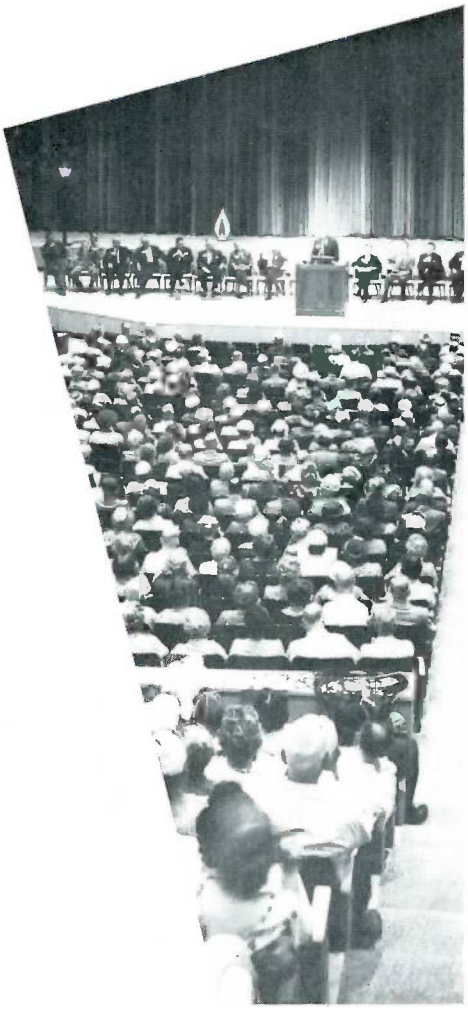
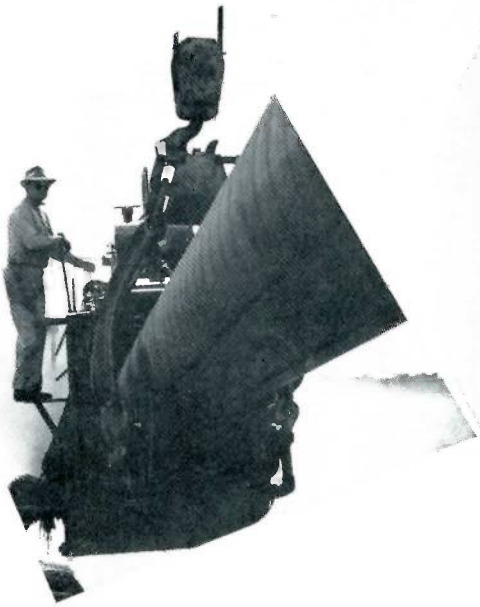
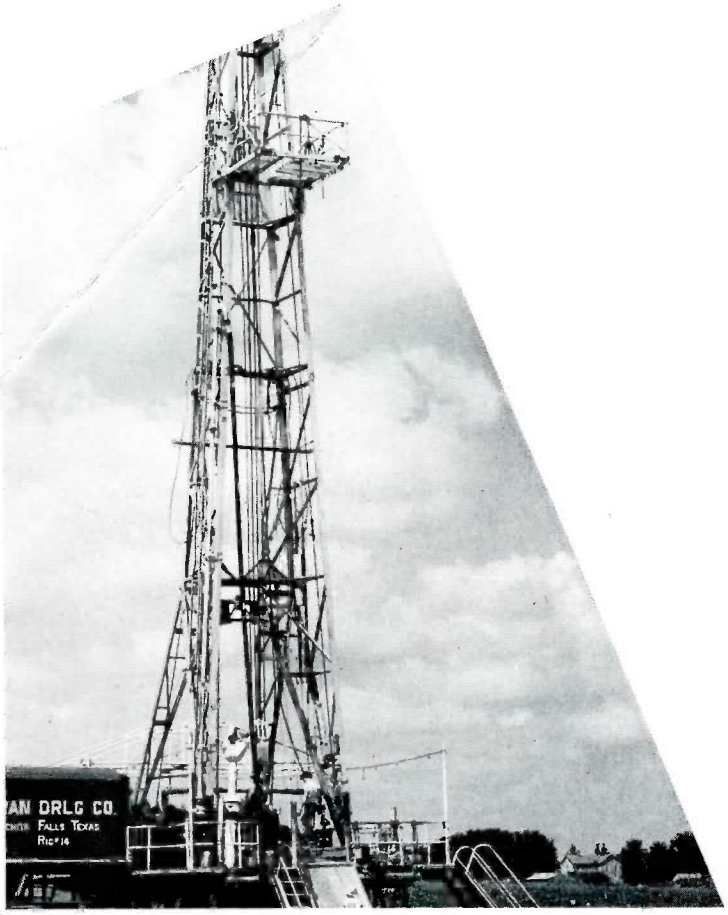
MUELLER
Record
SEPTEMBER • 1961

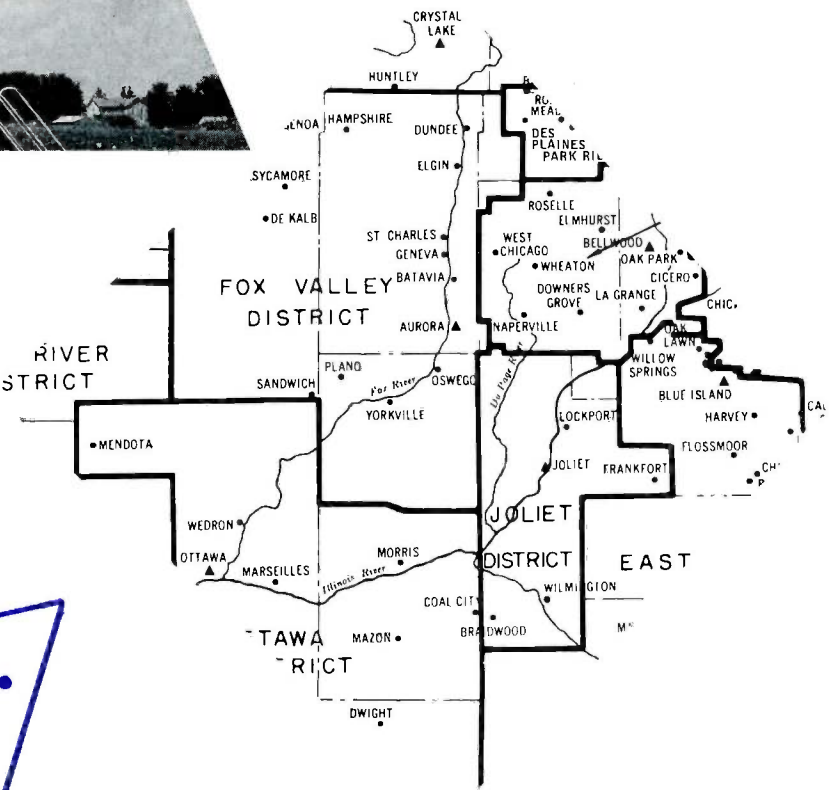




Northern Illinois Gas Company —— An Image Of . . . . .


AN DRLG CO.
FALLS TEXAS


RESULTS...
ACTUAL GAS METE
AT INDUSTRIAL PLANT L


CRYSTAL LAKE
HUNTLEY
HAMPSHIRE
DUNDEE
DES PLAINES
ELGIN
SYCAMORE
DE KALB
ROSELLE
ELMHURST
ST CHARLES
GENEVA
WEST CHICAGO
WHEATON
OAK PARK
CICERO
BATAVIA
FOX VALLEY DISTRICT
DOWNERS GROVE
LA GRANGE
AURORA
NAPERVILLE
RIVER STRICT
PLANO
SANDWICH
OSWEGO
YORKVILLE
WILLOW SPRINGS
BLUE ISLAND
HARVEY
LOCKPORT
MENDOTA
JOLIET
FRANKFORT
FLOSSMOOR
WEDRON
OTTAWA
MARSEILLES
MORRIS
JOLIET DISTRICT
EAST
WILMINGTON
COAL CITY
MAZON
BRAIDWOOD
DWIGHT

DIRECTION!

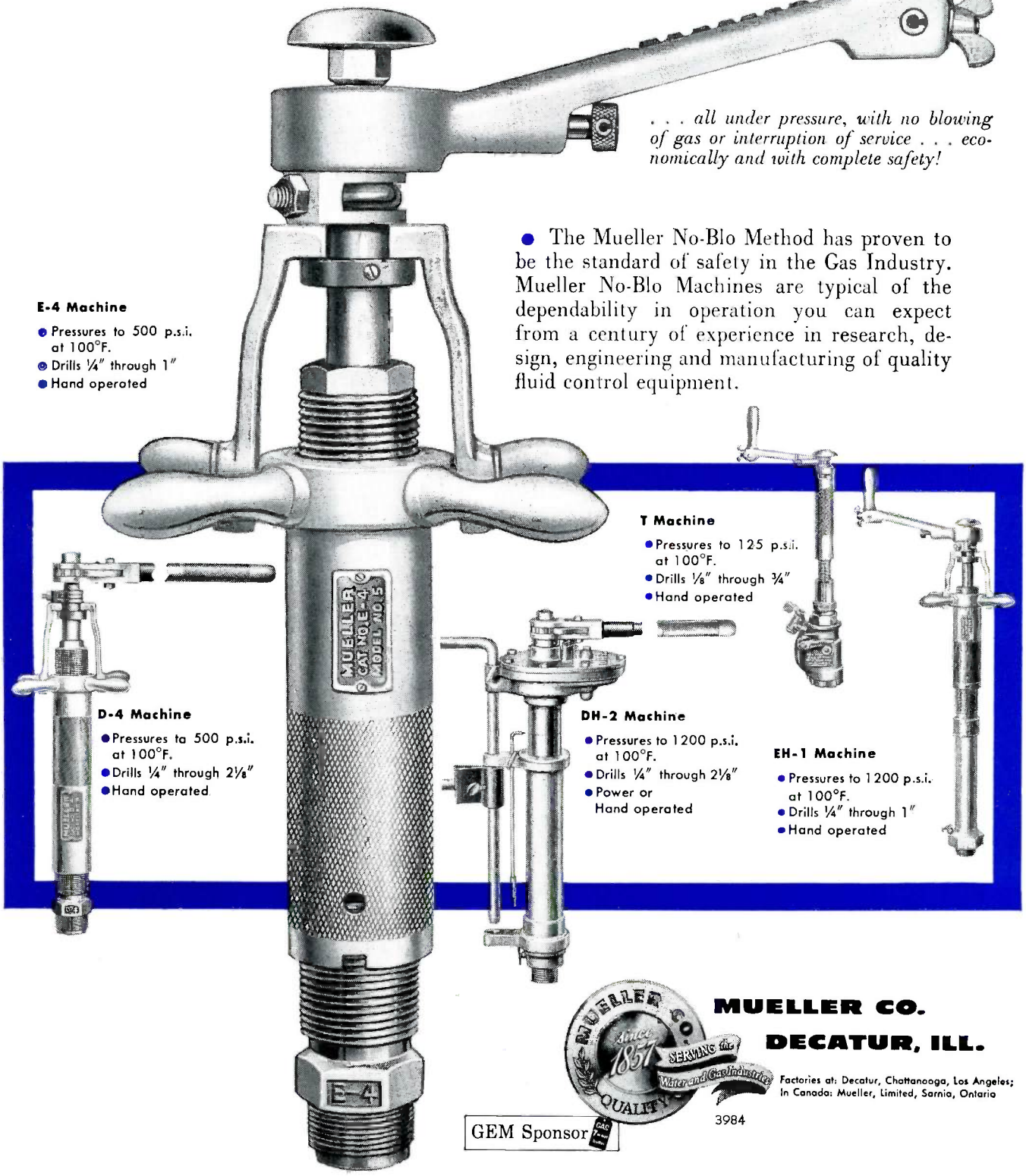
MUELLER® NO-BLO® METHODS

AND MACHINES LET YOU . . .

- *make service connections*
- *maintain service connections*

. . . all under pressure, with no blowing of gas or interruption of service . . . economically and with complete safety!

● The Mueller No-Blo Method has proven to be the standard of safety in the Gas Industry. Mueller No-Blo Machines are typical of the dependability in operation you can expect from a century of experience in research, design, engineering and manufacturing of quality fluid control equipment.



E-4 Machine
- Pressures to 500 p.s.i. at 100°F.
- Drills ¼" through 1"
- Hand operated

T Machine
- Pressures to 125 p.s.i. at 100°F.
- Drills ⅛" through ¾"
- Hand operated

D-4 Machine
- Pressures to 500 p.s.i. at 100°F.
- Drills ¼" through 2⅛"
- Hand operated

DH-2 Machine
- Pressures to 1200 p.s.i. at 100°F.
- Drills ¼" through 2⅛"
- Power or Hand operated

EH-1 Machine
- Pressures to 1200 p.s.i. at 100°F.
- Drills ¼" through 1"
- Hand operated

MUELLER CO. Since 1857 SERVING the Water and Gas Industries QUALITY

MUELLER CO.
DECATUR, ILL.

Factories at: Decatur, Chattanooga, Los Angeles; In Canada: Mueller, Limited, Sarnia, Ontario

3984

GEM Sponsor

MUELLER RECORD

SEPTEMBER • 1961

Editor
Jim M. Milligan

Assistant Editor
Joe Penne

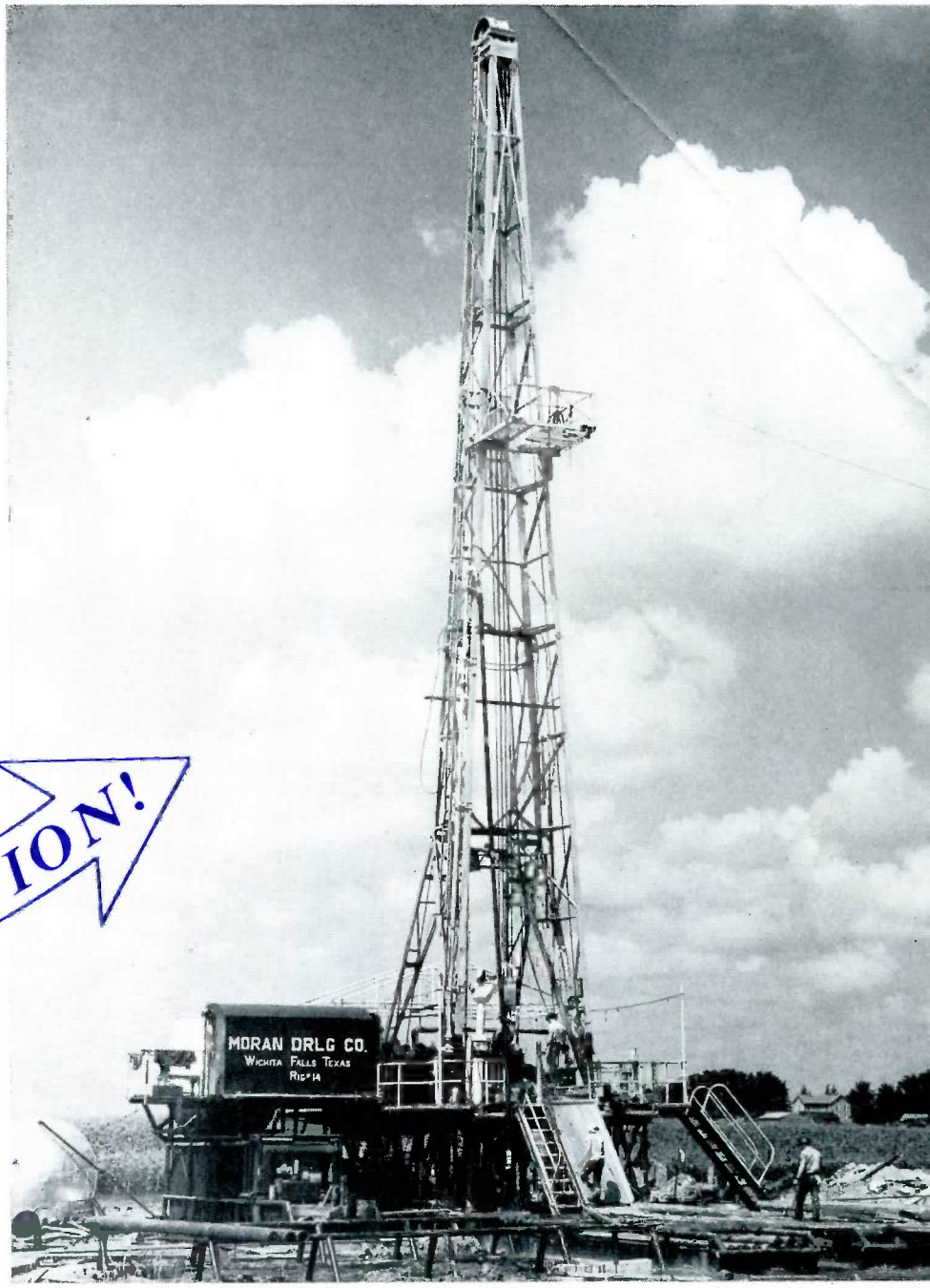
Published by
MUELLER CO.
512 W. Cerro Gordo St.
Decatur, Illinois

Member:
Central Illinois Industrial Editors Association
and
International Council of Industrial Editors

Contents

Northern Illinois Gas Company—

An Image Of DIRECTION!



An unusual sight in Northern Illinois was this giant drilling rig which was used to explore for aquifer storage at Troy Grove. About 16 billion cubic feet of gas have been injected with successful operation last year.

The word "Progress" is certainly not new to the American gas industry — a comparatively youthful industry. A sound and effective plan for the future is not new, either. The gas industry as a whole has one, and a highly-effective American Gas Association to implement it. Many gas utilities around the country also have plans, ranging in outlook from one to ten or even more years.

Some of these plans are well-written, beautifully printed and bound, and profusely illustrated with growth charts. Some are discussed publicly.

All of these plans have several things in common. First, they provide for considerable outlay of capital. They all provide for various methods of financing this expenditure. They all stress the importance of orderly but consistent growth. They all anticipate the addition of new customers to an expanding service area or territory.

Seldom, however, has this writer seen a more dynamic growth pattern in both conscious and subconscious evidence than encountered during a recent visit to Northern Illinois Gas Company. From the energies of Marvin Chandler, the firm's president, through a vigorous management staff, and extending to every employee segment of this utility—this is, indeed, a company with DIRECTION.

Jim M. Milligan

The man in the driver's seat is NI-Gas president Marvin Chandler as he helps break ground for the company's new West-Central Division headquarters at Glen Ellyn.

Northern Illinois Gas Company —or NI-Gas—had its early beginnings in many small communities in the northern part of the state, where gas companies were formed primarily to serve just one town. These companies then extended service to other nearby communities and merged with neighboring utilities. Eventually, one large company remained, providing both gas and electric service in most of northern Illinois outside Chicago, and electric service in Chicago.

The final stage of NI-Gas evolvement came in early 1954, when the combination company's gas properties were formed into a completely independent investor-owned company. Thus, NI-Gas was born. Not long afterward, when NI-Gas celebrated its first year of independent operation, it also celebrated the 100th anniversary of one of its properties.

A PROFILE OF GROWTH

In just seven years of independent operation, NI-Gas has grown to provide service predominently outside Chicago in 309 communities in 21 counties, including suburban Cook County—a 10,000 square mile territory. In 1954, the maximum-day send-out was 312 million cubic feet. The comparable figure for the 1960-61 heating season was 886 million cubic feet.

In seven years, the value of NI-Gas' physical plant has doubled. In 1954, there were 6,800 miles of mains. This figure now totals 10,-500 miles. The saturation of space heating customers has climbed from 36 per cent to 64 per cent.

The firm has about 3,700 employees. NI-Gas is currently adding about 3,000 new customers each month. On July 1 of this year, there were 734,000 customers. Nearly 40,000 customers were added in the past 12 months.

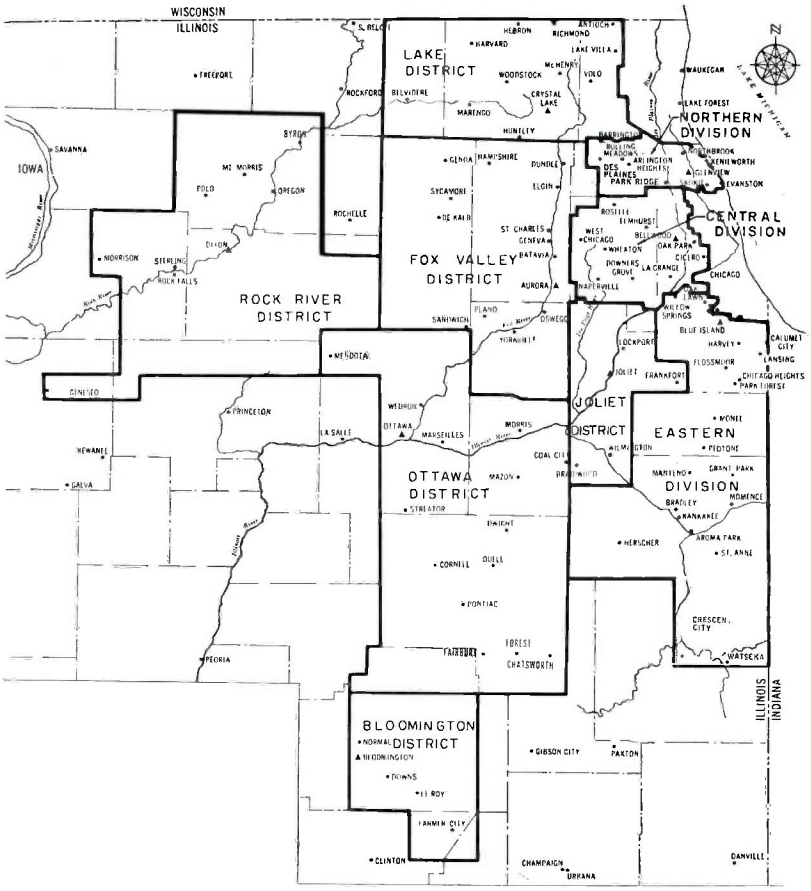
NI-Gas has 109,000 stockholders —including 1,300 of its employees. Earnings per share have almost doubled since 1955.

How can growth like this be explained? Certainly there is an energy inherent in any new business. There is an easily-explained "sudden start." In most cases, however, there is also a "leveling-off" which lasts quite awhile.

In the case of NI-Gas, there was an inherent energy. If the firm has thus far avoided a lengthy "level" plateau, it is because management is fully aware of the dangers of rapid growth without direction. This awareness has allowed NI-Gas to pace itself toward success, although NI-Gas would be the first to extol the geographical advantages of its fast-growing northern Illinois area.

DIRECTION IS THE KEY

There are many important factors contributing to this image of *DIRECTION* which NI-Gas enjoys in the gas industry. A basic physical principal decrees that forward motion must be the result of an activated power source. *DIRECTION* requires leadership. Marvin Chandler entered the NI-Gas picture in



1954 and assumed the role of "power source."

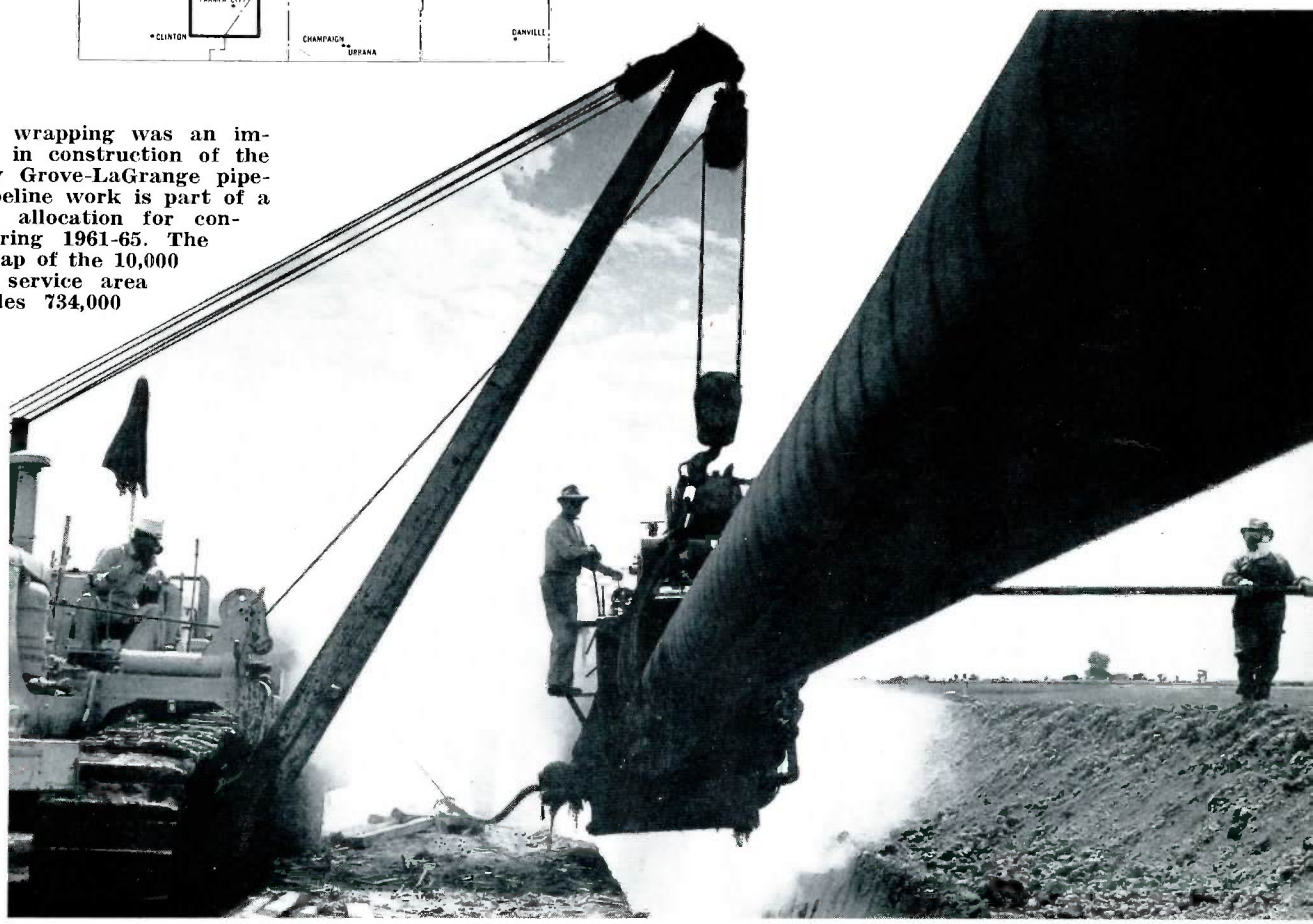
A man of boundless energy, Chandler came to NI-Gas as president from a position as vice-president of Reis & Chandler, Inc., financial consultants and investment advisors specializing in public utilities.

Marvin Chandler is communications minded, both internally and externally. Two-way communications are practiced throughout the organization. He enthusiastically tells NI-Gas' story at every opportunity.

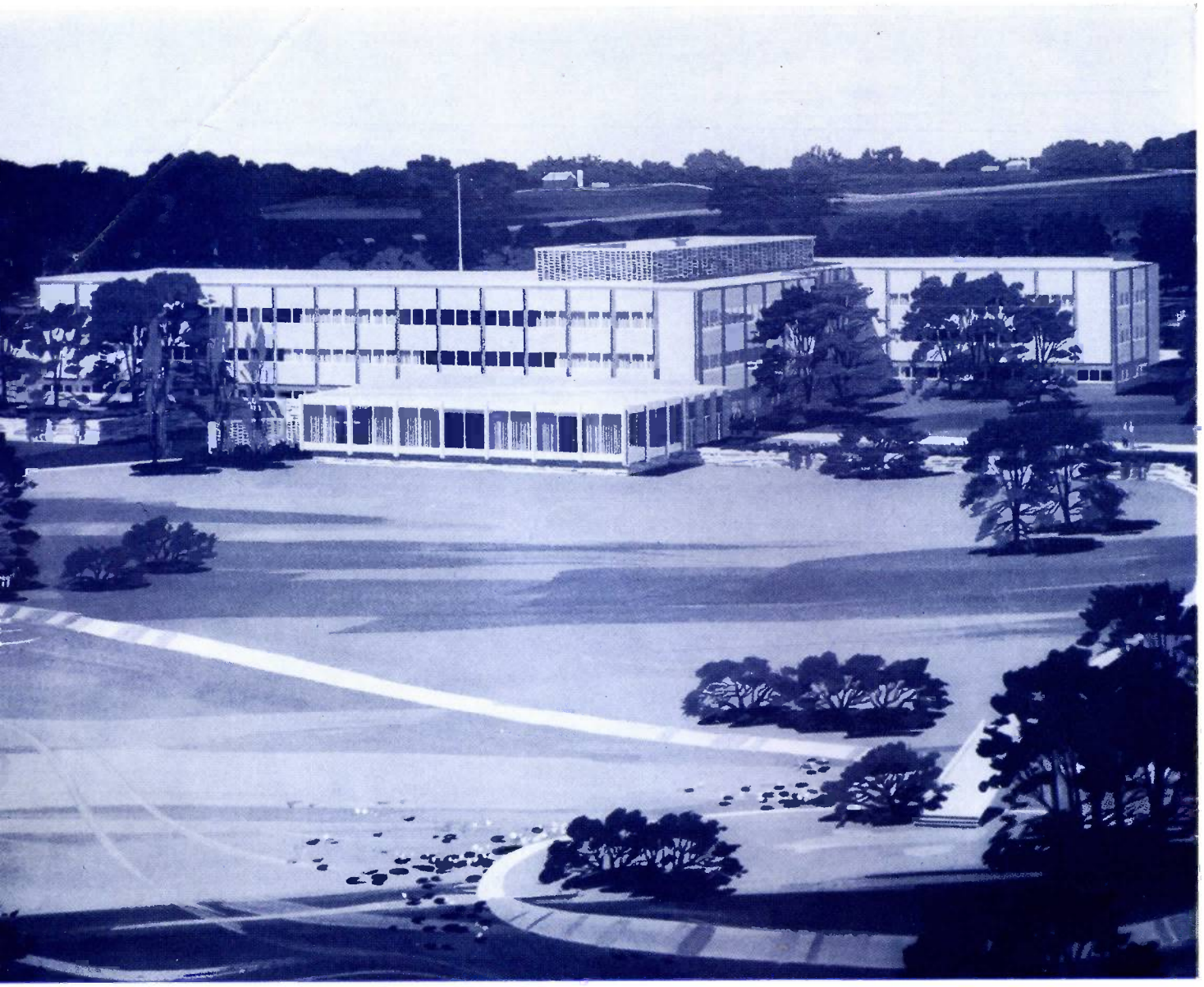
Marvin Chandler is a man of planned action, and he imparts this desirable element of management thinking to his staff.

NI-GAS HAS A "GO" PLAN

This planned action was exemplified in the late 1958 appointment of William E. Preston as director of planning (now vice-president in charge of personnel, planning and research) to analyze NI-Gas operations and methods and make recommendations for meeting present and



Coating and wrapping was an important step in construction of the 75-mile Troy Grove-LaGrange pipeline. The pipeline work is part of a $215 million allocation for construction during 1961-65. The above is a map of the 10,000 square mile service area which includes 734,000 customers.



An architect's sketch shows the new tri-level General Office building that is now under construction on a 112-acre site east of Aurora. About 125,000 square feet of space are needed in the office which will house about 700 of the company's 3,700 employees. It is expected to be ready for occupancy in 1963.

long-range growth problems. The results of this action became the "Growth Opportunity" or GO Plan —the company's plan for the five-year period from 1961 through 1965.

Considerable research indicated that Divisions composed of about 230,000 customers and Customer Service Areas consisting of about 115,000 customers would permit NI-Gas to operate at maximum effectiveness and efficiency. This indicated a need for (a) changes in Division boundaries, (b) construction of new buildings, (c) changes in Division organization structure, (d) redistribution of the work, and (e) acceleration of the management development program.

The GO Plan is much too detailed to more than outline in these pages, except to state that it is proceeding successfully in this, its first full year of existence. It is a five-year program which will permit NI-Gas to expand naturally and intelligently, strengthen its competitive position, permit it to operate on a sound and profitable basis and, at the same time, provide tremendous opportunities for employees to grow with this progressive firm.

NEW FACILITIES

Two major facility construction projects—in addition to pipeline and service line construction—highlight 1961. NI-Gas has allocated $215 million for construction during the 1961-65 period, with a $42 million expenditure estimated for this year.

DIRECTION!

In late 1960, the firm announced plans for construction of a new tri-level General Office building east of Aurora, Ill. Construction began recently on a 112-acre site, and completion is scheduled for 1963. Studies showed that 125,000 square feet of space are needed if the new building is to house most General Office function.

In commenting on the proposed facility, President Chandler said, "The Company's rapid growth has resulted in serious overcrowding of its present quarters, now divided at separate locations . . . . Having all our General Office departments under one roof . . . should greatly increase the overall effectiveness of our operations."

Another major construction project began this summer when ground was broken for a new Division headquarters building (in Glen Ellyn) to serve the area west of Chicago where population has doubled in the past decade. Another new service center will be constructed as a phase of the "GO" plan, too.

INNOVATIONS

Installation of an electronic data processing system for gas dispatchers began in 1960, and is presently undergoing "shakedown" tests.

In December, 1960, the company announced that an elaborate EDP system is to be installed in the new General Office building when it is completed in 1963. William F. Hayes, NI-Gas Assistant Controller, remarked that, after an average day's customer transactions had been converted to magnetic tape, EDP could: (a) reduce sorting of cash receipt stubs from 2¼ hours to six minutes; (b) reduce calculation of bills from 3½ hours to 15 minutes; and (c) reduce printing of bills from 12½ hours to two hours. The EDP equipment, as planned for the new building, can also be used for such additional duties as load studies, stockholder file data, marketing and economic research, and engineering problems.

Harold J. Roth, Manager of Area Industrial Development, looks over blueprints at a construction site.

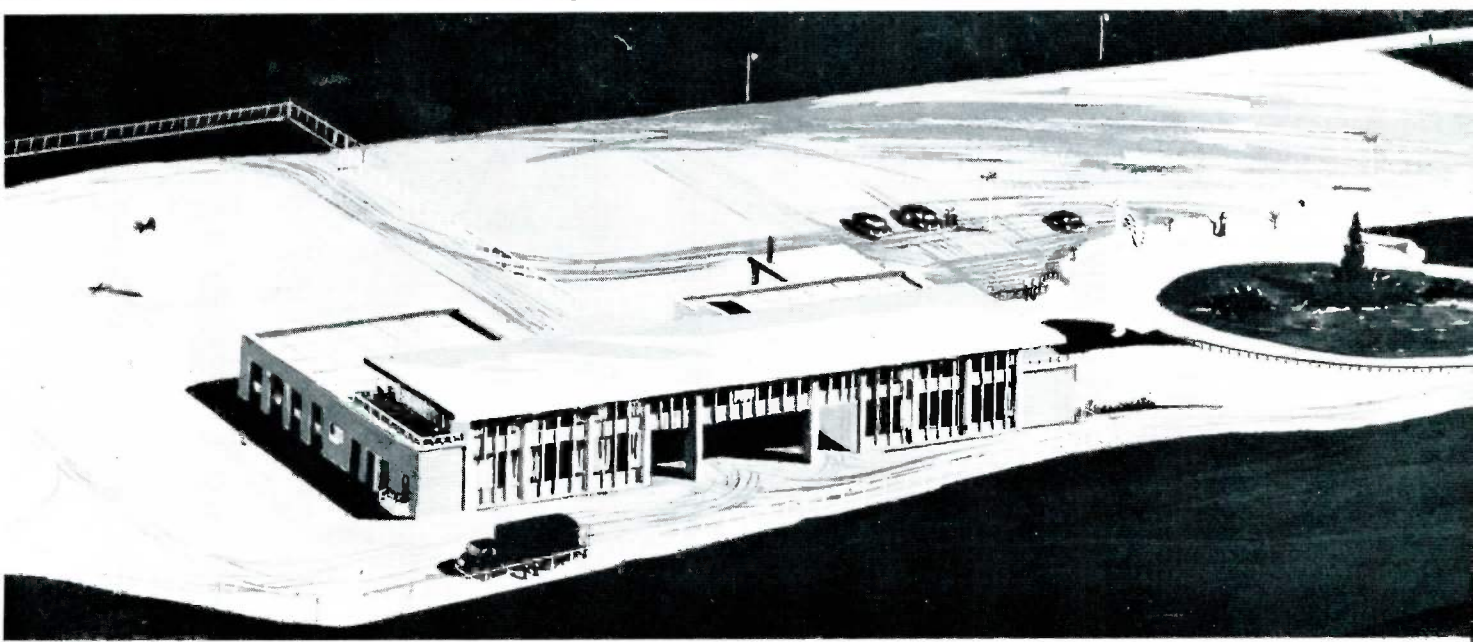
A new headquarters serving the area south of Chicago enjoys the nighttime protection of closed circuit television. The television monitors are in the office of the work dispatcher, who is able to keep tabs on what is going on outside the buildings at all times.

Another innovation at NI-Gas is the use of closed-circuit television inspection of main joints, as well as a better method of internal joint coating of mains.

POSITIVE INVESTOR RELATIONS

NI-Gas has a positive investor relations program. An increasingly important topic these days is the government-owned versus investor-owned company controversy. Nor-

The new West-Central Division Headquarters will look like this when it is completed next year. Work began in July of this year on the headquarters which will serve customers in DuPage and Kane Counties.



thern Illinois Gas Company feels it must share the meaningful task of convincing the public that, as an investor-owned corporation, it holds an important stake in the future of our country, that it contributes to the continuing growth of the communities it serves, and that ownership of the company by approximately 109,000 stockholders dispels the left-wing tirade which attempts to cast a monopoly symbol to our status.

The foundation of the NI-Gas program has been based on a personalized stockholder relations program. This includes down-to-earth quarterly reports to stockholders; annual reports phrased in conversational language seasoned well with good news photos; special letters to all stockholders when news of importance warrants such action; prompt, courteous, personal answers to stockholder's letters; and an interesting and hence well-attended (over 1,000) annual meeting.

Another important approach has been increased and continuing activity of company officers and key personnel in presenting factual data about the company to financial analyst groups and other investor organizations throughout the world. Since January, 1960, key personnel, have appeared before 85 such groups in 28 different cities. A recent trip to the continent by President Chandler enhanced investor relations in Europe.

Employees of NI-Gas enjoy the benefits of a stock purchase plan,

Results of NI-Gas' positive investor relations program are shown (left) by the record breaking attendance at a shareholders meeting. Below, President Chandler, third from left, is being introduced during a recent trip to Europe where he enhanced investor relations in Chicago. At the right, President Chandler addresses the Chicago Council of National Association of Investment Clubs from the floor of the Midwest Stock Exchange.

and have made excellent communicators of the favorable stock advantages of their employer.

"Communication" again seems to be a key word to describe NI-Gas' success in its positive investor relations program.

RESEARCH

It is perhaps in this area that NI-Gas has gained most national attention as a youthful, progressive firm. NI-Gas participates fully with the American Gas Association and the Institute of Gas Technology, but also conducts many research projects of its own.

Spending several thousand dollars just to attract attention to a long-known scientific principle is seldom done by an investor-owned utility. Yet, NI-Gas claims this to be one reason for its purchase in late 1960 of a 100-watt thermoelectric generator, from Westinghouse.

The custom-built unit utilizes the principle that heat applied to certain dissimilar metals will produce direct current electricity. NI-Gas' device converts the heat of a gas flame directly into electricity. There are no moving parts. In explaining the firm's reasons for this venture, Research Director Dr. Spencer R. Millikin stated that commercial applications, as opposed to military uses, have been overlooked because of the device's low efficiency and poor economics. That is, efforts have been directed toward improving efficiency rather than developing applications of present technology. "But for at least one use, it already has enough," Milliken declares. "We already have sufficient heat inside a gas furnace to operate the blower and controls of the furnace." NI-Gas is currently participating in research on the above use, as well as the use of thermoelectrics for cathodic protection.

Other current research projects at NI-Gas include:

Daily reading of an industrial meter, using telephone facilities to transmit the reading automatically.

Studying the application of ultrasonics to the cleaning of machine parts.

Attempts to develop the use of ultrasonic equipment for breaking ceramics and other refractory materials.

Experiments with internal main sealants.

Participation with A.G.A. in experiments with fuel cells and coal and oil shale gasification.

Research on air conditioning equipment.

Research on new lubricants and lubrication scheduling.

Patricipation with Institute of Gas Technology on gas sendout as it is affected by snow cover, wind and other weather conditions.

Currently, the most notable research project of NI-Gas, and one which has gained national attention, is the use of a gas turbine. NI-Gas will use gas turbines in the new West-Central Division headquarters and the new General Office building to supply all their electric requirements. The turbines will drive high frequency electric generators, and exhaust from the turbines will be used to make steam for the heating and cooling needs of the two new facilities.

(Continued on Page 12)


AL 4998

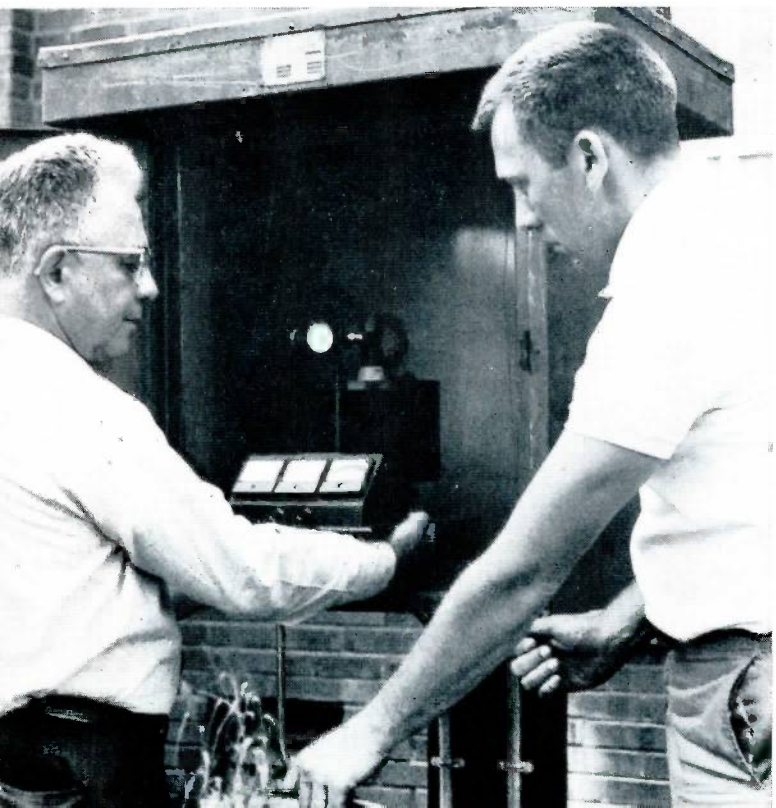
Research Director Spencer Milliken and Westinghouse's D. W. Gunther (left) examine a 100-watt thermoelectric generator. The custom-built unit converts the heat of gas flame directly into electricity. Another area of research of NI-Gas is the field testing of a sensing device for locating underground service lines. Experiments conducted with Illinois Bell Telephone Co. led to development of a system for reading industrial gas meters by telephone (right). To make a reading just dial the number and press a button.

DIRECTION!

Dispatcher's console showing (left to right): Strip printer for print out of alarm settings, abnormal readings and any pressure trend readings called for by Dispatcher, (2) control console with display of pressure and flow readings and (3) automatic data logging typewriter.

High-frequency lighting is not new. Neither is the principle of the waste-heat system. But NI-Gas, by putting the several components together to provide lighting, power, heating and cooling for its new buildings, has come up with a project of tremendous interest throughout the country.

Company officials are quick to point out that the use of this turbine principle is experimental at this stage, but also state that if the experiment proves satisfactory, the principle could open up a promising new gas market.



Adjustments are being made on a 10-watt thermoelectric generator where it has been used about a year for the protection of gas mains against corrosion.

IN SUMMARY

It should be apparent by now that Northern Illinois Gas Company indeed has DIRECTION. Two other factors contribute to the overall favorable picture: a favorable regulatory climate, and an adequate supply of gas to meet demands in the future. During the 1961-62 heating season, NI-Gas will have available 1.2 billion cubic feet of gas from all sources to supply its service area.

The future for NI-Gas is bright. It is not so merely because the American gas industry growth pattern is established. It is so because NI-Gas is enjoying planned forward motion, generated by an intense effort of all its employees. NI-Gas does indeed present—AN IMAGE OF **DIRECTION.**

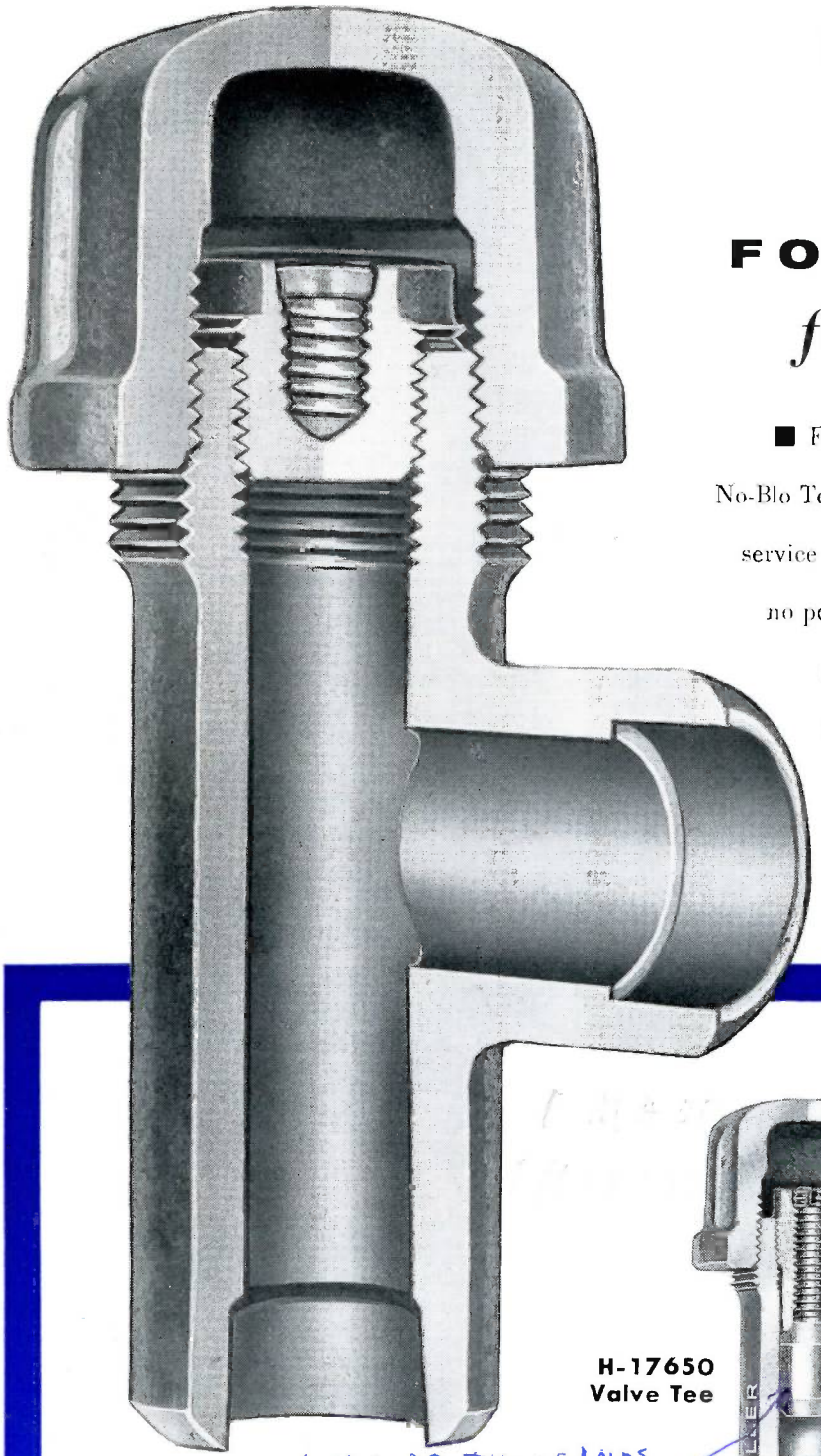
MUELLER®

NO-BLO®

FORGED TEES

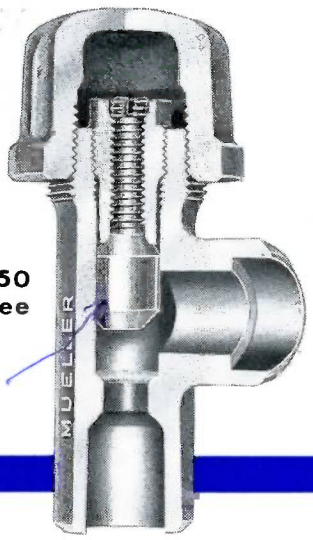
for solid safety!

■ For dependability and safety Mueller forged No-Blo Tees are your solid answer for main to service connections. One piece construction — no possibility of pin holes or imperfections to allow leakage. Precise machining and time tested design insure ease and certainty of operation.

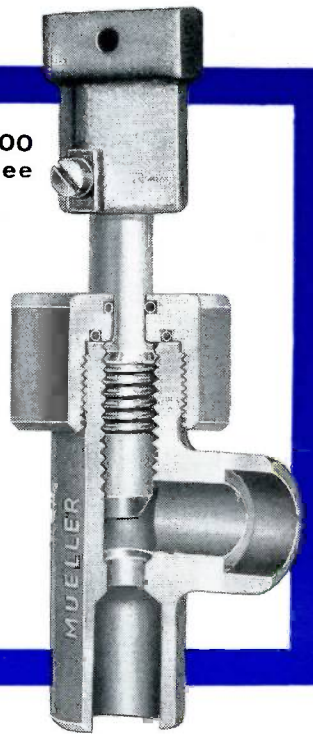


H-17500 Service Tee

I MADE THOUSANDS OF THESE



H-17650
Valve Tee



H-17800
Curb Valve Tee

Over a century of experience in research, design, engineering and manufacturing insures the attention to detail that is so important in the development of safe control devices for the Gas industry.

GEM Sponsor

MUELLER CO. Since 1857 SERVING the Water and Gas Industries QUALITY

MUELLER CO.

DECATUR, ILL.

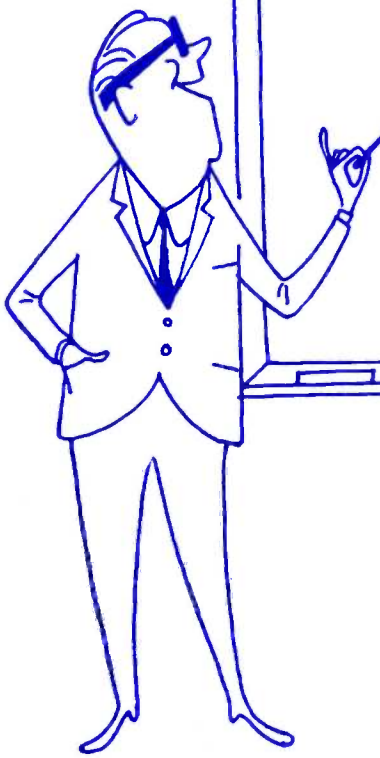
Factories at: Decatur, Chattanooga, Los Angeles;
In Canada: Mueller, Limited, Sarnia, Ontario.

3983

A. G. A. Convention Opens in Dallas

•

E. H. Smoker Nominated For President



Maj. Gen. John B. Medaris (U.S.A.-Ret.), former commanding general of the U. S. Army Ordnance Missile Command, will address the 43rd annual convention of the American Gas Association Oct. 1 to 4 in Dallas, Tex.

General Medaris, who is now president of the Lionel Corp., will speak at a morning general session Oct. 3 in the Statler Hilton Hotel.

Lester T. Potter, president of the A.G.A. and of Lone Star Gas Co., Dallas, will be honored for his service at the opening session of the convention Oct. 2. He will speak on "The Spirit of an Industry."

"Greater Goals for Gas" will be the theme for the convention which will begin with a display of gas air conditioning developments at the Dallas Trade Mart. A preview of Parents' magazine's Blue Star "Advance House" at the Texas State Fair Grounds will be a feature of the afternoon activities.

Delegates to the convention will be able to view the eight new gas kitchens and laundries which will be on display at the fair grounds.

The President's Reception Oct. 1, will be held in the Sheraton-Dallas whose entire mezzanine floor will be turned into a Western town for the Texas-size party.

The final luncheon on Oct. 4, will provide the climax of the convention. A colorful production with a cast of 45 will depict the past and future of the gas industry. Master of Ceremonies of this musical show will be C. S. Stackpole, managing director of A.G.A.

E. H. Smoker, president of The United Gas Improvement Co., Philadelphia, has been nominated for president of the American Gas Association.

Elections will be held Oct. 4 at A.G.A.'s 43rd annual convention in Dallas, Texas, it was announced by W. E. Mueller, president of the Colorado Interstate Gas Co., Colorado Springs, Colo., who is chairman of the General Nominating Committee.

Mr. Smoker is currently first vice president of the gas industry's national trade association. He is among 31 executives from gas utilities, including pipeline companies, and manufacturer companies nominated to serve as officers, directors and section chairmen in 1962.

Others nominated as officers are: first vice president, John E. Heyke, president of the Brooklyn Union Gas Co.; second vice president, Marvin Chandler, president of the Northern Illinois Gas Co., Aurora, Ill.; renominated as treasurer, Charles H. Mann, treasurer of The Columbia Gas System, Inc., New York.

Nominated to the Board of Directors for two year terms ending in October, 1963, are: D. S. Bittinger, president of Washington Gas Light Co., Washington, D. C.; H. A. Eddins, president of Oklahoma Natural Gas Co., Tulsa, Okla.; Walter T. Lucking, president of Arizona Public Service Co., Phoenix, Ariz,; R. A. Puryear, president of Alabama Gas Corp., Birmingham, Ala.; J. F. Ray, vice president of General Controls Co., Glendale, Calif., R. J. Rutherford, president of Worcester Gas Light Co., Worcester, Mass., Judson S. Sayre, chairman of the board, Norge Sales Corp., Chicago, and S. L. Sibley, vice president and general manager, Pacific Gas and Electric Co., San Francisco.

Seven members of the Board were renominated to serve two-year terms. They are: Buell G. Duncan, president of the Piedmont Natural Gas Co., Charlotte, N. C.; Oakah L. Jones, president of the Consumers' Gas Co., Toronto, Ontario, Canada; Ralph T. McElvenny, president of Michigan Consolidated Gas Co., Detroit; Gerald T. Mullin, president of Minneapolis Gas Co.; S. Lloyd Nemeyer, president of Milwaukee Gas Light Co.; John W. Partridge, president of The Columbia Gas System, Inc., New York; and John H. Wimberly, president of Houston Natural Gas Corp., Houston, Texas.

Lester T. Potter, president of the Lone Star Gas Co., Dallas, automatically begins a one-year term as a member of the Board upon expiration of his current term as A.G.A. president in October.

Houston, Texas

Gas Heats, Cools Bank From 400 Feet Above Street

The First City National Bank of Houston, Tex., has a gas air conditioning system as contemporary as the new building itself.

The 3,600-ton capacity gas system which heats and cools, was chosen for its quiet operation as well as economy and efficiency.

An unusual feature of the building is that the gas cooling and heating plant is located on the top two floors of the 32-story marble and glass office tower. The building's planners took into consideration the great demand for underground floor space for other purposes so that they put the plant 400 feet above the street.

Steam turbines drive the air conditioning equipment's compressors and steam from these three gas operated boilers provides heating for the building as well as for the turbines.

In order to hoist all of the various equipment to the top of the 410 - foot building, a boom was specially fabricated out of selected piping. When the boom was later dismantled, much of the piping was used as part of the gas air conditioning system.

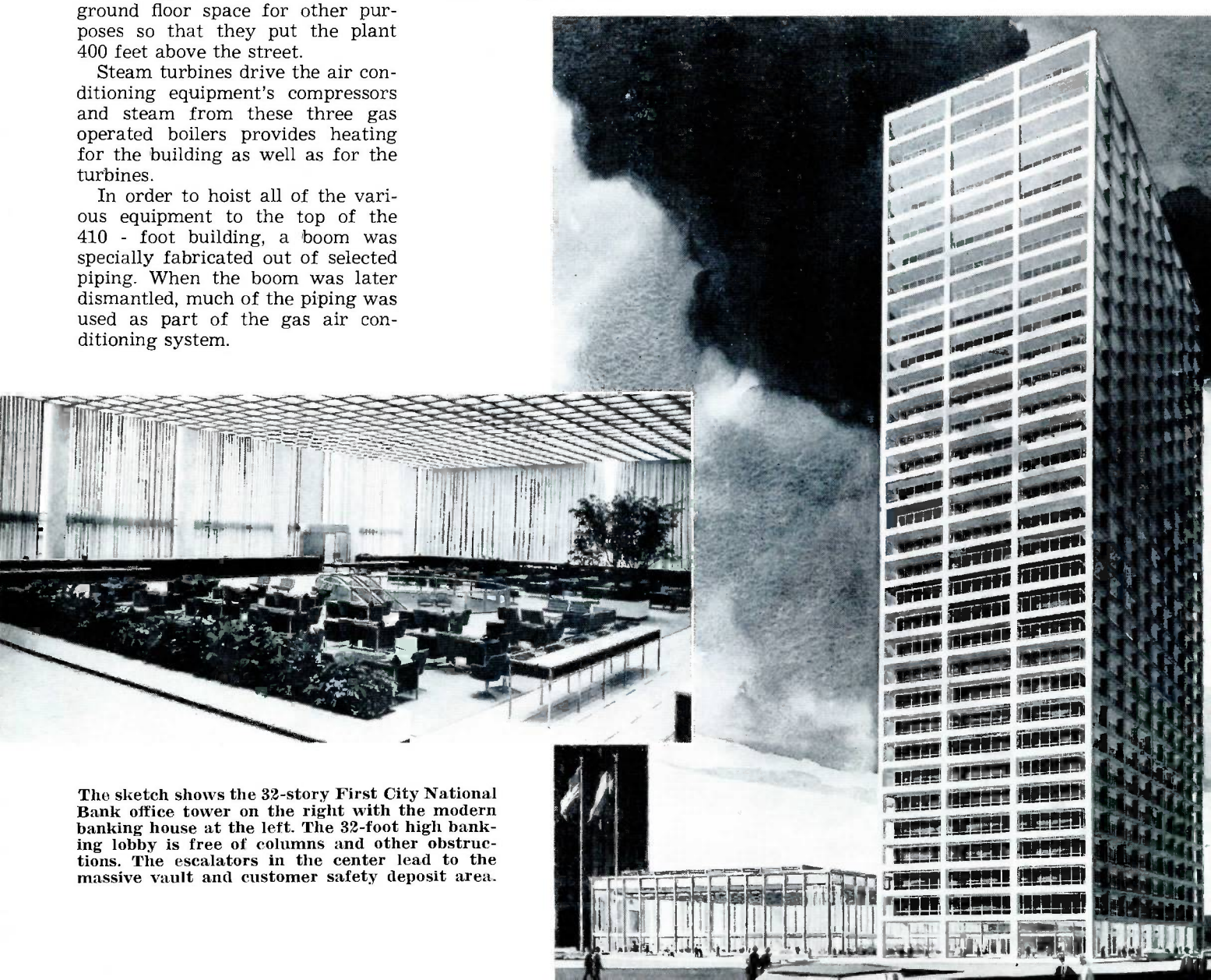
The most dramatic phase of the hoisting operation came when the three boilers, two of them weighing 75,000 pounds each and one weighing 53,000 pounds were lifted to the top of the building and lowered through an opening left in the roof to their permanent location on the 31st floor.

Each office space has individual thermostats which automatically assure the most desirable temperature and humidity by controlling the flow of chilled water or hot water through the coils.

Other equipment in the gas air-conditioning system includes three centrifugal compressors driven by three 1,200 horsepower steam turbines. Each turbine has a nominal rating of 1,200 tons of refrigeration per hour.

According to one of the mechanical engineers on the project, the ease of bringing natural gas to the boilers at the top of the building was another favorable factor in the design.

United Gas Corporation of Houston supplies the building with fuel.



The sketch shows the 32-story First City National Bank office tower on the right with the modern banking house at the left. The 32-foot high banking lobby is free of columns and other obstructions. The escalators in the center lead to the massive vault and customer safety deposit area.

Blue Flame Whispers

Russians Tell U. S. Visitors of Gas Plans

The Soviet Union hopes to increase production of gas to provide 17.5 per cent of its fuel needs in 1965, according to a group of U. S. gas industry experts just back from Russia.

In 1960 gas provided 10.3 per cent of the total fuel needs of the Soviet Union. By comparison, last year 32.8 per cent of U. S. fuel needs were supplied by natural gas and natural gas liquids, the American Gas Association estimated.

E. H. Smoker, chairman of the U. S. delegation and president of The United Gas Improvement Company, Philadelphia, said that gas is an "infant industry in U.S.S.R. "Lots of progress has been made and they have much potential," he said.

Fred W. Batten, chairman of the A.G.A.'s General Research Planning Committee and one of the eight U.S. experts who made the trip, said, "They have come a long way in a short time." Mr. Batten, senior vice president and chief operations officer of the Columbia Gas System Inc., New York, added that the U.S.S.R. has been developing its gas industry about 15 years.

The Americans were the first gas men to visit the Soviet Union under a 1959 agreement between the two countries providing for scientific and cultural exchanges. The tour was sponsored by A.G.A. in cooperation with the U. S. State Department.

A group of 10 Russian gas experts was scheduled to arrive in the United States Sept. 3 but the trip has been postponed and tentatively set for Nov. 12.

The Soviet's projected figures for 1965 are approximately equal to annual production in the U. S. about 10 years ago, according to Samuel J. Cunningham, A.G.A. senior research engineer, who was also a member of the delegation.

The Americans were told that at present 11 per cent of gas produced is used for residential purposes and 89 per cent for industry. Soviet spokesmen said that this ratio will change to five per cent for domestic and 95 per cent for industry in 1965.

A little more than half of U. S. gas is used by industry, while one-third goes to residential customers and the remainder to commercial and other consumers.

The other five members of the U. S. delegation were: William R. Connole, Washington attorney and former Federal Power Commissioner; Henry A. Eddins, president, Oklahoma Natural Gas Co., Tulsa; Baxter D. Goodrich, senior vice president, Texas Eastern Transmission Corp., Shreveport, La.; Robert B. Stewart, vice president, Natural Gas Department, Phillips Petroleum Co., Bartlesville, Okla.; and Paul W. Kraemer, vice president, Minneapolis Gas Company.

Underground Storage Sets New Record

The vast underground storage areas across the United States, which hold natural gas in reserve for peak winter months, have increased in capacity to a record 2.9 trillion cubic feet, the A.G.A. announced today.

These underground banks in 20 states compare with the 1958 storage capacity of 2.7 trillion cubic feet and 2.5 at the end of 1959.

Preview of Gas Home for 1971

What will a new home be like 10 years from now?

Living rooms won't be stuffy because the walls will be "live," kitchens will vanish from sight, bathroom mirrors will never fog and all power will come from gas.

Such a house was described recently by Chester S. Stackpole, managing director of the A.G.A.

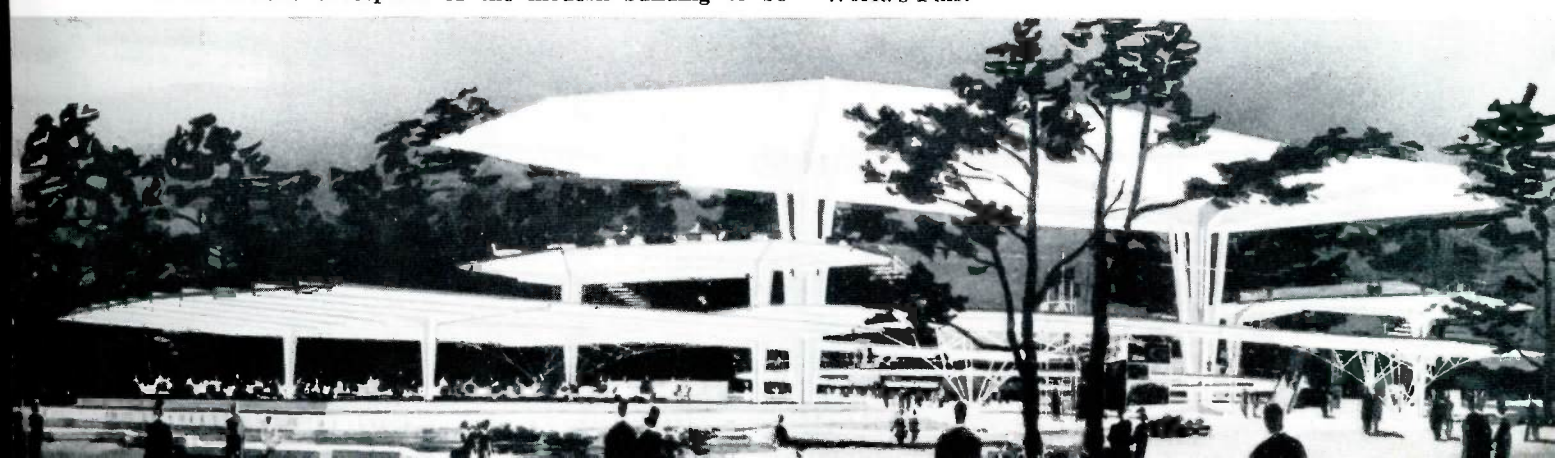
Outside the house the patio and swimming pool will be used nearly the year around with gas water heaters, wind deflectors and infrared heaters.

He said even the electricity needed in the house may well be produced directly from a gas fuel cell. The basic house described would not be a high-priced one, but an average American home of 1971, he said.

Mr. Stackpole said the walls of the house would be "live," with air openings that eliminate smoke and unwanted air, while admitting clean, fresh air. Heating will incorporate air circulation and humidity control.

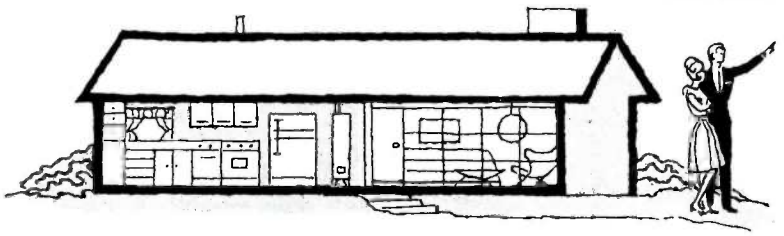
The house will be cooled through the same control openings.

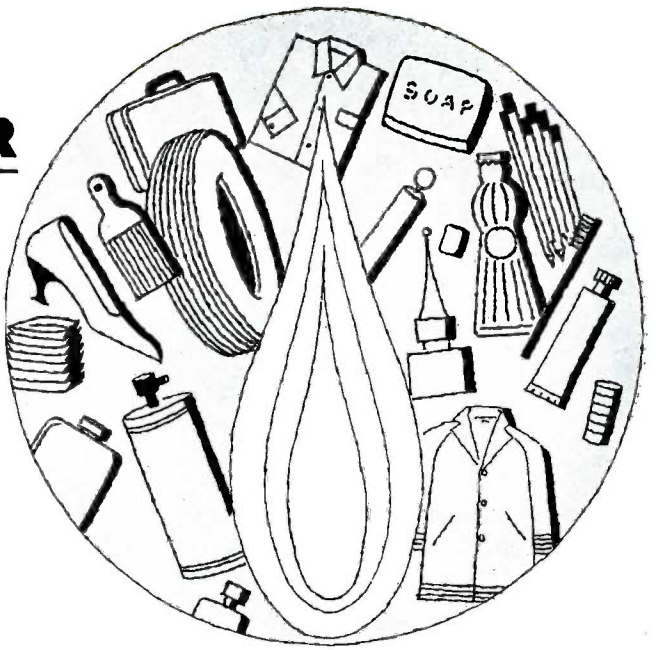
This pure white structure which appears to have no walls is an artist's conception of the modern building to be erected by the gas industry at the New York 1964-65 World's Fair.



"THIS IS YOUR INDUSTRY" SERIES

ANOTHER WORLD OF GAS





You're probably wearing natural gas!

Chances are you also walk on it, eat with it, wash with it, brush your teeth with it—and even drink it.

Plastics of many kinds, detergents, potent insecticides, synthetic fibres, specialized chemicals used by industry in hundreds of ways, the fizz in a bottle of soda, all can be made from natural gas through an important science—petrochemistry.

This science is just what the name implies—the making of chemicals from hydrocarbons found in petroleum and natural gas.

The process by which these hydrocarbons are changed into clothing or plastic dishes is somewhat like cracking an egg and separating the yolk from the white. When you do this in the kitchen, the yolk can be used for one recipe and the white for another.

The chemist does the same thing. He separates gas into its various parts. Then he uses the parts to make new products.

By following one "recipe" he makes material for raincoats. Using a slight variation, he makes synthetic rubber. To be more specific, he may combine carbon with oxygen to make the fizz in a bottle of soda pop. Or he may blend hydrogen and nitrogen to make ammonia.

The chemist uses rather elaborate apparatus to help him in his work. His "kitchen" may be spread over several acres. It will include huge cracking plants. Instead of a blender he uses catalysts, electricity, pressure or high temperature to work his transformations.

Natural gas, as it emerges from the well, is made up of many choice "eggs" including methane, ethane, propane and butane. All of these are quite cooperative. They allow atoms and molecules to be rearranged and recombined easily—almost eagerly, in fact—into an amazing variety of new materials.

Since all the hydrocarbons are not necessary to maintain the heating value or other properties of natural gas used in the home, they are sometimes "stripped" off before the gas is sent through the pipeline. Thus, petrochemical products are often an extra dividend of natural gas.

According to recent reports, petrochemicals at present account for approximately 25 percent of all chemicals produced. Scientists predict that in ten years the figure will rise to 50 percent.

Even so, the overwhelming volume of gas still is used as fuel.

The reason for this can be shown with simple arithmetic.

Using one million cubic feet of gas as raw material, the chemist can produce:

20 tons of ammonia—enough to fertilize 500 acres of rice.

80 tons of nitric acid—this will produce some 200,000 pounds of dynamite.

200 tons of carbon tetrachloride—enough "carbon tet" to fill 120,000 fire extinguishers.

7,500 gallons of ethyl-alcohol—enough to make approximately 90,000 fifths of gin.

16,000 pounds of synthetic cloth—sufficient material to make 3,000 suits.

The list of wonderful and useful substances is virtually endless.

Petrochemists estimate that with present knowledge, at least 500,000 chemical compounds can be made from petroleum hydrocarbons. In a few years, they predict they will be able to produce not less than a million different compounds.

The possible uses for all of these chemicals presents an almost infinite vista conjured up from invisible natural gas through the science of petrochemistry.

Strictly

Off the Record

A newspaper was running a competition to discover the most high-principled, sober, well-behaved local citizen. Among the entries came one which read:

"I don't smoke, touch intoxicants, or gamble. I am faithful to my wife and never look at another woman. I am hard - working, quiet, and obedient. I never go to the movies or the theater, and I go to bed early every night and rise with the dawn. I attend chapel regularly every Sunday without fail.

"I've been like this for the past three years. But just wait until next spring, when they let me out of here!"

* * *

A wife pointed to her husband stretched out in the hammock and explained to her friend: "Fred's hobby is letting birds watch him."

* * *

Returning home from a convention recently, a suburbanite parked his car and went indoors to kiss his wife. Then he went back for his luggage. As he was about to re-enter the house, he heard an urgent "P-s-s-s-s-t!" He looked around to find a stranger delivering handbills. "Hey, buddy," said the stranger, "better wipe that lipstick off your cheek before you go in."

* * *

A character actor confided to a pal, "I'm almost 65 years old, have saved half a million and have fallen madly in love with a dashing young blonde of 19. Do you think I'd have a better chance of marrying her if I told her I'm only 50?"

"I think you'd have a better chance to land her," said the pal frankly, "if you told her you're 80!"

* * *

Today's pitiful case is the fellow who wants to live in the country. He's moved out of town three times —and each time the city overtook him.

"Bring me a steak," ordered the tourist who had stopped in a small-town restaurant.

"Do you want the $2 steak?" the waitress asked. "Or the one that costs $2.50?"

"What's the difference?" the tourist asked.

"No difference," she explained. With the $2.50 steak you get a sharper knife."

The manager of the restaurant called his waitresses together.

"Girls," he began, "I want you all to look your best today. I want you to greet every customer with a smile. I want you to put on a little extra-make-up and see to it that your hair is in place."

"What's up?" asked one waitress. "A bunch of big shots coming in today?"

"No," explained the manager to the girls. "The beef's tough."

* * *

A Texas rancher shot a man dead and telephoned a Houston lawyer offering a $5,000 fee to represent him.

"Leaving for your town immediately," came the reply, "and bringing three eye-witnesses."

I'd suggest that you take up bowling and leave deer hunting alone for a while.

While the young suitor was waiting for JUDY to finish getting ready, DENNY sidled into the room. "Did you know my sister has three other boy friends?" asked DENNY. "Really?" asked the young man in surprise. "I have never seen any of them." "Neither have I," replied DENNY, "but she gave me fifty cents to tell you."

Little JEFF approached his father who was standing by the edge of a cliff admiring the scenery. "Mommie says it isn't safe here, Daddy," he said, "and you're either to come away or else give me that picnic basket!"

HELEN: "I'm sorry to phone you at work dear, but you have a special delivery letter which just arrived marked Private and Personal."

CAESAR: "O.K., so what does it say?"

Trying to rest after an exceedingly rough day, JAKE was being subjected to an endless stream of unanswered questions from his son. "What do you do down at the shop?" queried the youngster. "Nothing," shouted JAKE. It looked like the boy had been stopped for a while . . . but not for long. After a thoughtful pause, the boy asked: "But, pop, how do you know when you're through?"

ROD: "Daddy must have been in all sorts of trouble when he was a little boy."

SKIP: "Why do you say that?"

ROD: "Well, he always knows exactly what questions to ask when he wants to find out what I've been doing."

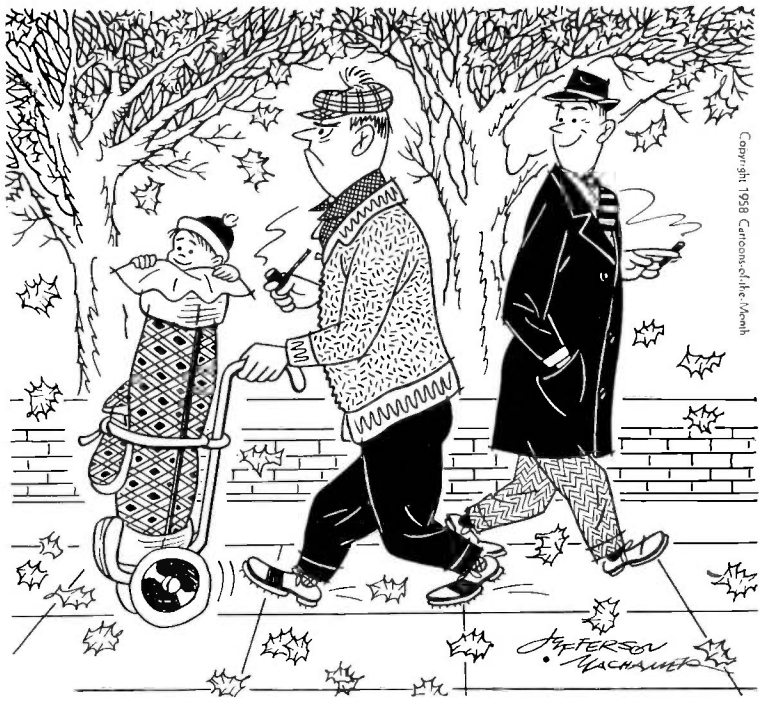
An absent minded professor was recently awakened by the phone at 2:00 A.M.

"Is this double-one double-one?" asked the caller.

"No," answered the professor, "This is eleven-eleven."

"Oh, I beg your pardon," said the caller. "Wrong number. Sorry I disturbed you."

"That's all right," rejoined the professor. "I had to get up to answer the phone anyway."

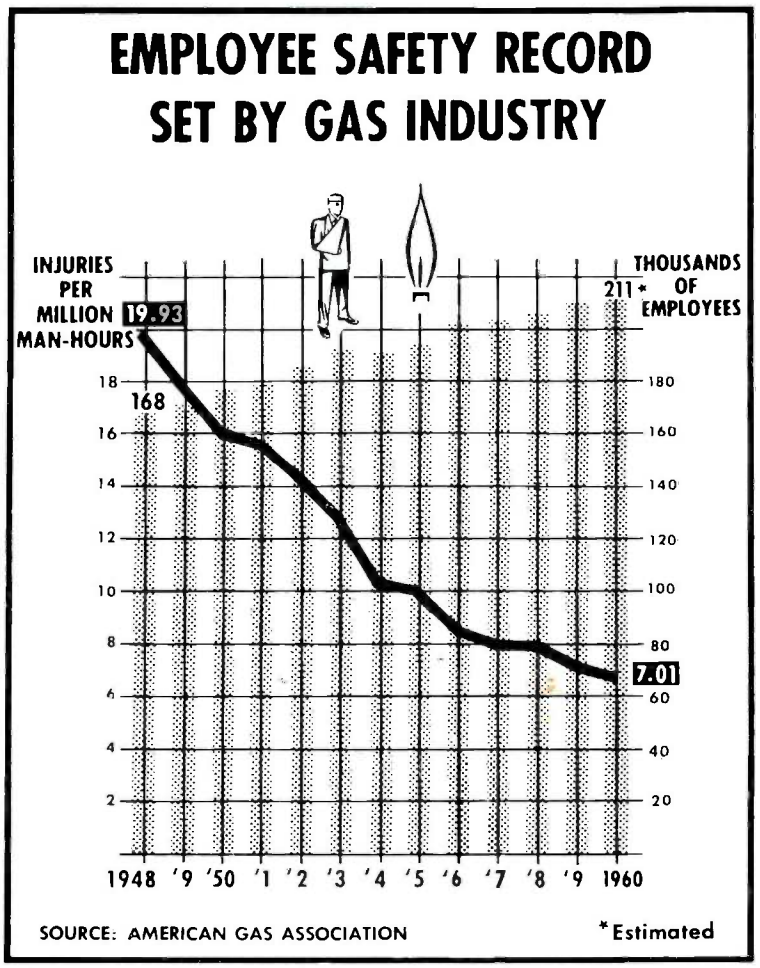


A man came home from work and boasted to his wife, "I've just been made vice president of our firm." Annoyed at his lack of humility, she snorted. "So what? Vice presidents are a dime a dozen. The supermarket where I shop has so many vice presidents it even has one in charge of prunes."

The remark bothered him and in order to verify it, he later called the market and asked for the vice president in charge of prunes. The voice at the other end inquired politely, "Packaged or Bulk?"

"You sure have a way of taking the fun out of running away from home!"

ALBERT SPITZER
22 EMMERSON DRIVE R.R. 2
DECATUR, ILL. RO



While gas utility and pipeline industry employment has increased nearly 26 percent since 1948, the industry's employee safety record has been improved 65 percent. The accident frequency rate was reduced in 1960 for the 13th consecutive year, achieving an all-time low of 7.01 disabling injuries per million manhours worked.