

MUELLER
Record

NOVEMBER-DECEMBER • 1957

We wish you



a Very

Merry

Christmas

Mueller Record

NOVEMBER-DECEMBER

1957

Published by
MUELLER CO.

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Recording Our Thoughts

Well, it is nearly Christmas once again, and the messages on the front and back covers are sent to you with the sincere best wishes of Mueller Co. January 1, 1958, begins a new year—and it also begins our second century of service to you, the men of the water and natural gas industries. May your past successes be multiplied many times over.

In this issue we have briefly covered the exciting and profitable life of Mr. John Ware. You will notice mention of his proposed \$250 million reservoir to be constructed southeast of Pittsburgh, with a gravity-flow underground aqueduct to carry the water. This is a story in itself, so we plan to bring you more on this subject at a later date.

Our most sincere congratulations to Bridgeport Hydraulic Co. of Bridgeport, Connecticut, and to the Water Department of New Britain, Connecticut, upon completion of a century of progress.

We have extra copies of our big Centennial **MUELLER RECORD** available. If some of you know of others in your organization who did not receive a copy, we will be only too happy to put one in the mail. A postcard from you will start the ball rolling.

Item of interest: You will note, on the envelope, that our mailing permit is Number 1 in Decatur. A quick check with the Post Office disclosed that this first permit was granted on December 12, 1904.

We would like your help. If you have any anecdotes you are particularly fond of, send them in. We will print all acceptable stories, and acknowledge their source. Also, we would like to hear from you concerning the **RECORD**. Do you enjoy reading it each month? Do you read all of it or just certain parts? Are there any regular monthly features that you particularly like or dis-

like? Are we overlooking something you consider important in a magazine such as ours? Most important of all—do you have in suggestions on how to make the **MUELLER RECORD** more readable? Remember: this is **YOUR** magazine, and we want it to please **YOU**. May we hear from you soon?

This seems a propitious time to attempt to thank all those who make this magazine possible. Verbal orchids to: Huston-Patterson Corp. of Decatur, our printers; Kane Engraving Co. of Decatur, our engravers; Kileen Studios of Decatur, our photographers; Mueller sales representatives, whose aid is invaluable in the monthly operations of this magazine; the wonderful girls in our Stationery and Supplies Department, who see that the **RECORD** reaches you each month; and last, but far from least, **YOU**, our readers.

This writer has enjoyed immensely his trips throughout the country on story assignments, and has been enriched by his contact with many of you—and is looking forward to meeting more of you in 1958. A million thanks to everyone who has played even the most minute part in the issuance of the **MUELLER RECORD**.

We are proud to add to our ever-growing list of **RECORD** features a wonderful little guy who somehow manages to spout some pretty clever and philosophical statements. We refer, of course, to **THORNDYKE**, the subject of our new cartoon series. You can find him cavorting around on Page 5 of this issue, and he'll flit through each issue of the **RECORD** from now on. Hope you enjoy him as much as we do!

Beginning in January, the **RECORD** will come to you minus envelope. We are the proud possessors of a brand new Addressograph, which will enable us to speed the **RECORD** to you several days earlier than before. 'Course, it gives the editor a problem—what to do with two-thirds of a back page. If you have any ideas on the subject, they will be **MORE** than welcome!

MUELLER RECORD

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. . . NEXT MONTH . . .

THE MEMPHIS LIGHT, GAS & WATER DIVISION is a highly successful business venture. It had its beginning in 1903, when the City of Memphis, Tennessee, acquired the water properties. Electric distribution was included in 1935, and natural gas was added in 1939.

Next month we will report on the fantastic growth of the Gas Division. Distribution facilities of the Gas Division were increased five and one-half percent in 1956. The city has well over eight million feet of gas mains; these mains, if laid end to end, would reach from Memphis to Los Angeles.

We will concentrate our attention on Gas Operations, Gas Distribution, and Gas Engineering, and you'll meet the men who are responsible for the efficient operation of these departments of one of the most progressive utilities in the country.

WE THOUGHT YOU might like introductions to members of Mueller Co's four divisions—Engineering, Manufacturing, Sales and Financial—so, next month, we bring you a new feature—MUELLER TOPICS.

Each month you will meet a man from one of our four divisions. You will learn of his experience in the trade, and you'll see why he was chosen by Mueller Co. to serve you.

First on the list is Dan R. Gannon, Acting General Sales Manager of the Company. Many of you already know Dan, for he is certainly one of the most "traveled" men in our organization.

So, join us in January, and every month thereafter, for the inside story of the men who serve you—MUELLER TOPICS.



JOHN WARE, a mild-mannered man of 69, has earned world-wide recognition as a giant in the public utility field. In business for himself since his grammar school days in Philadelphia, he has crowded two spectacular careers into his lifetime—one in electricity, and another in water.

As a boy, Ware read of the exploits and tribulations of the fictional heroes of the Horatio Alger novels. His own life reads like a chapter from one of those famous rags-to-riches stories of yesteryear.

He went into business at the age of 14 to work his way up the ladder of success, and today is chairman of the board of Northeastern Water Co. and American Water Works Co.

In May the fictional heroes of his youth were brought to life again at the Waldrof Astoria Hotel in New York City. The date: May 9, 1957. The occasion: the eleventh annual presentation of the Horatio Alger awards by the American Schools and Colleges Association. Ware and ten other prominent business, industrial and professional leaders received bronze plaques in recognition of success in their fields through hard work, honesty and determination, despite humble beginnings. The winners are selected each year by the votes of 3,000 educational leaders in 400 colleges and universities. John Ware was the first representative of the utilities field ever to receive the Horatio Alger Award.

John Ware springs from a family of modest means in Philadelphia, where he was born on April 12, 1888. His father operated a fruit-packing plant in that city. As a boy, John had an avid interest in electricity. He became so familiar with the laws of electricity and the intricacies of wiring that he was soon in business for himself. After grammar school hours, when he had finished his rounds delivering the Philadelphia EVENING BULLETIN, John hired out to make minor electrical repairs in private homes. At 14, while attending Northeast Manual Training School, he landed a contract to install a 5 horsepower, two phase alternating current motor to power a freight elevator in a wool packing house. It was the second alternating current motor to be placed in service in Philadelphia, and his profit was over one hundred dollars. Shortly thereafter, he quit school and entered the electrical contracting business on his own.

His business venture proved successful, and, at the age of 17, he accepted a job operating a power plant for the Pennsylvania Railroad. In his spare time, he built up a business putting in driven water wells with gasoline-engine-operated pumps. But the money panic of 1907-08 brought a pay cut of fifty percent on his railroad job, and put him out of the water well business.

Eventually, John built himself back up financially and, at 36, when most men are barely getting up a head of steam, he formed the Southern Pennsylvania Power Co. and the Northern Maryland Power Co. Soon, he sold out to a power syndicate, and realized a profit of one million dollars. His talents were needed however, so he assumed management of the companies for the new owners.

In the years when Mr. Ware was building a career in electrical power, poor management had plunged a number of water companies into deep financial straits. At the request of an old friend, Edwin Herr, then president of Westinghouse Electric and Manufacturing Co., Ware agreed to see if he could put the old National Waterworks Co. back on its feet.

Ware was off on a new career, but he faced an almost impossible

John Ware

Meet — "The Boss"

Philadelphia Man . . .

A Giant in Water Industry

situation. The company had virtually no cash, and the plants and equipment were run down. Everybody was discouraged but "The Boss," a term of affection given to him by those who had worked with him over the years. "Our only problem is money," he used to say. "And money is just a commodity—a convenient tool to get things done with. You can get money if people have faith in you."

People had so much faith in "The Boss" that creditors not only extended existing debts, but gave additional credit. National Waterworks was re-organized. Investors were rescued from a complete loss of money—more than five million dollars in all. But there were more lean days in between. One Christmas Eve, after a particularly tough year, Ware called a group of associates into his office. After reviewing the progress they had made, he regretted he had nothing to give but one hundred shares of practically worthless stock in the company. Then they all adjourned to the nearest five-and-dime store and exchanged ten-cent gifts. This very stock later became worth fifteen dollars a share.

During the depression years, hard times hit many of the communities served by Mr. Ware's water companies. One of these was the little community of Scottsdale, in western Pennsylvania. Three major industries, employing a total of 7100, had closed their doors. One company dismantled its equipment and moved to the South. Then, along came the great St. Patrick's Day flood of 1936, which devastated large areas of western Pennsylvania and West Virginia. It turned out to be a blessing in disguise for Scottsdale. A steel alloy plant in West Virginia had been virtually wiped out. Ware persuaded the steel company to take over one of the empty plants in Scottsdale. That was the lift the town needed. With Ware's encouragement, a transformer company moved in. Later, a concrete vault company and other small industries settled in Scottsdale, and the town was back on its feet.

During the drought of the early 1930's, Ware acquired a water plant in Shenandoah, Pa. Water was so scarce that it was being run through the lines only two hours

each day—from 6 a.m. to 8 a.m. Within twenty-four hours after taking over the plant, Ware had spotted an abandoned strip mining operation on a hill overlooking the town, had equipment brought in from Philadelphia, and had full water service restored. Later, he looked up the owners of the property and paid them six thousand dollars for it. The former strip mine on that hill overlooking Shenandoah now holds 300 million gallons of water.

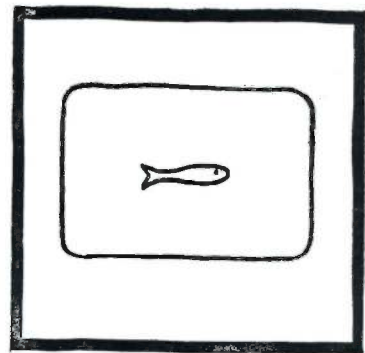
These are just a few examples of John Ware's dexterity in business. Personally, he is shy and retiring, but he is a beaver for work and drives himself to the point of exhaustion. He has the ability to drop off to sleep after a particularly tough business session, and wake up half an hour later refreshed and raring to go. He believes in traveling by air to save time, and was one of the first commercial passengers on a U.S. air line.

For relaxation, he reads—mostly books of a scientific nature. He can speak knowledgeably about miracle drugs, space travel, supersonic air travel and atomic energy.

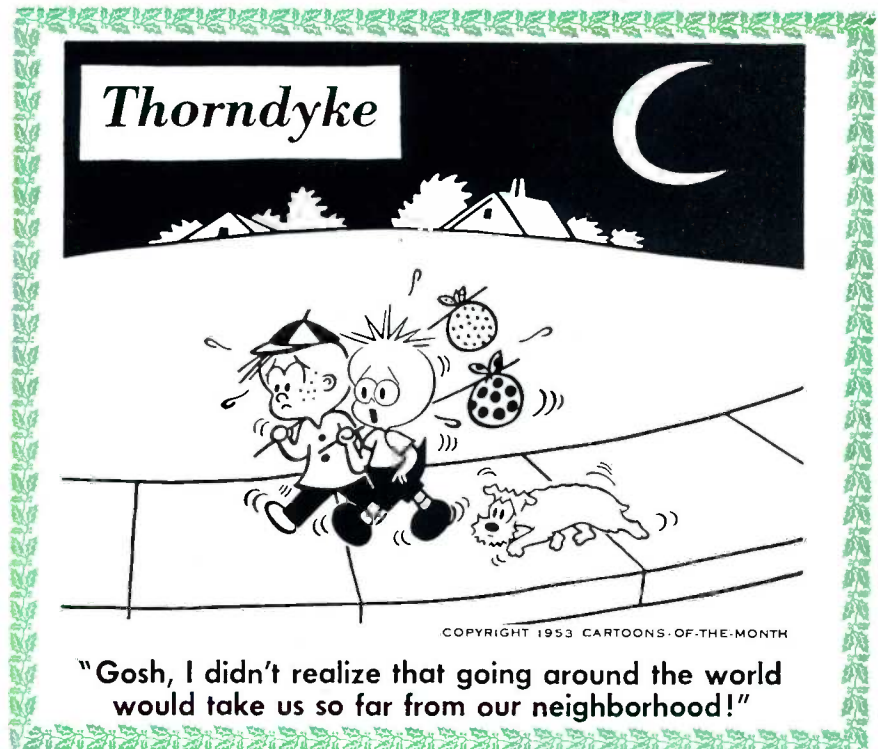
Despite his years, John Ware is still thinking and planning years ahead. He's now knee-deep in the dream of a lifetime—the world's largest aqueduct system. When

completed, this multi-million-dollar project will carry pure water to millions of users in four highly-industrialized counties in western Pennsylvania, including the city of Pittsburgh. The project, still in the planning stage, calls for construction of a 134 billion gallon reservoir in the mountains southeast of Pittsburgh. The water will be distributed through a series of concrete-lined aqueducts at an average depth of 800 feet below the surface.

Impossible? Not with John Ware pushing it; for, over the years, people have come to learn that nothing is impossible if it has the support of the modern Horatio Alger—Mr. John Ware.



Smart sardine whose maturing savings bonds enabled him to buy private can.



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"Gosh, I didn't realize that going around the world would take us so far from our neighborhood!"

Bridgeport, Connecticut



From Golden Hill . . .

A Century of Progress

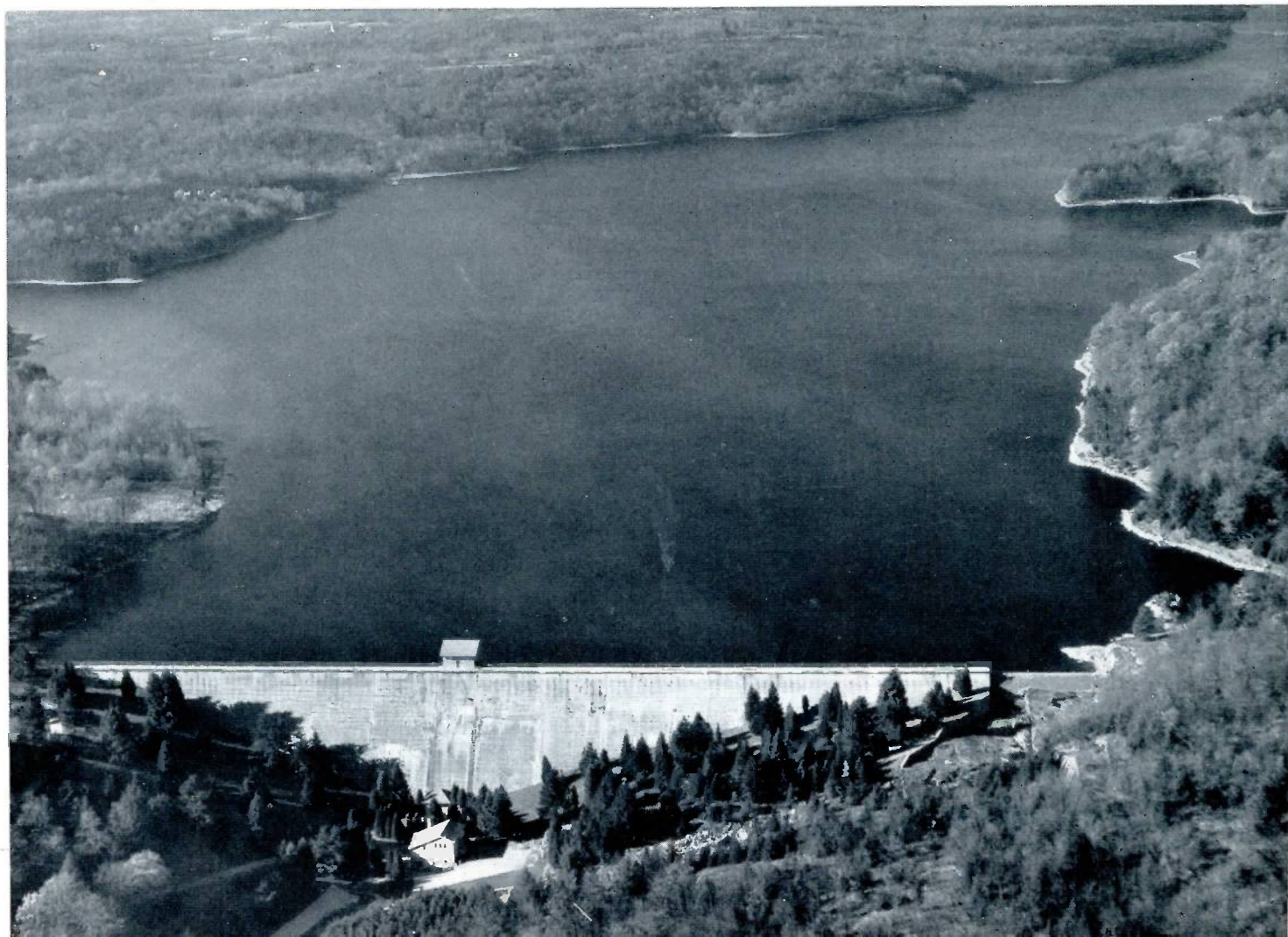
Bridgeport Hydraulic Company
Serves Seven Cities Well



A CENTURY AND A HALF ago, ships plying the New England coast put into the Borough of Bridgeport to trade and replenish their supplies. Foremost among their requirements was a supply of fresh water, and there on the bustling water front they purchased the water, by the cask, from Robert Linus and Captain Stephen Burroughs. But sailors arriving at the harbor in the year 1818 found there had been changes, inspired by the Reverend Elijah Waterman of Golden Hill, pastor of the Congregational Church.

On Reverend Waterman's property atop the hill were several springs of excellent water which Pequonnock Indians, who had lived in a village on the southern slope of Golden Hill, had used for centuries. He had cleaned and deepened the springs and laid hollow log pipes over the side of the hill to Fairfield avenue, from there to Main Street,

EASTON DAM and reservoir are part of the Easton Lake System. This system furnishes about nineteen percent of the total water supplied to seven towns in eastern Fairfield County, Connecticut. The Easton System has a safe yield of 12.7 million gallons daily. The evergreens in the foreground are partial results of the fine work carried on by the Forestry division of the Bridgeport Hydraulic Company.

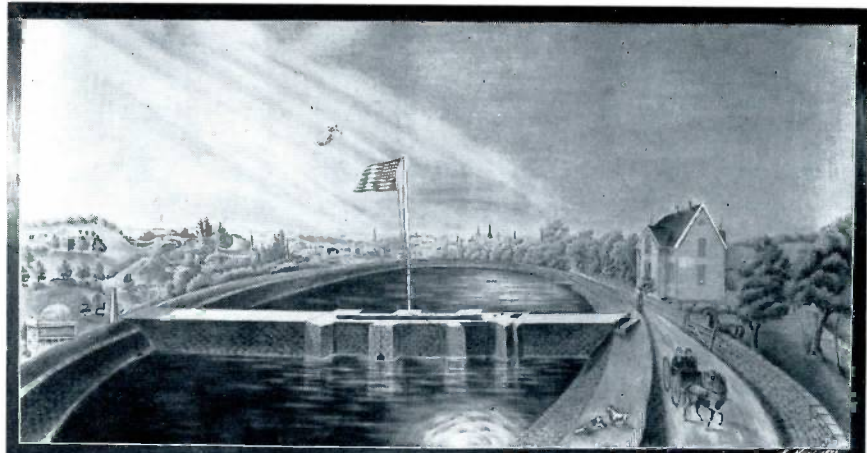


State Street, and on to the corner of State and Water Streets. On that site a trough was built to make water readily available for visiting ships. It was, in effect, Bridgeport, Connecticut's first water supply.

In December, 1845, just two weeks before Christmas, a fire broke out in George Well's Oyster Saloon on Bank Street. The blaze spread quickly to the waterfront, where the main business district was located. Firemen tried to combat the flames with water from the harbor, but the tide was low, and adequate pressure could not be maintained. The fire swept up and down Water Street, destroying 49 buildings valued at \$150,000. Bridgeporters rebuilt their business district on Main Street, but they were not soon to forget the Great Fire of 1845 and its lesson. It made them realize that an abundant and reliable supply of water was an absolute necessity.

In the reaction following the fire the Common Council granted to ". . . Nathaniel Greene and his assigns . . ." the exclusive privilege of laying water pipes in Bridgeport — on the condition that he furnish the city with ". . . an abundant supply of pure water for all domestic and commercial uses."

In 1853, Mr. Greene and his associates formed The Bridgeport Water Company, with capital assets of \$160,000. They erected Bridgeport's first distributing reservoir in a suitable location, and water was pumped into this masonry tank from a



BRIDGEPORT CITY RESERVOIR.

THIS WAS Bridgeport's first reservoir, built in 1853 by Nathaniel Greene's Bridgeport Water Company. Capital assets of the Company were \$160,000.

nearby pond. Pipes were then laid through the principal streets of the city.

Things didn't work out too well, however. Handicapped by a general economic depression, The Bridgeport Water Company was disbanded. Its bondholders created a new corporation, and the Bridgeport Hydraulic Company was born. The year was 1857, the same year that Cyrus Field laid his transoceanic cable linking North America and Europe.

With the new company came a new set of officers. Joseph Richardson became the first president, Charles Foote became treasurer, and Henry Edwards stepped in as secretary.

In the years that followed, the

company gradually expanded its service. Then, in 1877, a second disaster underlined the dependence of the community on an adequate source of supply. A fire raced through a large hat factory because water pressure was inadequate. Eleven persons died, and the property loss was staggering. Steps were immediately taken to increase pressure by the construction of Horse Tavern and Trumbull Reservoirs. The projects were under the personal direction of P. T. Barnum, who had become president of the water company in 1877. This famous showman, who was Mayor of Bridgeport in 1875, headed Bridgeport Hydraulic Company from 1877 to 1886.

By 1889, Bridgeport had become

THESE FOUR MEN are on hand to lead the Company to even greater successes in the second century. They are, left to right: Samuel P. Senior, Chairman of the Board; Fred B. Silliman, President; William S. Warner, Vice-President; Kenneth E. Bender, Superintendent of Distribution.



a thriving industrial city with a population of 70,000—an increase of 22,000 in ten years. This was the age of invention and expansion. Industrial Bridgeport had come of age, and with it had come an increasing need for more water for homes and factories. During this era of growth, many small water supply companies sprung up in response to this need. These were subsequently merged with or absorbed by Bridgeport Hydraulic Company.

In 1901, a young engineer was hired as Superintendent and Engineer—a man who has led in the planning and execution of the largest projects ever undertaken by the company.

This man was Samuel P. Senior. He recognized the need for a vastly expanded water storage and distribution system to meet the demands of a mushrooming industrial area. He explored and surveyed many miles of potential watershed territory in the hills north of the city, seeking reservoir sites free of pollution. In 1913, Mr. Senior was elected Vice-President and a director of the company. In 1920, he succeeded to the presidency.

Today, Bridgeport Hydraulic Company ranks among the top ten in its field. It is a privately-owned utility supplying water to about 291,000 people in seven towns in eastern Fairfield County, Connecticut. The average daily consumption is 45 million gallons, of which about forty percent is used by industry.

The supply system consists of ten surface supply reservoirs and three well fields. The surface supply obtains water from 92 square miles of watershed, of which the company owns 30 square miles, and the total impounded storage is approximately 25 million gallons. The surface development, along with the well fields, have a safe yield of 71 million gallons daily. The entire watershed is under the constant surveillance of a sanitary inspector who maintains records on all houses and sewage disposal systems within 250 feet of watercourses. All watercourses are sampled monthly to assist further in this control. Reservoir patrols maintain regular surveillance to prevent unauthorized use of such areas. This strict control is aimed at the fulfillment of the company's policy of preventing pollution at the source.

MUELLER RECORD

RESEARCH

**Paves the Way
To Progress**



In the Supply Division, there are five systems that supply water to the Distribution System:

Hemlocks System delivers about sixty percent of the total water supplied, and consists of four reservoirs. This system has a safe yield of 35.5 mgd.

Easton Lake System delivers about nineteen percent of the total water supplied, and consists of two reservoirs. This system has a safe yield of 12.7 mgd.

Trap Falls System produces about twenty-one percent of the total water supplied, and consists of three reservoirs and two well fields. This system has a safe yield of 16.5 mgd.

Westport Well System consists of four wells and a treatment plant, and has a capacity of 6.5 mgd.

Shelton Reservoir System consists of two small reservoirs having a combined capacity of 50 mg, and a safe yield of 0.4 mgd. This system is essentially an auxiliary system.

The above reservoir systems, plus the Laboratory and Watershed Sanitation Department, comprise the Supply Division of the company. Other divisions include: Distribution, Forestry and Financial. Of interest is the fact that the Forestry Division planted 68,900 evergreen trees last year!

The seven communities served by

Bridgeport Hydraulic Company use enough water everyday to fill a train of tank cars stretching from Bridgeport to New York City. Recent growth trends have been phenomenal. In just ten years, consumption has increased thirty percent, customers fifty percent, and investment in physical facilities a fantastic seventy percent!

This year marks the one hundredth anniversary of the Bridgeport Hydraulic Company. Thanks to the untiring efforts and vision of many competent people, the company is able to face the second century with pride and confidence. At the helm of Bridgeport Hydraulic are: Samuel P. Senior, Chairman of the Board of Directors; DeVer C. Warner, Chairman of the Executive Committee; Frederick B. Silliman, President; William S. Warner, Vice-President; and Leonard H. McKane, Secretary and Treasurer. Superintendent is Kenneth Bender.

From Golden Hill of 1818 to the complex and efficient organization of today can be measured by the sweat and toil of many men. There will be no repetition of the disastrous fires of 1845 and 1877; for, thanks to the Bridgeport Hydraulic Company, the water supply to seven communities is, and shall continue to be, one of the most adequate in the entire country.



A. D. PARKS

Del Parks Assists Gannon

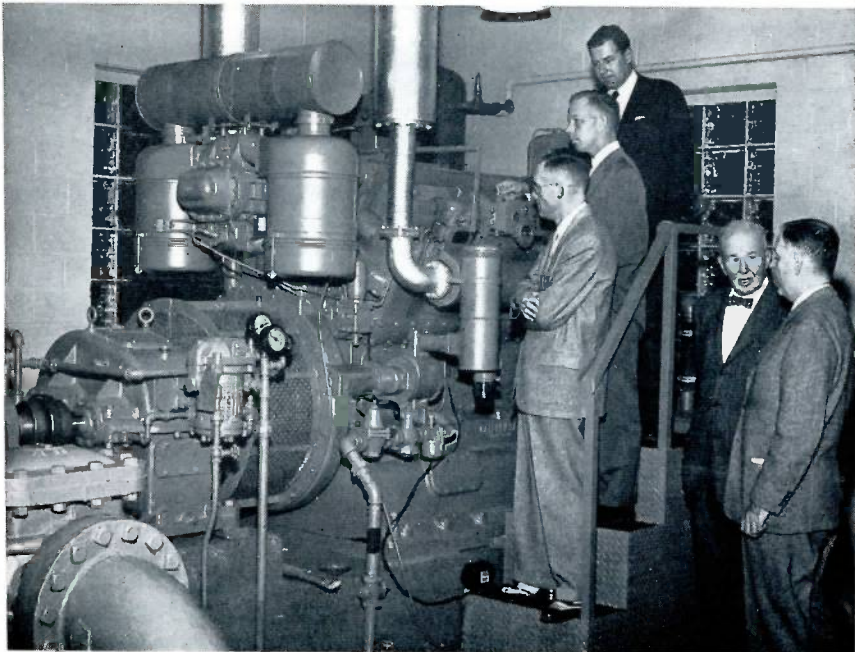
A. D. "DEL" PARKS has been transferred from Atlanta, Georgia, to the Headquarters Division in Decatur, and has been named Assistant Field Sales Manager. Del was Southeast Sales Manager for Mueller Co. from 1953 until mid-June of this year, when he assumed his new duties.

Del joined Mueller Co. in 1935 as a messenger, and served in various positions until his entry into World War II in 1941, a member of the Army Air Corps. When he returned to the Company in 1945, he was transferred to the Sales Division, and moved to Atlanta as Southeast Sales Manager in 1953.

Let this be A Lesson!

The sales manager of a fast-growing outfit sticks pins in a big relief map behind his desk to show where every one of his salesmen is located at a given moment. Ragsdale, of the Iowa sector, was not, in the opinion of the manager, living up to his early promise, and was summoned to the home office for a pep talk and reindoctrination. "I'm not saying you're in imminent danger of being fired," was the stern end of the sales manager's warning, "but if you'll look carefully at my map, Ragsdale, you'll notice I've loosened your pin."

INSPECTING THE Buck Hill Pumping Station are, left to right: Leonard H. McKane, Secretary-Treasurer; Mr. Warner; Mr. Silliman; Mr. Senior; and DeVer C. Warner, Chairman of the Executive Committee.



MUELLER®



IMPROVED CURB BOX

Telescopic upper section prevents damage to stop, line or box from heavy loads . . . upper section held in any position by strong phosphor bronze spring . . . allows for grade changes, settlement or frost heave . . . cannot be pulled out of base . . . bronze-bushed lid assures easy removal of access plug at all times . . . curb box completely coated with tar base enamel . . . for stops in sizes from 1/2" through 2" . . . lengths from 2' through 10' . . . optional foot-piece centers stop and provides solid support for curb box.

INVERTED KEY CURB STOP

Tapered key individually ground and lapped for perfect pressure-tightness . . . key seated by base cap and water pressure . . . increase in water pressure automatically increases key-seating force . . . key is unseated for easy turning by tapping downward on shut-off rod . . . pressure instantly reseats key . . . combined cap and tee has accurate built-in check . . . all parts cast from finest waterworks bronze . . . various combinations of inlets and outlets for any type, or types, of service pipe . . . sizes from 1/2" through 2".



See your Mueller Representative, Catalog W-96 or write direct for detailed information on Mueller's full line of curb stops, curb boxes and related waterworks products.



**MUELLER CO.
DECATUR, ILL.**

Since 1857

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

Southeast Personnel Changes Affect Three

Three men are involved in sales personnel changes in Mueller Co.'s Southeast Section, according to an announcement by Mr. Dan R. Gannon, Acting General Sales Manager. These men are H. W. Cessna, Robert J. Ott, and S. F. Parker.



H. W. Cessna

H. W. "Bill" Cessna has been appointed Southeast Sales Manager, succeeding A. D. Parks. Mr. Parks was named Assistant Field Sales Manager, with headquarters in Decatur, in mid-summer. Mr. Cessna joined Mueller Co. almost six years ago; prior to that time, he was associated with a southeastern utility as supervisor of purchasing and stores. His first sales assignment with the Company was in the Southeast Section.

Robert J. Ott has been appointed Sales Representative in the state of Georgia and part of Alabama. He replaces Cessna. Mr. Ott joined the Company in early 1955; prior to that time, he was advertising and sales promotion manager for a large Central Illinois Appliance house. His first sales assignment, in August of 1955, was in Mississippi and part of Alabama.

S. F. Parker has been appointed



Robert J. Ott

Sales Representative in the state of Mississippi and part of Alabama, replacing Ott. He joins Mueller Co. after representing a large wholesale plumbing and industrial supply company in Mississippi. He brings to his new position an excellent background in sales and service.



S. F. Parker

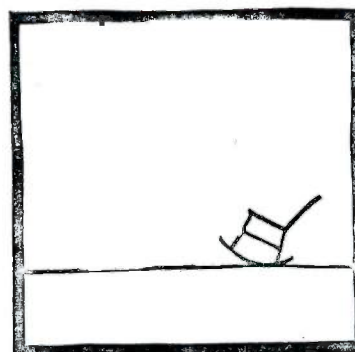
Thomas Hendrix Joins Company

Mr. Thomas K. Hendrix has been appointed Sales Representative for Mueller Co. in the state of Missouri. He joins the Company after several years of specialized sales experience with a large oil company, and has lived in Decatur, Illinois for the past twenty years. He attended Millikin University in Decatur for two years, served in the Navy during World War II, and was graduated from Purdue University in 1944 with a Bachelor of Science degree in Mechanical Engineering.

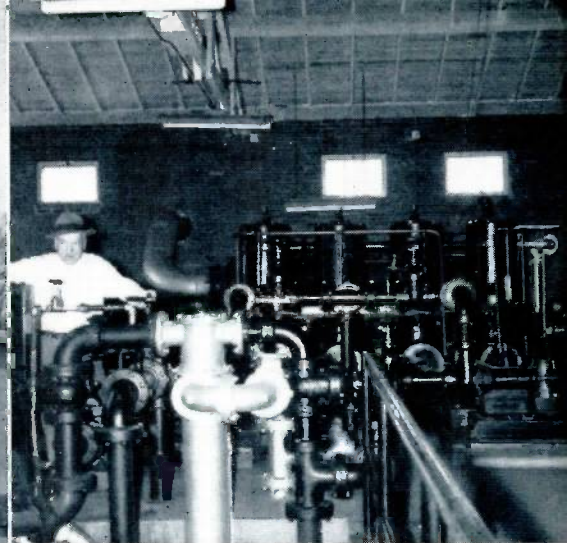
Mr. Hendrix has been active in his territory since September 1, and he and his family will possibly make their home in central Missouri.



Thomas K. Hendrix



Whistler's mother (she's out buying series H savings bonds.)



AT LEFT is an exterior view of the Shuttle Meadow Filter Plant of the New Britain, Conn., Water Department. At right, Operator Otto Henrich checks equipment at White Bridge Pumping Station.

New Britain, Connecticut

A Confident Look To the Future

IT SOMETIMES takes disastrous fires to convince citizens of any given community that their water supply is inadequate; but the people of New Britain, Connecticut, realized early and matter-of-factly that the need was present. Thus, one hundred years ago, in 1857, a Water Board was appointed and given authority to proceed with the construction of an adequate water supply system.

The first reservoir was built at Shuttle Meadow, and water was brought to the city through an eight inch cement pipe. A distributing reservoir was also built in Walnut Hill Park; this reservoir was later abandoned and rebuilt to form a public wading pool.

And then New Britain began to grow. In 1870, a twelve inch cement pipe was laid from Shuttle Meadow to the city; the spillway level was raised one foot in 1878 to increase storage capacity. In 1883, the Panther Swamp Canal was started, adding increased supply area. Picnics were forbidden in the reservoir area, as were fishing and swimming. Thus, the development of an adequate, safe water system was well underway.

In 1891, a new dam was constructed to create a larger reservoir, and a twenty-four inch pipe line was deemed necessary to handle the demand. One year later, construction was started on the West Canal, which, when completed, would divert the water from several small streams into the storage area of New Britain.

It soon became apparent that the Shuttle Meadow Reservoir was inadequate; so, in 1897, an intake was built to collect the water of Roaring Brook and send it to Shuttle Meadow Reservoir through two twenty-inch lines. In 1904 a dam was built above the intake, providing another reservoir.

With the completion of the dam in 1904, the water supply was well ahead of the demand for New Britain. Refusing to be satisfied, however, the Water Board approved construction of the Whigville Dam in 1908, creating still another reservoir.

The population boom continued though, and the year 1920 brought increased demand. Since all available surface supplies had been utilized, a well system in Forestville was put into operation, and was

used as an auxiliary supply during peak periods.

In 1938, work was started on a modern rapid sand filtration plant situated near Shuttle Meadow Reservoir. Since the plant was built on the hillside above the reservoir, a pumping plant was necessary. This plant was built below the dam. Due to a variance in elevation, a booster station was needed. The filtration plant, pumping station and booster station were put into operation on August 15, 1940.

In 1941, New Britain experienced the driest summer in its history. Water level receded to the danger point, and the Board decided to investigate the yield from a ground water supply at White Bridge. A series of shallow wells was installed about three-quarters of a mile north of the old well system, and a small pumping station was erected at this location. This station pumped water from the ground and discharged it into a twelve-inch asbestos-cement pipe line, which carried the water to the old well system. There, a new pumping station was built, with a capacity of 6.0 mgd.

The New Britain Water Department has utilized every available method of keeping surface supplies safe and pure. Forestation activities have always been of prime importance. Over 450,000 white and red pines have been planted in four locations. In order to further protect the water supply, dead branches have been cut, undergrowth cleaned out, swamps and brooks cleaned, and several miles of fire lanes have been cut.

In addition, New Britain owns

BUSY AT HIS desk is Mr. George Wood, Chief Engineer of the Board of Water Commissioners, New Britain, Conn.



J. FRANK KELLETT

Kellett Moves To Decatur

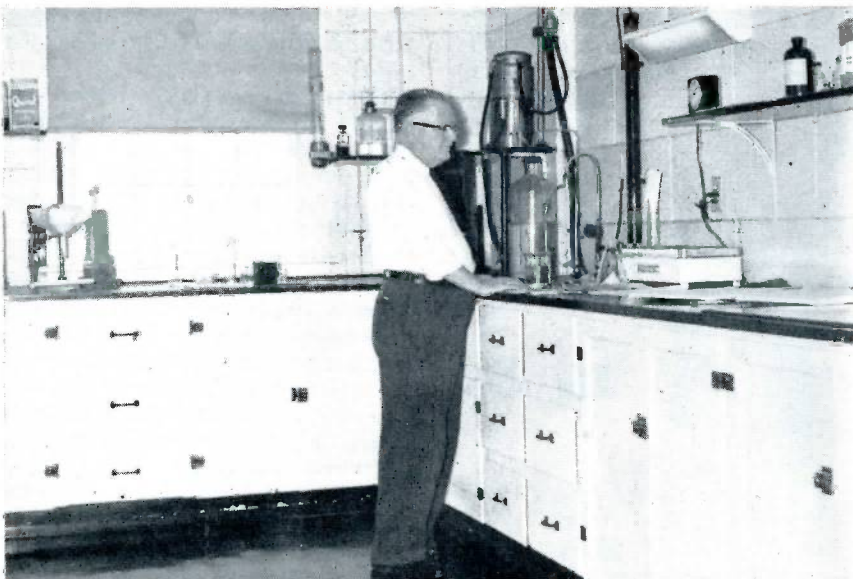
J. FRANK KELLETT has been named Assistant to the General Sales Manager and Field Sales Manager of Mueller Co. Frank came to Decatur in mid-June from Mueller's Chattanooga plant, where he had been Sales Service Supervisor.

Frank joined the Company in 1947 as billing clerk in Chattanooga. Prior to his employment with Mueller Co., Frank studied business administration at the University of Chattanooga.

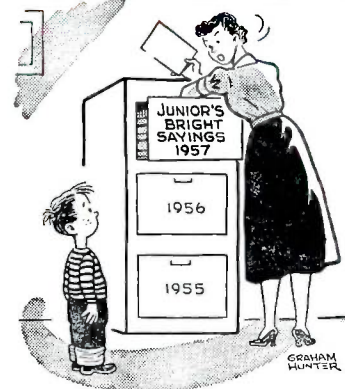
6,100 acres of watershed property in the towns of Burlington, Bristol, Plainville, Wolcott, Southington and Berlin, Connecticut.

The New Britain Water Department is now investigating new sources which will augment their present supply as well as take care of ever-growing demands. A century of growth has proved of

material benefit, and the Water Department, because of its past history, readily faces and will measure up to the many problems it may encounter as it enters into its second century of public water service to the residents of New Britain and those in the many surrounding towns.



OPERATOR JAMES WALSH looks over the laboratory at Shuttle Meadow Filter Plant.



"Careful, dear, you're repeating yourself."





THE HISTORY OF fire-fighting dates back to the time when primitive man first learned to kindle a blaze to warm his antediluvian cave and worked out an uneasy equilibrium with the sometimes rebellious servant—fire.

Historical records frequently mention early fire-fighting methods. Today's smoke-eaters would laugh at the Spiritalia Heron, the first hand-operated fire engine mentioned in history, invented by the Egyptian, Heron, in 200 B.C. Yet, according to historians, this ancient and crude affair had all the elements of the hand engine used in this country just prior to the Civil War—2000 years later.

Even before Heron's era, man sought means of extinguishing fires with devices other than buckets or portable vessels. When cities were stormed in battle, a favorite strategy was shooting flaming arrows to points far beyond the reach of bucket brigades. So, machines to throw water on distant spots became a necessity.

Evidence of the first water pump type machine on record is mentioned in a work of Apollodorus (440 B.C.). This enterprising man used the entrails of an ox, connecting them to a water-filled bag. The bag was compressed and water forced through the entrails. Nozzle pressure and burst strength surely must have been insignificant.

Rome made much use of the fire engine but historians relate that the ancient firemen frequently created as much disturbance as the fires they fought. These were the first fire companies in the world. Tremendous rivalries built up among them and innumerable rows developed.

Today, fire insurance is as com-

mon as owning a car but had fire insurance companies existed in Roman times, they would have been appalled by the practices of Crassus, The Consul.

Crassus is reputed to have amassed a fortune "from war and from fires; he made it a part of his business to buy houses that were on fire, and others that joined upon them, which he commonly got at a low price on account of the fear and distress of the owners about the event."

History does not say what Crassus did with the partially destroyed houses, but he probably had his own fire company put out the fires quickly to obtain the most salvage possible.

No accurate record is available on the methods of fire fighting for approximately 13 centuries after the fall of the Roman Empire. Fire engines were forgotten during the Middle Ages and apparently the only devices for fire fighting were buckets and portable hand pumps which were operated like king-size syringes.

Building accounts of the city of Augsburg, Germany, mention use of some kind of fire engines as early as 1518. Their construction is not known but they were believed to be large syringes mounted on carriages.

German inventors have received credit for the first pumping engines of modern times, the first unit being that of Hautsch at Nuernberg in 1656.

Beckman, a writer of that era, states: "This engine is much practiced in Germany, and it hath been seen what great and ready help it may bring; for although the fire be 40 feet high, the said engine shall there cast its water by help of four or five men lifting up and putting down a long handle, in the form of a lever, where the handle of the pump is fastened; there are two suckers (valves) within it, one below to open when the handle is lifted up, and to shut when it is put down; and another to open to let out the water; and at end of said engine there is a man which holds the copper pipe, turning it to and again to the place where the fire shall be."

The invention of hose has been

Smoke-eaters

Work With the Best



considered the biggest forward step in the history of fire fighting. Sewn leather hose was introduced at Amsterdam, Holland, in 1672 by John and Nicholas Van der Heide, superintendents of the city's fire apparatus. Hose was made in 50-foot lengths with brass screws fitted to the ends, so that any number could be quickly connected. It was used principally to relay water from one hand-operated pumping engine to another, not in engine-to-fire operations.

The sewn leather hose was a great boon to fire fighters although it was not always reliable because of rotting and cracking. This variety of hose was also used in America in colonial times.

In the early nineteenth century, copper rivets replaced hand stitching in leather hose and this construction became the standard until rubber-lined fabric fire hose was introduced in 1859 at a fireman's muster in Manchester, New Hampshire. This hose was made from a flat belting coated with rubber on one side. The material was rolled to make a tube, with the rubber on the inside, and the seam riveted.

Seamless, cotton-jacketed hose, substantially as we know it today, resulted from the work of B. L. Stover, who devised in 1877 a circular loom for manufacturing cotton jacketing in the form of a seamless tube. This cotton-jacketed, rubber-lined hose prevailed without major construction changes for more than 60 years.

Some authorities claim that progress in fire fighting equipment over the last six years has been greater than the last 300 years. Of particular significance is a synthetic fiber called "Dacron" polyester fiber which has been responsible for the first major fire hose improvement in more than half a century.

Because it provides improved strength and flexibility, and reduced weight, continuous filament yarn of "Dacron" polyester fiber has been accepted as the load-carrying filler cord in standard municipal fire hose to provide superior burst strength when used in conjunction with cotton warp cords. Within the span of a few years, "Dacron" has been adopted in varying degrees by all leading hose manufacturers.

This increasing use of fire hose made with "Dacron" is due to sev-

eral outstanding properties. Size for size, fire hose cords of "Dacron" are about three times as strong as those of cotton. Fewer and/or smaller cords can be used to achieve desired burst strength which may run as high as 400 to 600 pounds per square inch.

Smoke-eaters appreciate the weight savings of about 10 pounds per 50 feet of hose, both wet and dry, in hose of "Dacron."

Use of smaller filler cords, made possible by the high strength of "Dacron" provides a hose with less bulk and more flexibility; water absorption is extremely low and damage by rot is greatly reduced. For exceptionally rugged use, hose made of 100 per cent "Dacron," in both filler and warp ends, provides complete resistance to attack by mildew, rot, and action of many chemicals frequently found in industrial plants.

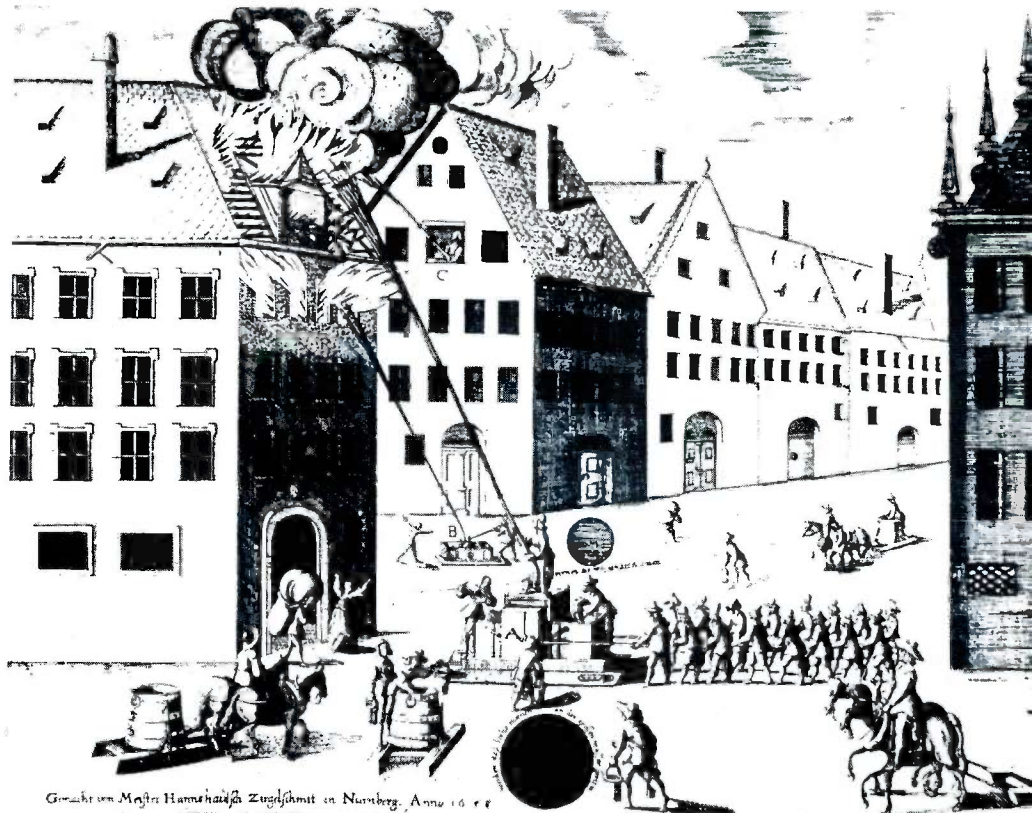
While the first fire hose was introduced in 1672—disregarding Apollodorus' ox entrails—it was quite some time before it saw general usage on fire engines. Richard Newsham, a pearl button maker of Lon-

don, invented the first successful gooseneck fire engine in 1721. It was so named for a long, gooseneck-shaped play pipe on top of the gallery through which water was discharged. These engines were supplied with water by bucket brigades, the water being dumped into the engines' box and subsequently being pumped through the gooseneck.

With the first successful use of copper-riveted leather hose in 1811, the gooseneck engines went out of service and were replaced by suction engines in 1822. Newspapers proclaimed them one of the outstanding inventions of that time. They reigned as the major fire fighting apparatus for 30 years, when a successful steam engine was invented by Moses Latta, of Cincinnati.

In the era of suction engines, rivalry among volunteer companies became so bitter that it was rare when two or more companies would not spend just as much time fighting each other as the fire. One of the more notorious battles occurred on July 26, 1846, in New York. Five companies were involved in a brawl

FIRE FIGHTERS in Nuernberg, Germany, using the first pumping engine of modern times in 1658. Water could be thrown a distance of 40 feet. The pumper was fed by bucket brigades.





COLONIAL FIREMEN fighting a conflagration in 1776. Hose attached to pumping-type engine is of sewn leather construction, invented by John and Nicholas Van der Heide in 1672. (Courtesy the Bettmann Archive)

with axes and pipes that lasted for hours and ranged from Broadway to Canal Street and parts of the Bowery. A month later, all the companies were disbanded by order of the city council.

The life of a volunteer fireman 100 years ago could hardly be described as Utopian. Aside from brawls among themselves, it was not uncommon to be waylaid by gangs of ruffians. One noteworthy occurrence happened on October 15, 1850, in New York.

Fire Engine Company No. 19 answered an alarm around midnight. There were only six men in the fire house at the time but they picked up additional help to pull the heavy suction engine as they headed up Second Avenue. Suddenly, they were besieged by about 100 rowdies who saluted them with a volley of stones, brick bats, and other destructive paraphernalia. Two volunteers were severely injured. The engine was upset and completely smashed.

The first successful steam fire engine arrived on the scene in 1852; after more than 20 years of experimentation and opposition to the "hissing monster." Latta's invention, dubbed the "Joe Ross," weighed 11 tons and required four horses in addition to the propelling power of the machine.

In its first test, the machine threw water 225 feet from a one and a half inch nozzle. With the gradual

acceptance of Latta's engine, thousands of these horse-drawn wonders blossomed across the country in the next 50 years before giving way to the gasoline propelled and operated unit in 1908.

Modernization has brought about aerial ladders extending more than 100 feet, motorized pumping engines delivering 2,000 gallons per minute, fire boats throwing 9,000 to 12,000 gallons per minute, foam, carbon dioxide, "dry chemical" and other chemical fire extinguishers, automatic fire alarm systems, and hose withstanding burst pressure up to 600 pounds per square inch.

But with all the improvements in modern apparatus, the most important factor in retaining man's control over fire is still common sense. The ideal method to combat destructive fires is fire-prevention. No one has a greater stake in averting fires than the fireman who must risk his life to extinguish it.

With specialized knowledge at their command, fire departments are in a unique position to give advice on preventing fires, and they are more than willing to share their knowledge to avoid property damage and loss of life—in advance.

★ ★ ★ ★ ★ ★ ★ ★

"Mommy, Mommy," cried little Jimmie, "why do I keep going around in circles?"

"Shut up," she replied, "before I nail your other foot to the floor!"

Southwest Water Costs High

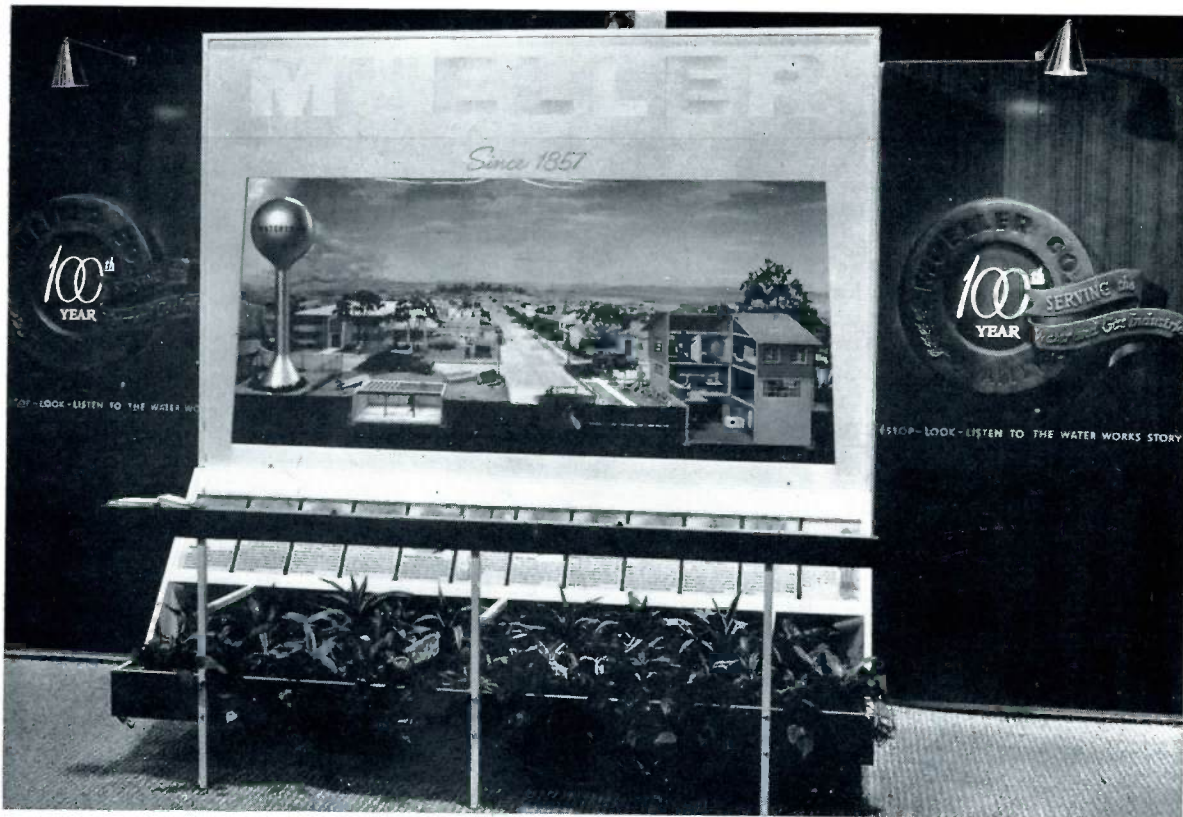
"You don't miss the commonplace unless you are deprived of it." So said a wise man, perhaps centuries ago. In May, at the AWWA convention in Atlantic City, the statement was made applicable to the present time by **Henry J. Graeser**, Superintendent of the water works in Dallas, Texas. Said Mr. Graeser: "Before 1950, it was very difficult to find space in the local newspaper for news items concerning the water department. Out of the drought, however (in Texas), came an awakened interest in the water supply problem, and it has now been front page news for nearly seven years. In the course of the drought, plans for the future have been presented, and costs for such future plans have been brought home to the consumer through repeated headline coverage. Although much of the publicity was not at all pleasant, it has achieved one purpose in informing the public that water is expensive—especially in the Southwest."

A Dollar-Wise Approach Works

The Dept. of Water and Power of Los Angeles is to be congratulated for its recognition of the importance of advertising and public relations in current utility operation. Imagine the effect on a dollar-wise housewife when she spots a full page newspaper ad which proclaims, in bold black, "3,800 glasses for a nickel." This is just one of their many approaches to the education of the general public to appreciate inexpensive water services.



MUELLER RECORD



WATERTOWN, U.S.A., Mueller Co.'s diorama display, is now on a cross-country tour—carrying the story of water supply to thousands of people.

Everywhere, U.S.A.

Diorama Viewed by Thousands

Watertown, U.S.A. leaves on cross-country tour

MUELLER COMPANY'S diorama display, WATERTOWN, U. S. A., left Decatur for Chattanooga, Tennessee on September 13 on the first leg of its cross-country tour.

It was the focal point of an open house at the Company's Chattanooga plant, and proceeded from there to Atlanta, Georgia for three functions. In Atlanta, it was seen as part of the National Watershed Congress from September 20-25; on September 26, members of the Georgia Water and Sewage Schools viewed it; and it was on exhibit at the Southeastern Fair from October 3-9.

WATERTOWN, U. S. A. vividly portrays the story of your water supply from the time it falls from the sky until it flows from the faucet. Narration implements the story to hold the viewers' attention as the story of water begins to unfold in an amazing manner.

First exhibited at the 76th Annual AWWA Convention in Atlantic City last May, the detailed diorama captured the interest and enthusiasm of thousands of conventioners. The Company then decided to construct a special trailer for the display, and to send it on tour throughout the country to serve as

an effective public relations tool for water departments desiring to show the diorama. It has already been designated for several state fairs next summer, and requests keep pouring in.

From Atlanta, the diorama proceeded to Oklahoma City in mid-October for the Southwest Section AWWA conference; it was then speeded to San Jose, California for the California Section AWWA meeting. Next on the agenda are appearances in many parts of Northern California before the display heads east.

IN ST. LOUIS, Missouri, on October 7, 8 and 9, over two thousand men and women from America's gas industry "put their shoulders to the wheel of progress," and gave a great big push. The result was a great AGA convention.

On the first day of the convention, Clare H. Zachry, out-going president of AGA and president of Southern Union Gas Company, Dallas, said "... we are living through a revolution right this minute ... You might well call it a standard of living revolution." In praising the gas industry, he went on to say: "We are all aware that important contributions to this r e v o l u t i o n have been made by the American gas industry. The ever widening use of gas in homes, shops and industry of America attests to that contribution. It is also evident that our industry is highly challenged today to exercise an even greater influence on the continuing revolution for finer living standards for every American."

"Viewed realistically," said Mr. Zachry, "it can be said that the gas industry is in the middle of this continuing revolution. Our very growth is adequate testimony to this fact. We have moved ahead because we have been willing to find new and better ways to serve an ever-growing number of our customers. Our objective must be to continue to improve this service—to continue to manufacture better equipment and appliances—to continue to sell our service and our appliances to more customers—to the end that we are not only meeting, but beating our competition, which, it must be remembered, is also playing a major role in this revolution."

"Size alone," he continued, "is never adequate proof of success. But solid and successful expansion is proof enough. In recent years, growth has been the key word for every segment of the gas industry, and in the continuing revolution our horizons are limited only by our vision."

General sessions of the convention met in huge Kiel Auditorium every morning at 10 a.m. On October 7, James F. Oates, Jr., president and chief executive officer of Equitable Life Assurance Society and



recently resigned chairman of Peoples Gas Light & Coke Co., addressed the opening general session. "A Visitor Looks at the Gas Industry" was the title of the talk he delivered—one which justified the extensive public relations programs now being undertaken by the larger utilities.

James F. Healy, associate professor of industrial relations at Harvard's graduate school of business administration, addressed the October 8 general session.

Two other major gas industry associations were represented. G. A. M. A.'s president, Julius Klien, who is also president of Caloric Appliance Corp., spoke at the Tuesday morning session, and J. J. Hedrick, president of INGAA and Peoples Gas Light & Coke Co., spoke Tuesday also. His subject was "Just Plain Work Ahead."

It was a working convention in more ways than one. For executives

of the gas industry, it meant meetings, general sessions, and mid-night-oil get-togethers to discuss common problems. And, it meant a great deal of work for the host utility, Laclede Gas Company.

Promotion of "cooking with gas" is no stranger to this progressive utility. In 1887, when Thomas Alva Edison perfected the electric light, the gas industry throughout the country had to look to other loads. Before Edison, almost 90 percent of Laclede's load was lighting. Forward looking officials of Laclede realized that the gas range would be the answer to the industry's quest for new markets, and they began working with a major range manufacturer in St. Louis. An extensive public relations program was built around the catch-phrase "Quick Meal" gas cooking.

It was a busy convention for four men in particular: Robert W. Otto, A. W. Conover, J. Theodore Wolfe,



St. Louis, Mo.

Gas Industry Puts "Shoulders to the Wheel"

39th AGA Convention
Meets in Midwest



ABOVE, an aerial view of downtown St. Louis, location of the 39th annual AGA Convention. Notice the new development projects in the foreground. **RIGHT**, Kiel Auditorium was a busy place on October 7 as gas men rushed to the registration booths to get their convention schedules and luncheon tickets.





LEFT, a good time was had by all at the President's Reception and Ball, held at the Chase-Park Plaza Hotel on Kingshighway. BELOW, two very lovely young ladies—the apples of all eyes—are Mrs. America of 1958 on the left, and Julia Meade, genial hostess of AGA-sponsored "Payhouse 90" on television.

and Vincent T. Miles. Mr. Otto assumed the presidency of AGA, Mr. Conover remained as first vice-president, Mr. Wolfe became second vice-president, and Mr. Miles became treasurer of the group.

Wives of busy gas men had a gala holiday, filled with tours, card parties, social hours, and a fashion show. Many of them enjoyed the remarkable "Parade of Gas Kitchens and Laundries" in the Convention Hall—a display of unique kitchen and laundry arrangements sponsored by leading national magazines.

And, as always, Julia Meade was everywhere, acting as unofficial hostess of the 39th annual AGA convention. This popular hostess of TV endeared herself to all those in attendance. Equally charming was an honored guest, Mrs. America of 1958—Mrs. Linwood Findley of Arlington, Virginia.

From the hustle and bustle of registration, right through to the farewells after the big "Shoulders to the Wheel!" luncheon, personnel of the gas industry reaped a harvest of knowledge and enjoyment from the AGA convention in St. Louis.

Long remembered will be the principles stated by Mr. Zachry at the close of his address—principles which, he believes, comprise the basic fundamental challenges that





DELEGATES and visitors to the convention enjoyed the big "Parade of Kitchens and Laundries" sponsored by national magazines. Here, folks discuss the beautiful combination kitchen-laundry designed by PARENTS' MAGAZINE.

face the gas industry.

"We must continue to provide, and sell, the best possible service to our customers at reasonable prices. We must conduct our business in a manner which will merit and retain public confidence in our integrity, fairness and ability. We must provide new leadership for the future by recruiting, training and developing young men and women of ability and high character. We must maintain and demonstrate our faith in our industry, our product

and our services. We must, as good citizens, take an active part in the communities we serve. We must continue to establish worthy objectives and carry them through with vision, enthusiasm, and imagination. If we build our business on these principles, if we continue to unite for the good of our entire industry, if we welcome the continuing revolution as an opportunity for growth and greater service, there shall be no limit to our future."

LADY CONVENTIONEERS were treated to a sneak preview of the latest in world fashions during a special fashion-show sponsored jointly by AGA, women's magazines and St. Louis department stores.



Just for LAUGHS . . .



The president of a billion-dollar corporation faced his board of directors with an unusually grim look on his face. "I'm going to put it squarely to you, J. D.," he said to the first vice-president. "Have you been taking my secretary out after hours?"

"Gosh, chief," blushed J. D., "I didn't think you'd mind." In turn, two lesser vice-presidents, the comptroller, and the chief statistician sheepishly admitted that they, too, had not been immune to the secretary's coy charm.

The newest and youngest member of the board, however, was made of sterner stuff. "I'm happy to say," he announced, "that I've had no extracurricular activities whatever with the lady in question."

"You're just the man we're looking for," boomed the president, relief in his voice. "Get right out there and fire her!"

—:—

Anxious to get on in the world, a nice young couple were entertaining the boss and his wife at dinner—doing pretty well, too, until their ten-year-old son burst into view. He cased the boss's wife with obvious interest, then asked his Dad, "Does she really wrestle on TV?"

—:—

A thoughtful friend once sent Mark Twain a clock. When the Post Office officials in Hannibal, Mo., heard the ticking, they suspected a bomb plot and threw the package into a pail of water. It didn't help the clock any, but Twain refused to part with it. He explained that it was probably the only clock in the world where, every hour on the hour, the cuckoo came out and gargled.

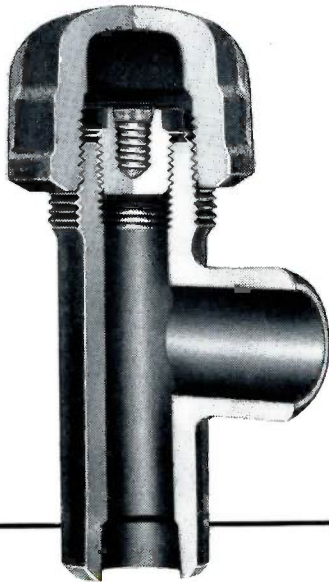
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"And now," beamed the business school teacher, "tell the class what you do when your employer rings for someone to take dictation."

"I pick up my notebook," recited the secretary-to-be, "sharpen my pencils, and answer the buzzard promptly."

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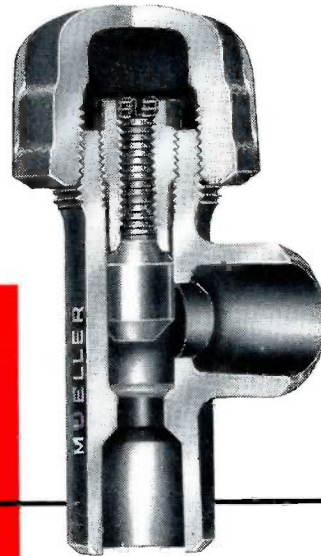
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main-to-service
connections*



**H-17500
NO-BLO®
SERVICE TEE**

- Installed under pressure
- May be stopped-off at any time
- Activated with "E-4", "EH-1", "D-4" or "T" Machines
- Welding or threaded inlets
- Welding, threaded or Dresser outlets
- Cast iron cap for pressures to 250 p.s.i.
- Steel cap for pressures to 1200 p.s.i.
- Outlet sizes from 3/4" through 2 1/2"

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consult your Gas Catalog G-97 or write direct
today for full details and specifications.*



**H-17650
NO-BLO®
VALVE TEE**

- Installed under pressure
- Valve seats in "open" position and back-seats in "closed" position
- Differential threads develop powerful seating force
- Make stop-offs with screwdriver and wrench
- Installed with "E-4", "EH-1", "D-4" or "T" Machine
- Renew valve seat under pressure
- Welding or threaded inlets
- Welding, threaded or Dresser outlets
- Available with cast iron or steel cap
- Outlet sizes from 3/4" through 2"



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GAS FACTS



Safety First

While employment in the gas utility and pipeline industry has increased more than 24 percent since 1947, the industry's safety record has been improved 60 percent. The accident frequency rate was reduced in 1956 for the ninth straight year, and achieved an all-time record of only 8.68 disabling injuries per million man-hours worked. By way of comparison, here are figures from other industries, based on injuries per million man-hours: marine transportation, 32.48; construction, 19.10; air transport, 14.65; foundry, 10.32; iron and steel products, 8.72; petroleum, 7.26; machinery, 5.97; chemical, 3.38. The average for all industries now stands at 6.38 disabling injuries per million man-hours worked. Our hats are off to the gas industry for an outstanding, and ever-improving, safety record!

The American Gas Association, whose member companies helped the industry improve its safety record in 1956 for the ninth straight year, has been honored by the National Safety Council for the third time in five years. The Council's Association Safety Award was presented to AGA October 23 at the National Safety Congress in Chicago.

Pipelines Plus

Natural gas transmission is nearing the \$7 billion mark for the postwar period. Up to January 1 of this year, the Federal Power Commission had authorized construction of pipeline projects aggregating more than \$5.5 billion. Applications for an additional \$1.5 billion have been filed with the FPC; some have been approved, and some are pending. In the eleven-year postwar period—through 1956, over-all gas industry expansion has totalled just about \$12 billion.

Southern Counties Solves a Problem

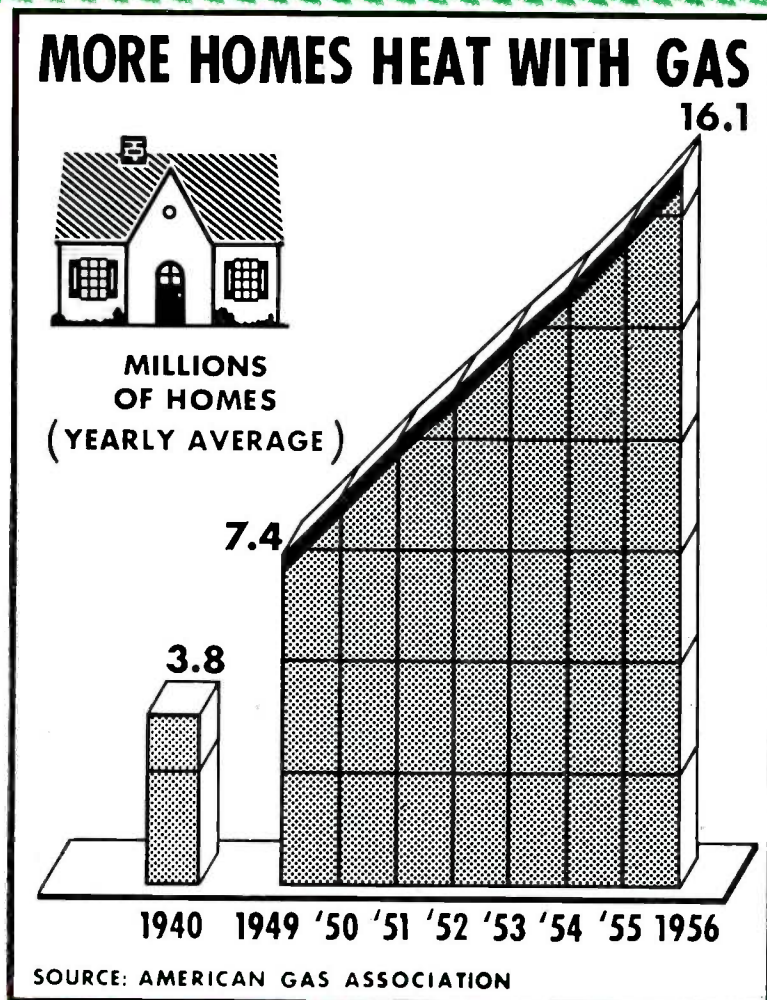
Much praise has been directed at Southern Counties Gas Company of Los Angeles. After many different approaches and much experimentation, a detonation problem in two-cycle gas engines used to drive pipeline compressors was solved by this utility. The first approach was through evaporative cooling of the scavenging air stream. It worked, but it also substituted an equally bothersome corrosion hazard. Ultimately, it was learned that the detonation problem was best handled by control of moisture content rather than temperature in the scavenging air stream. Water injection was discovered to be the answer by progressive Southern Counties.

"Round-up Time"

All across the country, wives were taking their husbands to the gas appliance dealers' showrooms—a result of "Old Stove Round-Up Time." Just what its name implies, Old Stove Round-Up was a planned campaign designed to round up old, obsolete-model stoves, and replace them with the latest model gas ranges.

A PAR activity of the American Gas Association with the co-operation of the GAMA, the campaign ran for three months—from September through November, peak season for the sale of home appliances.

Sales, at last report, were well ahead of the predicted 2,000,000 gas range sales for the entire year 1957, and every indication pointed to another highly-successful venture by AGA.





PIPELINE TO TOMORROW



America today has a new frontier—the frontier of scientific research.

Blazing trails all along this frontier is a wide-ranging band of pioneers—the scientists and research engineers of the gas industry.

In their quest for better ways to produce, deliver and utilize the basic fuel which is gas, research and development men are pushing forward on new paths in literally dozens of different fields of knowledge. With their discoveries, they are helping to raise the American standard of living ever higher.

Gas industry research is among the most varied and versatile of all industry-wide programs. This is so because gas, rather than being a single end-product of limited use—such as paper or paint, shoe polish or cement—is a primary resource with thousands of different uses throughout industry, in schools and restaurants, and in residences from homes to hotels.

As a result, the gas industry faces a great variety of technical problems and opportunities for advancement through scientific research, on fronts encompassing nearly every human activity. As one research director phrased it, scientific work on gas deals with industry problems "from the pressure in the bottom of the natural gas well to the draft in the customer's chimney."

Exploration for new knowledge may be basic or applied—concerned with fundamental questions of science or with engineering improvements designed to place a better gas range or air conditioner in American homes the day after tomorrow.

Fundamental studies may bear on



themes from mathematical theory to the relationship between chemical and electrical energy, from characteristics of a flame to aspects of atomic energy.

Applied projects may involve making a model of a miniature pilot burner or building a complete pilot plant operated by men working in shifts. In one set of experiments, on a new type of domestic gas incinerator, it was found necessary to develop a substance perhaps unique in laboratory history—synthetic garbage! The resulting compound, a "messy mixture" of chicken cleanings, feathers, restaurant scraps, wax paper and vacuum cleaner sweepings, was completely consumed, without odor or smoke, in a subsequent demonstration of the incinerator.

Gas industry research, unlike that of some other primary industries, is not concentrated in huge laboratories of a few giant corporations. Instead, the program is an

outstanding example of cooperative scientific effort. Many companies, particularly gas appliance manufacturers, engage in intensive research and development activities on their own, to be sure. But these individual programs are supplemented on a major scale by pooled scientific efforts conducted through the industry trade organization, the American Gas Association. Financial support totalling nearly \$2 million yearly is contributed by gas companies and pipeline companies all over the nation, and is expended at the direction of gas industry leaders who are the voluntary members of the A. G. A. research committees.

This pooling of resources means that the best minds and the finest technical facilities in the country can be enlisted for gas industry research. The gas industry jointly supports its own research facilities and staffs at the Institute of Gas Technology in Chicago, and at the

American Gas Association Laboratories in Cleveland. But in addition, top scientists at universities and technical institutes, such as Case Institute of Technology at Cleveland, Battelle Memorial Institute at Columbus, and the University of Illinois, may work on highly specialized gas industry problems.

The A. G. A. research program, first launched in 1925, has been carried on continuously since 1933. Begun with a few exploratory natural gas studies, the program has been expanded several times to include the present wide range of projects. By 1957, some 140 projects had been completed, with more than 90 per cent reported as successful. Recently, the Association program made another major addition to its work when it initiated a special, all-out research effort aimed at placing new and competitive gas air conditioners on the market at the earliest possible date.

The present gas industry research program covers four broad fields: home appliances, industrial and commercial applications, pipeline problems, and gas production.

Intensive effort is devoted to home appliances. To make gas ever more glamorous, economical and convenient for the housewife who is the industry's most important customer, experiments are conducted continually on such problems as automatic ignition for gas ranges, all phases of gas range cooking performance, improvement of water heater output and economy, development of improved heating and air conditioning equipment, the improvement of burners and accessories, and interchangeability of different types of gas in appliances. Successful results from these experiments help the gas industry to keep its seven basic appliances abreast or ahead of the competition in modernity and performance.

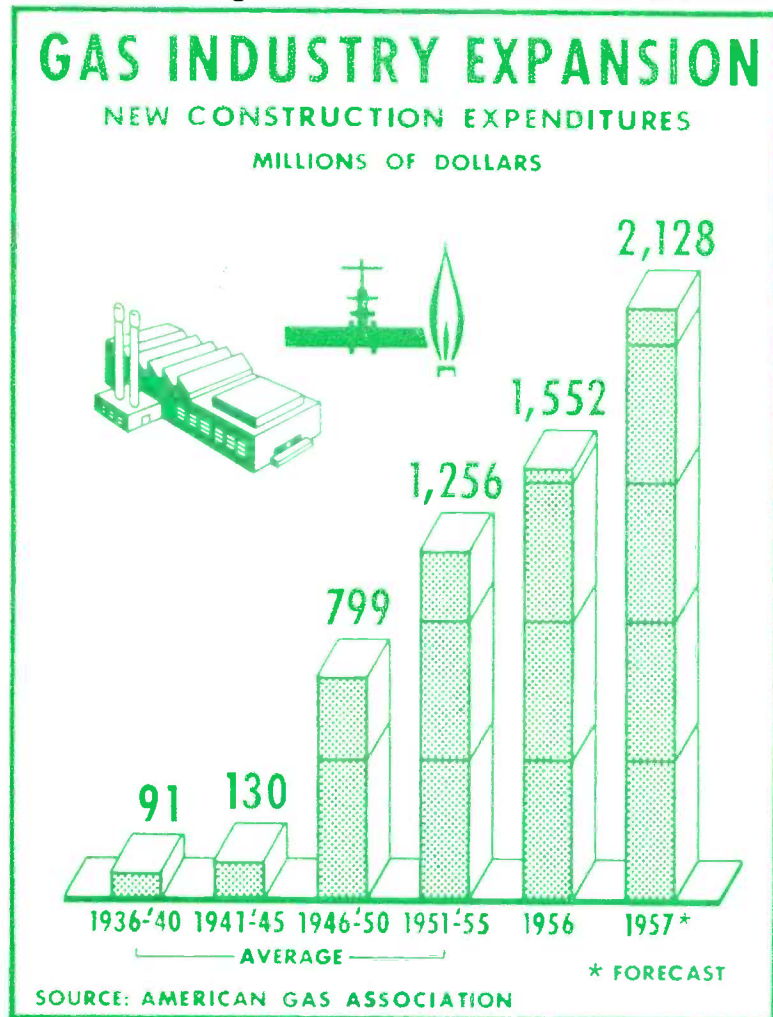
Experiments on industrial and commercial uses range from fundamental studies of combustion to testing of metals hardened by gas-heat treatment. Continual improvement and modernization of commercial cooking equipment, such as that used by restaurants and large institutions feeding thousands of people daily, also is a major concern of industrial and commercial research.

Pipeline research deals with such problems as better construction, improvement of gas measurement devices on pipelines, new methods of gas storage, corrosion, and the chemical properties of gases. Results are made available to the industry so that gas transmission may be made ever more dependable, speedy, and economical.

Research on gas production is continually seeking better and more economical means of manufacturing peak load and supplemental gases. The economical manufacture of pipeline gas from coal, shale oil and other sources is a major project, in which the problem is attacked from a number of different angles. Quality and suitability of such "manufactured" gases are

tested. Experiments also may deal with related problems, such as the development of new and better odorants, those harmless ingredients which give fuel gas its familiar, detectable smell. A thorough evaluation of the atom in the manufacture of gas is being made, to find out where this energy source fits into the gas picture.

Through all of these studies and experiments, and many others still to be undertaken, the scientists and engineers of our industry are helping to ensure that gas will hold an increasingly bright place in the future of everyone. As that future becomes the present, the pioneers will continue to mark out new paths of progress on the frontier that has no end—the frontier of science.



THE gas utility and pipeline industry is expanding this year at the fastest pace in its history with construction expenditures of more than two billion dollars. This is 37 per cent higher than last year and more than triple the annual average for the previous 20 years. The industry is adding about a million customers a year and currently serves more than 30 million customers through utility gas lines.

GAS UTILITIES throughout the country are recognizing the advantages of special training sessions to acquaint their men with the newest safety measures and equipment in their field. Some of these "schools" are of one-day duration, and others last three to five days.

One of the more successful one-day sessions is conducted each spring by the Wisconsin Natural Gas Co. of Racine, Wisconsin. The day is usually divided into three separate classes lasting two hours each. Average attendance each year is 500 men.

Mueller Co. was privileged to attend the 1957 safety school to demonstrate the NO-BLO safety features of the Mueller line. Conducting this part of the school was Clifford Auer, of the Company's Central Section.

The over-all program was built around a fire program, and entailed showing the men how to handle all types of fires successfully in cases of emergency. The Ansul Corporation of Marinette, Wisconsin, manufacturers of dry chemical fire extinguishers, were in attendance and put on excellent demonstrations of their equipment.

The night classes consisted solely of fire-fighting demonstrations. Ten different types of fires were created—from gasoline fires on engine blocks to overhead gas fires—and each man was given an opportunity to work with available equipment.

All forward-looking gas utilities which offer valuable safety schools are to be congratulated, for they are the means by which the whole industry's safety record is improved each year.

Wisconsin Natural Gas Sponsors Safety School



ABOVE, Cliff Auer, Mueller Sales Representative, demonstrates a safety feature of the NO-BLO line of gas goods. **BELOW**, Cliff lectures to a large group attending the evening session of the safety school. Following this talk, the men adjourned to the night air and watched practical fire-fighting demonstrations.



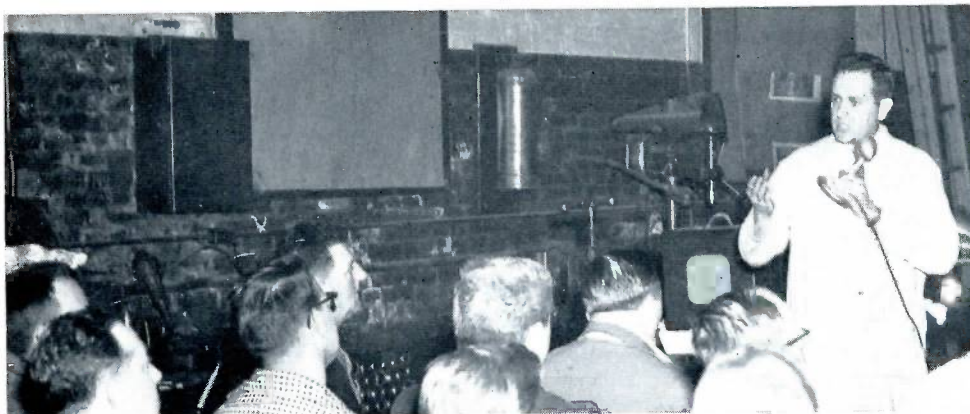
Expansion and New Discoveries

Oklahoma Natural Gas Company will spend \$50 million for expansion and construction over the next five years, says Secretary-Treasurer Fred W. Peters. . . . Southern Natural Gas Company will purchase the assets of Suntide Refining Company, Tulsa, which has a huge refinery at Corpus Christi and operates gathering facilities in Texas. . . . El Paso Natural Gas Company reports significant new discoveries in offshore acreage along the Louisiana coast and in British Columbia.



Hidden Wealth

Underground storage capacity of the gas industry is now 3.4 trillion cubic feet, and represents an estimated capital investment of more than 456 million dollars. In releasing these figures recently, the American Gas Association stated that ten storage pools and 686 wells were added last year, bringing the totals to 188 pools and 7,432 wells devoted to underground storage. These underground facilities now exist in 20 states.



November, 1920: "Saturday, October 2, a serious catastrophe was averted in the main office by a whistle blowing just in time. The main office clock was about to sound the hour of twelve, and looking down the office one could see anxious employees on their toes, awaiting the first sound of the whistle blast. But—the whistle did not blow! It had struck, and refused to work! Not knowing this, many employees waited in tense expectancy, their bodies inclining forward at an angle of 45 degrees, all wide awake and alert for a dash to the clock. Still the whistle did not blow. The situation was becoming acute, and the danger of some of the employees losing their equilibrium and falling forward on their faces was momentarily increasing. When all hope of saving them was abandoned, and the thought of notifying the first aid station was uppermost in the minds of those watching, Engineer Ferre got the whistle straightened out, and the quitting blast pierced the air. As nearly everyone was in position for a flying start, a new record on ringing out was established, but a few of them had to go some to do it!"

The **November, 1920, RECORD** describes a new way to save money: "In the good old days when a man could quench his thirst at any street corner, one man who drew his pay every Saturday night had nothing left with which to get his breakfast Monday morning. He overcame this difficulty in this way:

"When he drew his pay, he took a ten dollar bill and put it in an envelope, addressed it to himself, and mailed it. The postman delivered it to him Monday morning. Thus, he had saved ten dollars."

The old saying about postmen, which goes "... through wind, hail, snow . . ." was applicable to Mueller sales representatives as far back as **February, 1921**, when Bob Collins, Mueller rep in Minnesota, wrote a letter to the Company:

"This is a wonderful place in summer time (they say), but so far all I have seen is ice, snow, rain, mud and sleet, and other disagreeable climatic conditions too numerous to mention.



← ← ← LOOKING BACKWARD

"There are ten thousand named lakes in Minnesota, and I think there are at least 50,000 that have not been named. At least, I know of three such. They are in my backyard.

"Mark Twain said that the coldest winter he ever experienced was the summer he spent in Duluth. 'It was not so bad at that,' he said 'except that the sleighing got a little sloppy on the Fourth of July.' We wear boots up here six months twice a year . . ."

This item from the **Mueller Record**, issue of **December, 1921**, was cleverly written:

"Christopher Columbus has been adjudged the best salesman by the Executive Club of Chicago. He sold his voyage to Queen Isabella, and she had to hock her jewels to pay for it. When he asked Genoans to sign on the dotted line, they told the office boy to give him the gate.

"But was he discouraged? Did he quit trying? No! He took the first boat for Spain, bluffed his way into Izzie's private office, and gave the lady a spiel that might well be incorporated in **SALESMANSHIP IN TEN LESSONS**.

"'Madam,' he said, 'no royal family should be without a private entrance to the Indies. Here's the opportunity of a lifetime! Three caravels down and a small monthly payment will give you our patented, guaranteed new world. Try it, Madam, and you'll never regret the investment.'

"He talked so fast and so well that Izzie took her jewels to the royal hock shop and then signed his contract!"

In the **November, 1921, Record**, we found this fine bit of prose from the pen of Arthur Capper, U. S. Senator from Kansas:

"A man's job is his best friend. It clothes and feeds his wife and children, pays the rent, and supplies

them with the wherewithal to develop and become cultivated. The least a man can do in return is to love his job. A man's job is grateful. It is like a little garden that thrives on love. It will one day flower into fruit worthwhile, for him and his to enjoy. If you ask any successful man the reason for his making good, he will tell you first and foremost it is because he likes his work; indeed, he loves it! His whole heart and soul are wrapped up in it. His whole physical and mental energies are focused on it. He walks his works; he talks his work; he is entirely inseparable from his work, and that is the way every man worth his salt ought to be if he wants to make of his work what it should be, and make of himself what he wants to be."

In the **February, 1922**, issue, we ran across some interesting statistics prompted by the announcement that Mueller Co. would have a full-page ad in the April 8 issue of **SATURDAY EVENING POST**. The cost of the ad, at that time, was \$7,000, and the guaranteed circulation was 2,225,000 copies. If the Company had preferred direct mail, post cards to 2,225,000 people would have cost \$22,250, exclusive of printing. The printing cost would have been \$3,225. The labor cost in the office for mailing these cards would have been nearly \$1,000. The total cost for direct mail, then, would have been about \$26,475!

If the Company had access to the **POST** subscriber list, ten thousand pieces of mail could have been handled daily. At that rate, it would have taken 222 days to complete the mailing. If the mailing began on January 1, it would have been completed August 11, provided work was done every Sunday.

This seems like a pretty good argument for a \$7,000 ad, doesn't it?

*and a
Happy
New Year*



Too!

Our New Year's Resolution:

*To continue to serve you with Quality,
Engineering Skill, and Dependability.*

*Sincerely,
Mueller Co.*