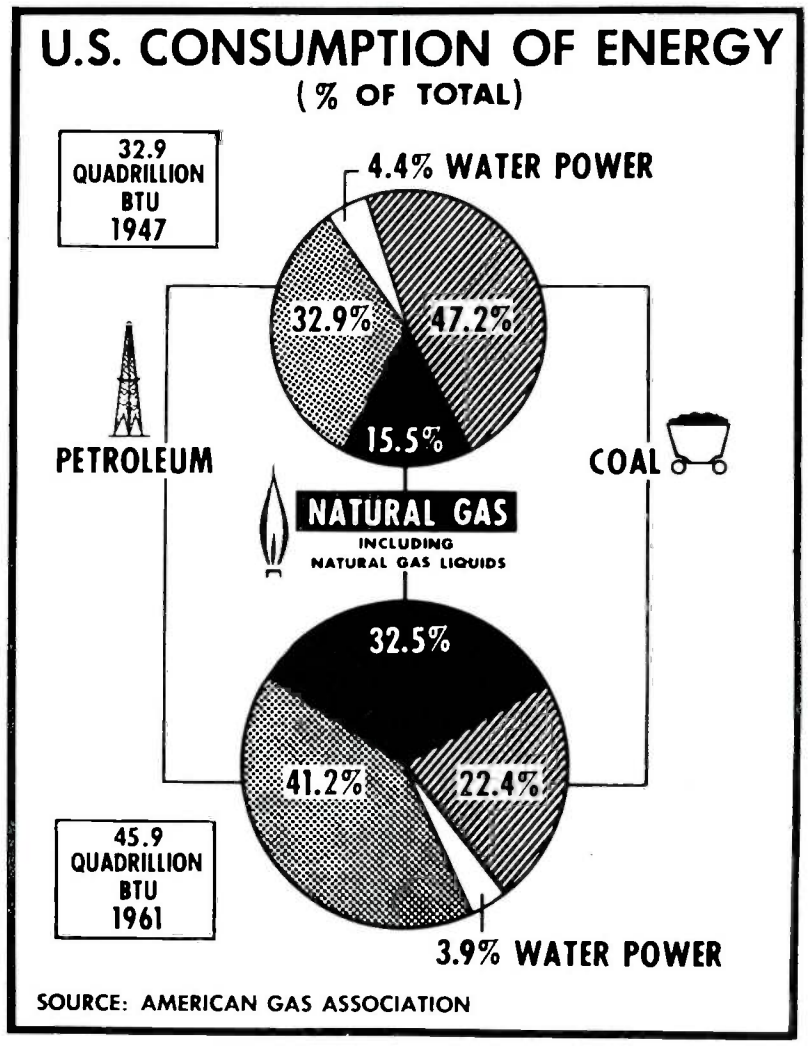
Canadians Expect To Exceed Record-Breaking 1962

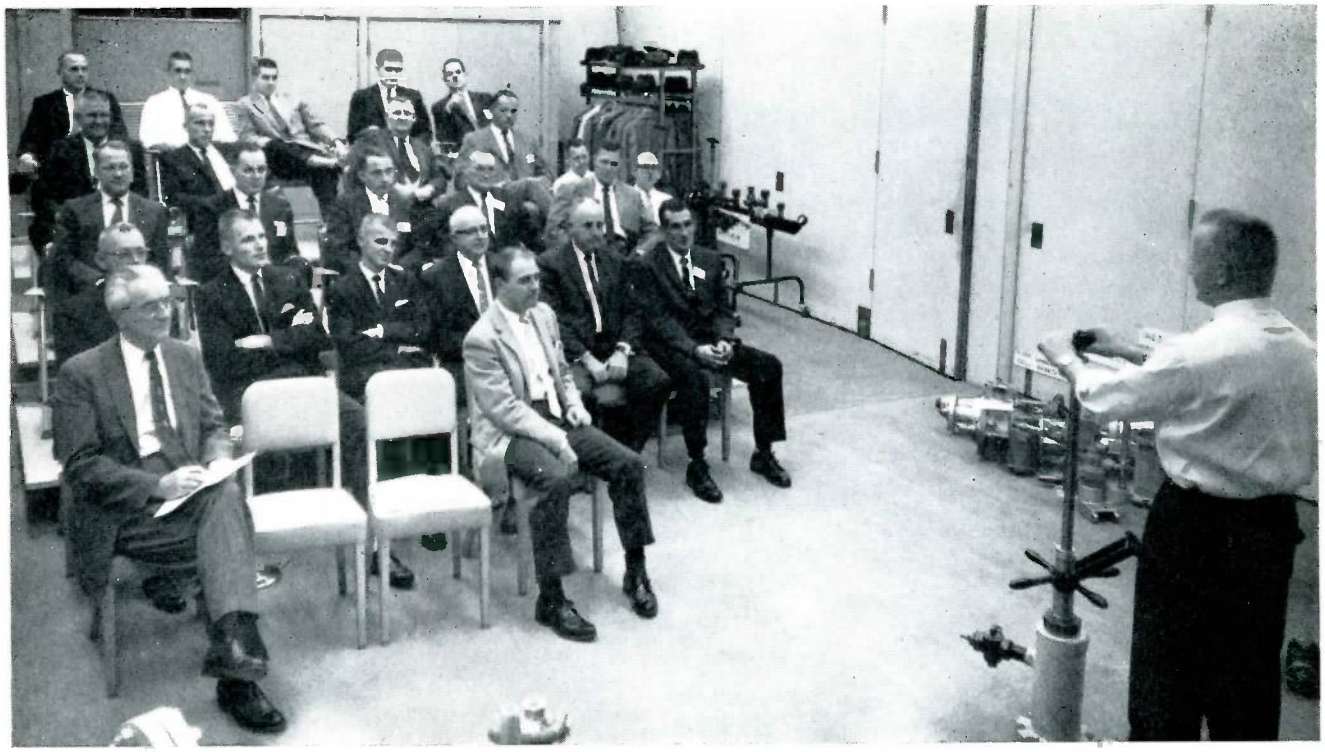
"While the year ended has been a record-shattering one for Canada's natural gas industry, an examination of domestic and foreign market potentials for 1963 indicates the industry will once again set new highs in each and every area of its activities," said Canadian Gas Association President John W. L. Ostler.

During 1962, previous production records were broken as the country produced 920 billion cubic feet, an increase of 40 per cent over last year, according to the C.G.A. report.

Mr. Ostler said that exports of gas to the United States increased by an unprecedented 95 per cent over sales to the U. S. last year. He said this increase was due mainly to the opening of new markets in California and the Pacific northwest.

Gas companies and the manufacturers of gas lamps report 10 U.S. and Canadian airports now use gas lights to mark their runways. The largest concentration is found in Arkansas where five fields light their landing strips and taxiways with gas.





Members of the Distribution Operation Sub-committee of the Indiana Gas Association visited Mueller Co. recently to see a demonstration of Mueller line stopping equipment. Raymond N. Gentry of the Mueller Sales Division demonstrates at the right.

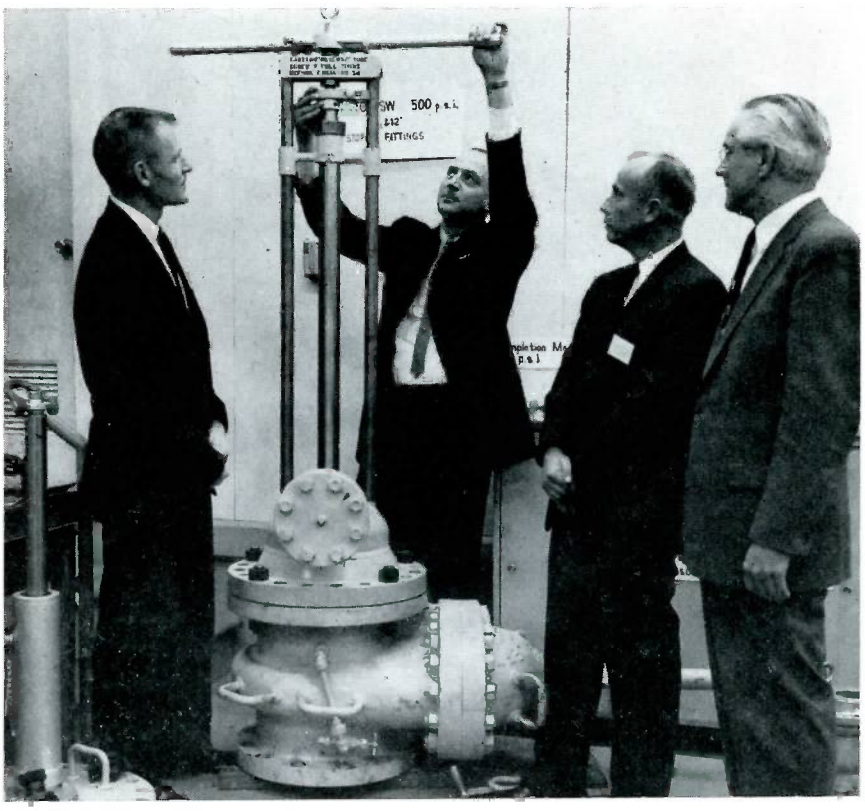
Line Stopping Demonstration Presented To Indiana Group

Members of the Distribution Operation Sub-committee of the Indiana Gas Association recently spent a day at Mueller Co. in Decatur seeing a demonstration of Mueller line stopping equipment.

The group, headed by Chairman R. D. Stegner of Indiana Gas & Water Company, Inc. of Indianapolis, is making a study of line stopping equipment and will report its findings to the Indiana association.

Raymond N. Gentry of the Mueller Sales Division presented the demonstration which included a rundown on Mueller fittings, drilling equipment and line stopping units.

The visit concluded with a tour through the Mueller test lab.



Herm Niehaus, Mueller Sales Representative, operates a line stopping unit for R. D. Stegner (left), P. R. Vail and Jack Rian (right). Mr. Stegner and Mr. Vail are from Indiana Gas & Water Company, Inc. of Indianapolis and Mr. Rian is from Northern Indiana Public Service Co. of Hammond.

A. G. Webber, Jr., Re-Elected President of Mueller Co.

Albert G. Webber, Jr., was re-elected Mueller Co. President and Chairman of the Board at the firm's annual Shareholder and Board of Directors meeting in Decatur.

At the meeting, the Board of Directors also accepted the resignation of Jackson Kemper, who had been Executive Vice President since he joined the company in July of 1960.

His resignation also included his position as a member of the Board of Directors of Mueller Co. and Mueller, Limited.

Company officers re-elected were:

A. G. Webber, Jr. President and Chairman of the Board

Frank H. Mueller, Vice President for Engineering

Dan R. Gannon. Vice President and General Sales Manager

Frank A. Speer, Vice President for Manufacturing

Leo Wiant, Vice President and Director of Purchases.

Lyle R. Huff, Secretary and Treasurer.

Re-elected to the Board of Directors were:

Joe H. Gardner

George McAvity

Ebert B. Mueller

Frank H. Mueller

Mrs. Pauline V. Mueller

John A. Schluter

Mrs. Lenore Mueller Schmick

Franklin B. Schmick

Harold M. Sherman, Jr.

Albert G. Webber, Jr.

Lyle R. Huff Elected To Mueller, Limited Board

Lyle R. Huff, Mueller Co. Secretary and Treasurer, was elected recently to the Board of Directors of Mueller, Limited.

Mr. Huff, elected at the firm's annual meeting in Decatur, fills a vacancy created by the resignation of Jackson Kemper.

Mr. Huff joined Mueller Co. in 1950 in the Financial Division. He formerly was an auditor for the Phillips Petroleum Company, an acting instructor at the University of Illinois, and a member of the accounting firm of Gauger & Diehl.

Mueller, Limited officers re-elected were:

Albert G. Webber, Jr., President and Treasurer

George McAvity, Managing Director

Ronald M. Nicolson, Vice President and General Sales Manager

R. J. Skippon, Vice President and Manager of Engineering

C. S. Browett, Secretary, Assistant Treasurer and Plant Controller

J. Milne, Assistant Secretary

Elected to the Mueller, Limited Board of Directors were:

Orval W. Diehl

Lyle R. Huff

George McAvity

J. Milne

Ebert B. Mueller

Ronald M. Nicolson

R. J. Skippon

A. G. Webber, Jr.

Leo Wiant.

Mueller Co. Officers

A. G. WEBBER, JR.
President

DAN R. GANNON
Vice President and
General Sales Manager

FRANK A. SPEER
Vice President
For Manufacturing

FRANK H. MUELLER
Vice President
For Engineering

LYLE R. HUFF
Secretary and
Treasurer

LEO WIANT
Vice President and
Director of Purchases

Strictly *Off the Record*

A husband, complaining about the food he was getting at home, was met with a strong argument by his wife. "What's the matter with you?" she demanded. "Monday you like veal cutlets. Tuesday you like veal cutlets, Wednesday you like veal cutlets, now Thursday, all of a sudden you don't like veal cutlets."

* * *

"James," the English teacher said, "give me a sentence using the word 'archaic'."

"Archaic," repeated James. "We can't have archaic and eat it, too."

* * *

A matron approached a salesgirl and inquired as to the whereabouts of the perfume counter. "Just walk this way, madam," the girl answered, taking the lead.

"Hmmf," observed the customer, "if I could walk that way I wouldn't be in here buying perfume."

A man was tuning in on the radio when he got a sudden twinge of pain in his back. "I believe I'm getting lumbago!" he remarked.

"What's the use? You won't understand a word they say anyway," commented his wife.

* * *

Deep in the Louisiana swamps, three men stopped to watch a small boy fishing in a roadside lake. Finally, one man said, "Boy, are there any snakes in this water?"

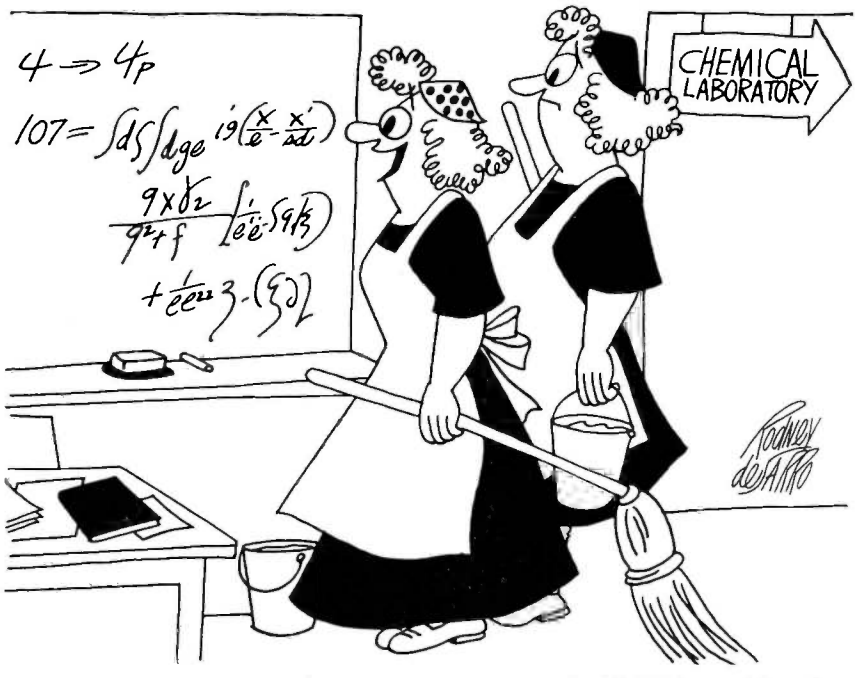
"Naw, suh, they sure ain't," replied the lad slowly.

The three men left their clothes on the bank and all had a refreshing swim. After dressing one man asked, "How come there aren't any snakes in this lake?"

"The alligators ate 'em," replied the boy.

* * *

A good wife laughs at her husband's jokes not because they are clever but because she is.



"I think I see a mistake!"

"Jimmy, you've defined 'buccaneer' wrong. 'Too much to pay for corn' isn't the right answer."

* * *

"The traps on this course are very annoying," observed a member of the golfing foursome.

The one who was putting raised his head. "They certainly are," he commented. "Would you mind shutting yours?"

* * *

Diplomacy is the art of saying "nice doggy" until you have time to pick up a rock.

* * *

A big game hunter in Africa was on his way back to camp when an enormous lion walked out of the jungle not 20 feet away. As the lion was about to spring, the hunter fired his last cartridge and missed. The lion sprang too far and landed 15 feet beyond the hunter who then ran for camp and safety. The next day the hunter went back of the camp to practice a little shooting at close range. He heard a strange noise in the brush and investigated. It was the lion—practicing short leaps.

* * *

Watching a famed matador perform in the bull ring was an outspoken Texan. The fight reached the stage where the matador, armed only with his cape, was taunting the bull to charge him. He avoided the animal's sharp horns only by inches, flipping the cape aside as the bull roared past. He did this several times and finally the Texan could stand it no longer. He got to his feet and shouted, "Bud, he ain't never going to run into that sack unless you hold it still!"

* * *

Sign in a service station: "We collect taxes—federal, state and local. We also sell gasoline as a sideline."

. . . the MUELLER® "T" machine

for wide application— easy operation— NO-BLO® safety

- *Drills ⅛" through ¾" holes in mains under pressures to 125 p.s.i.*
- *Inserts and extracts plugs, stems, stem and bushings in tees, line stopper fittings and drilling nipples.*
- *Makes stop-offs in service tees and line stopper fittings.*

With the low-cost, easy-to-use "T" Machine, safe service connections can be made under pressure without blowing of gas or interrupting service. Hand operation with a minimum of attachments assures ease of operation.

Contact your Mueller Representative or write direct for complete information.

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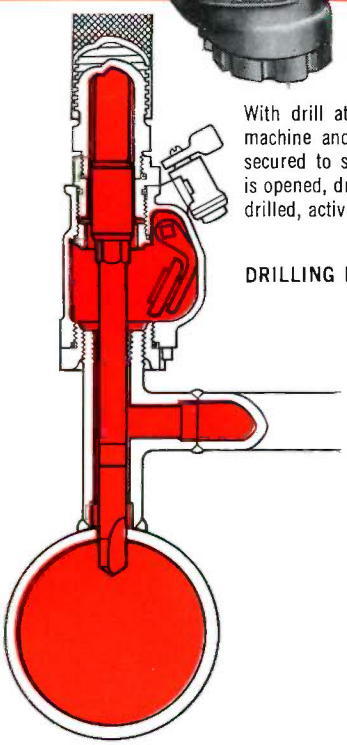
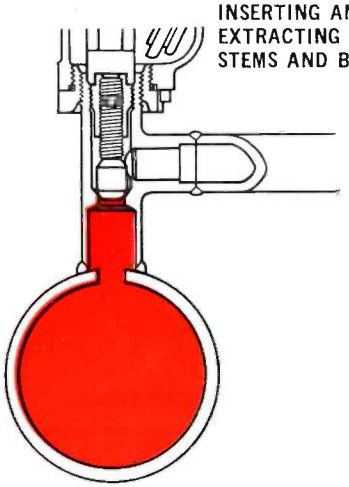
the inside story



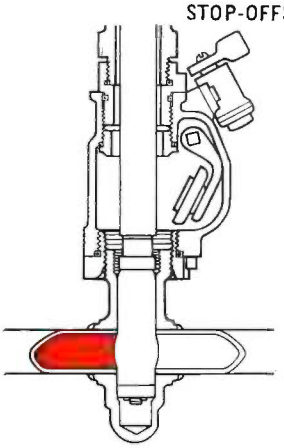
With drill attached to boring bar, machine and control chamber are secured to service tee. Flop valve is opened, drill advanced and main drilled, activating service.

DRILLING MAINS



Completion plug, stem or stem and bushing is attached to boring bar with E-Z release tool and inserted into tee.

INSERTING AND EXTRACTING PLUGS, STEMS AND BUSHINGS



Rubber shut-off tool is attached to boring bar, and machine and control chamber are secured to line stopper fitting. With flop valve open, boring bar is advanced, expanding stopper, shutting-off flow.

MAKING STOP-OFFS

MUELLER CO., DECATUR, ILLINOIS

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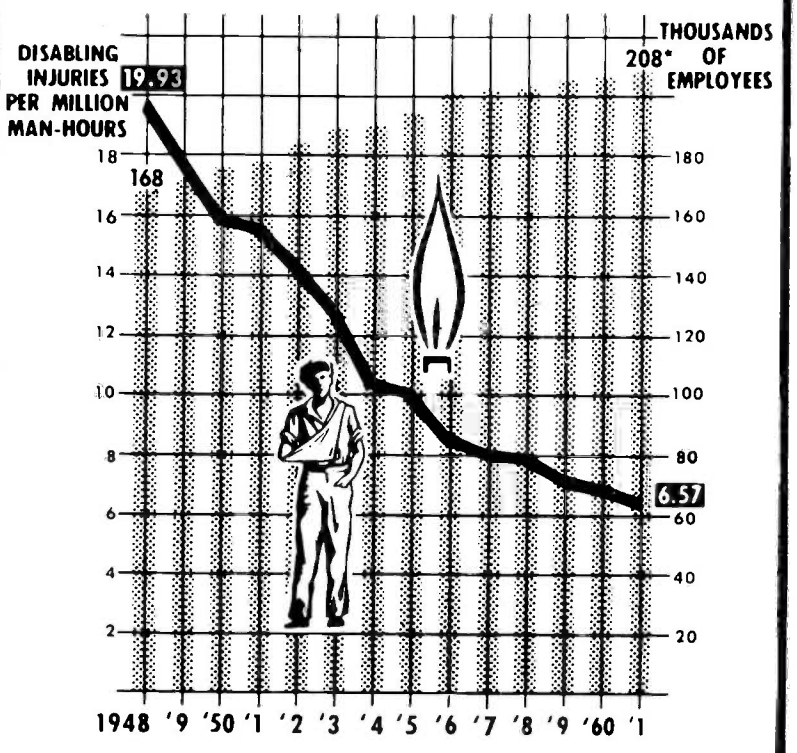

SOURCE: AMERICAN GAS ASSOCIATION

*Estimated