

# Mueller Record

CHRISTMAS 1959





## *Recording Our Thoughts*

At this time of year, we pause to thank you, the readers of the Mueller Record, for your interest and support throughout 1959. It has been a wonderful year for us; we hope you, too, have enjoyed the same measure of happiness and success.

Everyone in the organization joins in wishing you and yours the brightest Holiday Season, and a Most Prosperous 1960!

—The Editor.



# MUELLER RECORD

CHRISTMAS • 1959

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



Editor  
**Jim M. Milligan**



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



### FACTORIES

Decatur, Illinois  
Chattanooga, Tennessee  
Los Angeles, California  
Sarnia, Ont., Canada



### SALES OFFICES

New York City  
San Francisco



### SINCE 1857

Quality Products for the  
Waterworks and Natural Gas  
Industries



The name MUELLER is a registered  
trademark of Mueller Co.

*OUR COVER* this month is both traditional and modern. The Christmas tree, of course, represents a yule tradition dear to us all. The use of ornaments and imaginative snowflakes gives us the modern touch to this month's cover. We hope you like it.

## Contents

- 4 MISSISSIPPI VALLEY GAS GROWS WITH STATE** . . . is an account of the amazing growth and potential of a progressive utility.
- 6 THE "WHY" OF COLOR** . . . is an interesting feature written by Norman S. Cassel of Interchemical Corporation.
- 7 MOBILE UNIT SERVES CUSTOMERS** . . . . . in Nashville, Tennessee.
- 7 GAS DATA** . . . . . contains financial figures of interest to everyone in the gas industry.
- 8 GAS MAGIC FOR TOMORROW** . . . . . is another in our "This Is Your Industry" series.
- 9 C. E. COX RECEIVES COVETED AWARD** . . . . . made by the National Safety Council.
- 10 STRICTLY OFF THE RECORD** . . . . . is this month's humorous offering.
- 13 AROUND THE WATER INDUSTRY** . . . . . presents interesting water data, courtesy WATER NEWSLETTER.
- 15 FORESIGHT GIVES WATER-SECURITY** . . . . . in the Pacific Northwest.
- 19 BLUE FLAME WHISPERS** . . . . . is a report on activities in the natural gas industry.
- 20 GOOD RESOLUTIONS.**

## Preview

We will use this year-end issue of the **RECORD** to predict great things for your reading pleasure in 1960. The **MUELLER RECORD** is now embarked on its **FIFTIETH YEAR**, and we will present many new features in the next few months.

In November, you will receive our Golden Anniversary Issue, which is already in the planning stages. We are looking forward to working on it. We hope you will enjoy receiving it.



General offices of Mississippi Valley Gas Company in Jackson feature a display of gas appliances in the lobby-showroom. Other district offices of the company promote gas sales in a similar manner.

### COMPANY HISTORY

Mississippi Valley Gas Company was incorporated on November 17, 1951, for the purpose of acquiring and operating natural gas properties of Mississippi Power & Light. On January 8, 1952, a contract was signed for this purchase and until March 14, 1952, the gas properties were operated for the account of Mississippi Valley Gas. On that date, the Federal Power Commission and the Securities Exchange Commission gave full approval for the transaction.

The transaction was financed by the sale of 4½ percent first mortgage bonds totaling \$7,700,000 to seven insurance companies and public sale of 400,000 shares of common stock underwritten by Equitable Securities Corp., yielding \$4,048,000.

On May 26, 1952, Mississippi Valley Gas Company contracted with Mississippi Gas Company (owned by Southern Natural Gas Company) for purchase of their gas distribution properties in eastern and northeastern Mississippi. This purchase was financed by \$2,750,000 in 4¼ percent first mortgage bonds and a short-term bank loan of \$1,250,000. Assets of the total Mississippi Valley Gas Company system totaled \$19,718,000 as of December 31, 1952.

The public offering of direct ownership in the company was a momentous step in Mississippi. It was the first time the general public had ever been offered ownership of a company of this type.

A majority of shares in Valley Gas are owned by Mississippians and individuals in neighboring Southern states. Yet, no one owns as much as five percent of outstand-

# Mississippi Valley Gas Grows With State

**I**N any survey of Mississippi's progress, natural gas is an important factor. Often called nature's perfect fuel, natural gas serves many needs for individuals and businesses.

In Mississippi, one of the major distributors of natural gas is Mississippi Valley Gas Company. In fact, Valley Gas' service area lies entirely within the state; its home offices are in Jackson and the majority of its employees are natives of the state who have gained years of experience in the gas industry right here. Of some 450 regular employees, 124 have ten years experience or more.

Mississippi is laced with major

pipelines and many thousands of miles of tap and feeder lines that supply natural gas to over 90 percent of all communities having a population of 1500 or over. Of 82 counties in the state, all except one are crossed by one or more pipelines.

That is a remarkable record; but, Mississippi has been fortunate in geographical location. Though the state is not, itself, a major gas producer, most of the major lines had to cross it to connect the great gas fields with Eastern and Seaboard markets. Now that a substantial volume of gas has been discovered in the state, however, the gaps in areas served have been closed almost completely.

ing stock, and counting the strong Mississippi support, company stock is held by some 3823 persons in 46 states, and the District of Columbia, Hawaii, Canada and Germany. Many employees own stock, and others participate through a time-payment plan.

### THE COMPANY TODAY

Valley Gas owns a total of 2091 miles of gas mains, varying from one inch to 20 inches, and has under lease another 410 miles of one inch to eight inch lines. The underground storage facility, located near Amory in Northeast Mississippi, is adequate in capacity to meet demand on peak days in the system.

At the year ending December 31, 1958, a total of 139,237 customers were being served. The 112 communities within the company's service area are located generally in the northern half of Mississippi,

except for Natchez in the southwest part of the state.

Construction expenditures throughout the system totaled \$1,832,896 during 1958, for improvement and expansion of various service facilities, as well as additions and extensions to serve new customers. Anticipated expenditures for the current year (1959) were \$2,244,200.

### IN SUMMARY

The availability of gas from so many sources has played a major role in the state's industrial growth. The strategic location in relation to transportation and trade routes across the east-west and north-south axes of the nation is important to most industries. The climate advantages of ample rainfall to maintain superior ground and surface water supplies; possible savings in plant construction, operation and maintenance are par-

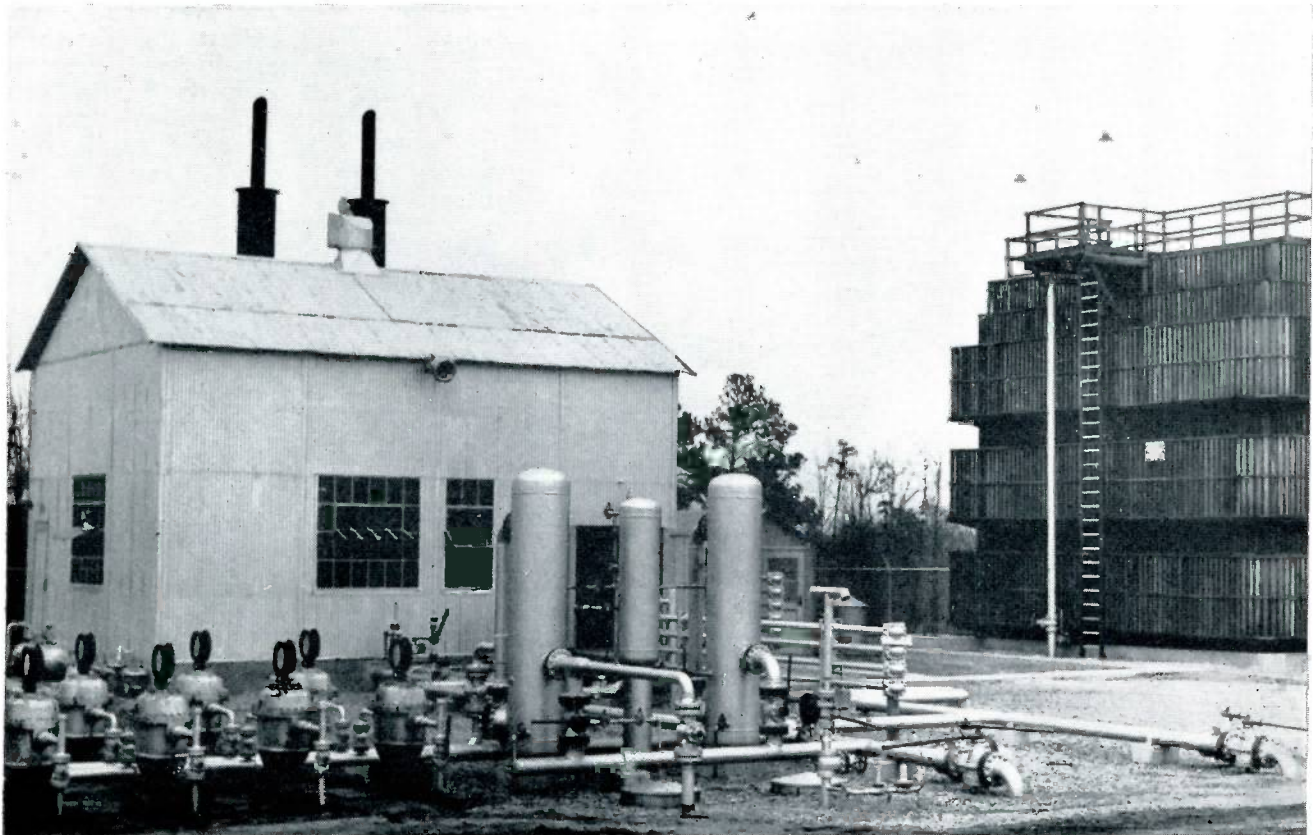
ticular attractions where industries must avoid mounting costs caused by these factors.

With its package of industrial advantages, Mississippi has the potential for another burst of manufacturing growth based on natural gas as a raw material. Already, gas is the basic raw material used by Spencer Chemical, one of the state's newest industries and built to produce anhydrous ammonia for area farmers.

In the widening petrochemical field, Mississippi has the necessary dependable volume of natural gas as a raw material.

Certainly, in view of all these factors, Mississippi is in a favorable position in the expansion of industrial might. Contributing to these advantages is the soundly-operated and forward-looking Mississippi Valley Gas Company—a company which is pledged to play a major role in the future development of the state.

**Underground storage facilities near Amory in northeast Mississippi enable Mississippi Valley Gas to serve customers at peak periods without undue strain on normal supply sources.**



# The "WHY" of COLOR

by N. S. Cassel, Vice-President

Interchemical Corporation

Have you ever seen a black angel or a white witch, a red shamrock or a green heart? Probably not. Color experts find that people associate certain things with certain colors. Do you know what images are likely to skip through your subconscious when you see red or green, orange or yellow . . . what moods they're likely to create inside of you?

**RED . . .** St. Valentine's Day, hearts, fire, blood, violence, danger, communists, "Stop The Car!" Red excites your emotions.

**GREEN . . .** St. Patrick's Day, "Traffic May Go," nature and fertility, water and coolness. Green makes you feel refreshed.

**BLUE . . .** Service and loyalty, ice and coldness, sky and water. Blue gives you a cool serene feeling.

**PURPLE . . .** Easter, mourning, mist, shadows, royalty. Purple makes many people feel depressed.

**WHITE . . .** Purity, cleanliness, innocence, Mother's Day, snow, coolness.

**ORANGE . . .** Autumn, Halloween, Thanksgiving Day, warmth.

**YELLOW . . .** Sunlight, cheerfulness, "Traffic Slow Down." Orange and yellow make you feel active.

**BLACK . . .** Evil, death, mourning, emptiness, night.

These are the general color associations Americans have today, but other countries, other ages often had very different ones. And remember too, that each of us also has a personal set of color responses based on our own past experience.

You can even guess something of a person's temperament by the colors he prefers. Generally speaking, introverts prefer cool colors—green, blue, blue-green. Extroverts go for

warm colors like red and orange. Intermediate types often prefer yellow or purple.

Blue subdues the emotions and red excites them; eyes are not even needed to prove this fact because botanists have shown that red light is conducive to the growth of plants whereas blue light retards plant growth. Other amazing experiments show that under blue light time seems to pass more swiftly and weights seem lighter than they really are!

Mental hospitals not too long ago used color therapy. Blue had a soothing effect on hysterical patients. Yellow was used to stimulate melancholy patients, while red and orange was used on extreme cases of melancholy.

A quick glance at history tells us that white, not black, was the color of mourning at ancient Roman funerals. And this is true even in modern China.

Green was the color of learning to the ancient Druids, but to the American Indian it was the color used to summon rain! And to the early Christian mystics green was a symbol of the Holy Grail, which was made from divine emerald.

Blue was used in olden times to resist the "evil eye" of witches and devils. Yellow was thought to cure jaundice. Black was the color that would waylay the demon rheumatism!

Red meant heaven to the ancient Chinese, but meant "goblins" to their neighbors in Tibet. An did you know that in the Russian language the word for "red" is the same as the word for "beautiful"?

Ever wonder how colors got their names? Sepia is the Greek word for the cuttlefish which gives us the brown sepia pigment. Indigo takes its name from its place of

origin—India. Cobalt blue is named after the Kobolds, mysterious goblins who haunted the mines of old Germany.

Color psychologists in league with dramatic artists have worked out a set of symbolic colors to be used in the theater on actors' costumes and stage settings.

**RED . . .** for vigor.

**YELLOW . . .** for warmth and joy.

**GREEN . . .** for abundance and wealth.

**BROWN . . .** for melancholy.

**GRAY . . .** for old age.

**WHITE . . .** for zest and awareness.

**BLACK . . .** for gloom.

Every year more and more color psychology is being used in business, advertising, packaging. A margarine company found its sales dropping off. Was it because of the new design on their package? Color psychologists were called in. They found the reason. The new package showed a piece of margarine enclosed in a cake of blue ice. Ice combined with blueness started off a chain of associations in the minds of consumers. Blue and cold . . . lifeless . . . not natural . . . SYNTHETIC! When the company changed their package design to show the margarine as part of a yellow and green flower (warmth . . . health . . . life . . . fertility . . . nature . . . NATURAL, NOT SYNTHETIC!), their sales soared to new heights!

An oil company in India did booming business when they decided to sell their product in a can with a red monkey. The monkey god Hanuman is very popular in Indian mythology, and red is the color of Brahma, the Hindu's greatest god.

A radio manufacturer found out he could make nothing but blue sets for certain native tribes in Northern Rhodesia. Blue was the only color that did not clash with the hundreds of tribal superstitions!

Another firm found no market for its pins in China. Nobody would buy them. The reason? The pins were packaged in dark blue—the color of death to the Chinese.

During the Korean War, UN

(Continued Col. 1, Page 7)



Nashville, Tennessee

## Mobile Unit Serves Customers

(Continued from Page 6)

forces dropped leaflets to the Chinese promising \$100,000 reward for the pilot who would fly a MIG jet to UN territory. The leaflet was printed in black on a blue background. To the Chinese, a black-blue combination symbolizes the lower classes. The leaflet might have been more effective had they printed it in red-on-white—traditional in China for important notices.

More and more color is splashing into every corner of our everyday life—our clothes, our supermarkets, even our telephone booths and gardening equipment. More than ever before, business needs color knowledge, and modern new color laboratories like those at Interchemical Corporation have begun to provide basic research in the scientific aspects of color and light.

Color surrounds us as never before. We want to know more about its history and mystery. We will want to use color, not have color use us. Learning color "why's" will make us "colorwise."

Nashville Gas Co. has established a new public service—a mobile bill-paying office—which will be stationed on regular dates each month at selected major food stores over the city.

The trailer-office will be manned by a payment-receiving clerk, and will contain displays of gas appliances. It will be heated in winter and air-conditioned in summer.

"Any customer of Nashville Gas Co. is invited to pay bills there instead of at the downtown office,"

explained Thomas J. Turbeville, the company's sales promotion manager. "Actually, the plan grew out of recently increased parking difficulties in the vicinity of our main offices which, for a time, caused the company to consider setting up branch bill-paying offices at a number of key points."

The trailer is 30 feet long, and made almost entirely of aluminum. It marks a milestone of unusual nature in gas utility efficiency and public relations.

### — Gas Data —

Distribution system expansion is very likely to reach a record high of \$690 million in 1959, according to preliminary estimates by the editors of GAS MAGAZINE. One of the big reasons for this is that distribution companies which converted from manufactured gas to natural gas after World War II gained a great deal in system capacity through the increased thermal content of natural gas. Many of these companies have now used up this "bonus" capacity and will be forced to make major expansions in 1959 to keep up with ever-increasing customer demands.

Total assets of the nation's gas industry will climb, by the end of 1960, to more than \$25 billion—quadruple the figure of 15 years ago—the A.G.A. predicts in a new fact booklet, "Meet the New Gas Industry."

The 24-page illustrated publication discusses all major phases of the industry, which currently has assets of approximately \$21.5 billion, and serves some 41 million customers who use more than 100 million gas appliances.



# GAS MAGIC for TOMORROW



The gas industry is helping to build a new world of tomorrow.

Revolutionary new gas appliances, so different you'll hardly recognize them, already are in production or on the drawing boards.

Unexpected new uses for gas, surprising practical applications of scientific theory, are opening new vistas for industry growth.

Radically new methods of producing gas, and of transporting it from far corners of the earth, are transforming the industry's outlook for supply as far ahead as we can see.

With all of the advances now in the making or yet to come, gas in the world of the future will be as up-to-date as the newest space station or the latest interplanetary flight.

Let's take a look at some of the new gas appliances already in the works. They include gas ranges and ovens that will provide high-speed cooking **without a visible flame**. There will be devices utilizing gas as the sole source of energy—gas appliances will even generate their own electricity!

Outdoor areas will be made as warm and comfortable as indoors by gas radiant heat; many different types of economical gas air conditioners will keep indoor areas climate-controlled year-round. City air will be cleaner because of widespread use of gas smokeless-ordorless incinerators of all sizes.

Gas kitchen appliances will appear in new built-in combinations. Among their features may be flush-top ceramic burners for range-top cooking without utensils, burners which fold away when not in use, and movable units which may be "plugged in" to handy gas convenience outlets.

Hot water in unlimited quantities and at desired temperatures will be provided for swimming pools, homes and commercial and industrial establishments, by small gas units designed to heat water instantaneously at the point of use. Compact, more efficient gas refrigerators and freezers will be standard equipment in every gas kitchen.

Appliances will be completely automatic, remote-controlled, or both.

These are only a few of the new "gas gadgets" already available or in advanced stages of development. Many others may confidently be expected as the fruits of intensified gas industry research.

Among the most intriguing new developments in gas utilization are gas burners radically different from those we have known in the past.

**Infra-red gas burners**—with which some late model gas ranges already are equipped—achieves faster, more penetrating cooking action from the radiant glow of gas combustion diffused over the surface of perforated ceramic elements.

Applications of the same principle provide radiant heat for industrial processes and for outdoor heating.

One feature of such burners is that heat is directed only where it is needed, leaving intervening air and surrounding spaces cool.

"Flameless"—**thermo-catalytic**—gas burners contain the combustion of gas-air mixtures inside a tube or coil. Not only is the open gas flame eliminated by this means, but much higher heating efficiencies are attained.

Such burners may be bent or molded into any shape, and placed practically anywhere that a heat source might be desired. Thus, potential applications are almost limitless.

Other types of "power burners" utilizing controlled mixtures of gas and air for combustion may be designed to fit a multitude of specific needs.

So promising are these new types of ultra-efficient gas burners, indeed, that the familiar open blue flame of gas may before many years become only a nostalgically-remembered symbol!

Utilization of gas as the sole power and energy source has been made a practical possibility by development of "thermo-electric cells" and "thermionic converters" for direct generation of electricity from application of gas heat.

It has long been known that



when heat is applied to dissimilar metals joined together, or even to a single metal under special conditions, an electric current may be generated. Recent advances in knowledge of metals, especially the "semi-conductors" (from which transistors are made), have opened the way to economically feasible production of electricity in useful amounts by this method.

Advantages of this gas-fueled "power package" are evident from the fact that only a single utility service—gas—would be required. Such direct generating units could operate equally well on LP or "bottled" gas, far beyond utility-served areas. For remote regions of the earth, therefore, gas-fired direct generators may in the future become lively competitors even for the so-called "portable" atomic energy plants!

Further brand-new uses of gas may come in ways as yet undreamed-of. Certainly, no one 20 years ago could have foreseen the sudden emergence of petrochemicals, the major new industry which from gas gives us myriad man-made fabrics and synthetics of all kinds. The use of gas in many kinds of chemical wizardry will play in the future an even more important part in our lives than it does today.

The gas supply picture for the future is likewise being transformed by research. To our already vast reserves of natural gas known to be stored in the earth is being added the prospect of almost inexhaustible supplemental supplies of high-quality synthetic gas.

Experiments now going forward point to economical methods of producing supplemental gas from coal and from shale rock which the earth contains in abundance. Under one of the processes being investigated, it may even be that atomic energy—now regarded as a potential competitor of gas—may assist in unlocking these new sources of gas supply!

The life of our natural gas reserves themselves may also be extended many more years into the future, by new means of transport enabling us to obtain natural gas from places as remote as the Sahara Desert or the Middle East.



C. E. Cox (right) receives award from M. V. Cousins, vice-president of the United Gas Pipe Line Company

## C. E. Cox Receives Coveted Award

The National Safety Council's coveted "President's Medal" was awarded to C. E. Cox of Runge at a banquet given in his honor in San Antonio recently by his employer, United Gas Pipe Line Company.

M. V. Cousins of Shreveport, vice president of United Gas Pipe Line, presented the award to Cox, whose quick thinking and skillful life-saving technique saved the life of an oil field workman near Weesatche February 26.

Accompanying Mr. Cousins from Shreveport were Mrs. Cousins; H. G. Pegues, general superintendent of United Gas Pipe Line's western division, and R. L. Conway, safety director for the company.

W. O. Allen, San Antonio district manager, was host for the event, given in the San Antonio Club.

Cox, a meter and well attendant for the company in Cabeza Creek Field, resuscitated Felipe Arrisola, who had been overcome while cleaning an oil tank and had been given up for dead when Cox appeared on the scene.

Applying artificial respiration for 30 minutes without any apparent success, Cox finally heard the victim of the tank fumes mumble and then resume regular breathing. An ambulance then took Arrisola to a Beeville hospital, where he recovered.

"Of the group present at the scene of the near-tragedy, Mr. Cox was the only one who insisted that attempts to revive the victim be continued," Cousins said. "It was because of this persistence that this citation has been awarded."

Pointing out that this was the fifth instance of a life being saved by a United Gas employee through the proper use of artificial respiration, and the second time the National Safety Council has awarded the President's Medal to a company employee, the speaker paid special tribute to the safety department for providing first aid training as a regular part of its safety program and to Cox for having the presence of mind to use his training successfully.

Remember way back when only astronomers and bacteriologists talked in terms of billions?

—::—

Conscience is what hurts when everything else feels good.

—::—

An American can still feed himself "adequately" for something in the neighborhood of \$100 a year, according to a recent book by George Stigler, a Columbia University economist. His diet: 370 pounds of wheat flour; 57 pounds of evaporated milk; 111 pounds of cabbage; 25 pounds of spinach and 285 pounds of navy beans.

—*Science Digest*

—::—

Hay is something we must make between the time we get out of it and the time we hit it.

—::—

By the time a family acquires a nest egg these days, inflation has turned it into chicken feed.

—*American Mercury*

—::—

Why is it that there is seldom enough time to do a job right, but there always seems to be enough time to do it over?

# Strictly

## Off the Record

A taxpayer is a person who does not have to pass a civil service exam to work for the government.

—::—

Some people should never drink with an empty head.

—::—

Variety gives life its spice, but monotony still provides the groceries.

—::—

If you drink a quart of milk a day for 1200 months you will be 100 years old.

—::—

Some people talk for hours without mentioning what they are talking about.

If you live within your income these days, you'll live without a lot of worries — and a lot of other things, too!

—::—

You're on the road to success when you realize that failure is merely a detour.

—::—

Inflation is a state of affairs when you never had it so good or parted with it so fast.

—::—

Reporter: Do you see many strange sights?

Window washer: Well, up on the fourth floor I just saw an office full of people—all working!

—::—

You can't give character to another person, but you can encourage him to develop one by possessing one yourself.

—::—

The installment collector came around to remind Joe he was seven payments behind on his piano. "Well," replied Joe, "the company advertises 'pay as you play' and I play very poorly!"

—::—

"This is Perkins, Potter, Parker and Potts. Good morning."

"Is Mr. Potter there?"

"May I ask who is calling?"

"This is Mr. Sullivan, of Sullivan, Chadwick, Bicknell and Jones."

"Just a moment please. I'll connect you."

"Mr. Potter's office."

"Mr. Potter, please. Mr. Sullivan calling."

"Will you put Mr. Sullivan on the line, please?"

"Mr. Sullivan? Ready with Mr. Potter."

"Hello, Pete, this is Joe. Okay for lunch? Good. See you."

—::—

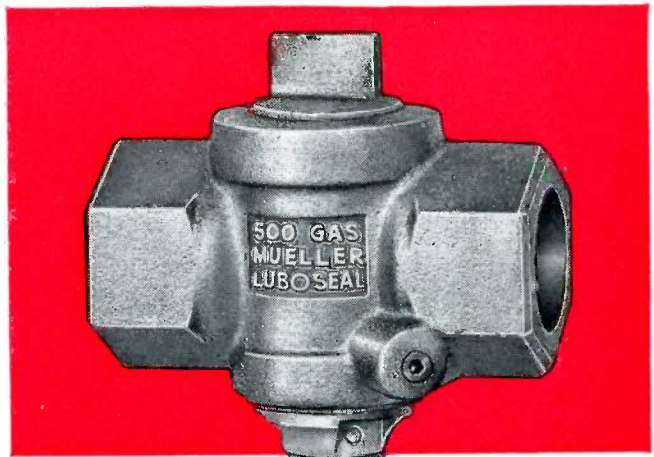
To dodge responsibilities is easy; the hard part comes in dodging the consequences of dodging them.



FRANK OWEN  
COPYRIGHT 1957 CARTOONS OF THE MONTH

"Pop just can't help things like this - he's a structural engineer!"

# NEW MUELLER® 500 pound LubOseal® stop/ductile iron



... ground key surfaces and "quad-rings" provide pressure seal

### Ground and Lapped Body and Key...

Ductile iron has excellent machining qualities, therefore the body and key can be accurately machined and **individually** ground and lapped for a precision, gas-tight fit.

### Quad-Ring Seals...

Top and bottom of the key are positively sealed by quad-rings located in annular grooves in the stop body. The quad-rings also pressurize the lubricant — deflecting as the lubricant reservoir is filled and expanding to keep pressure on the lubricant as it is used.

### Ductile Iron Body and Key...

The corrosion resistance of cast iron with the strength, impact and fatigue resistance of steel — all these advantages are incorporated in the 500 pound LubOseal Ductile Iron Stop. The body threads are recessed for extra strength and rigidity. Body ports are tapered to meet the straight way in the key, providing smooth flow and additional strength.

### Tamper-Proof...

A heavy bronze washer is secured to the lower end of the key by a drive-lock pin in a blind hole, thereby permanently maintaining the perfect adjustment between the key and body. Stop is operable with the stem nut removed or with the nut over-tightened to the point of stripping the threads, providing an additional safety feature.

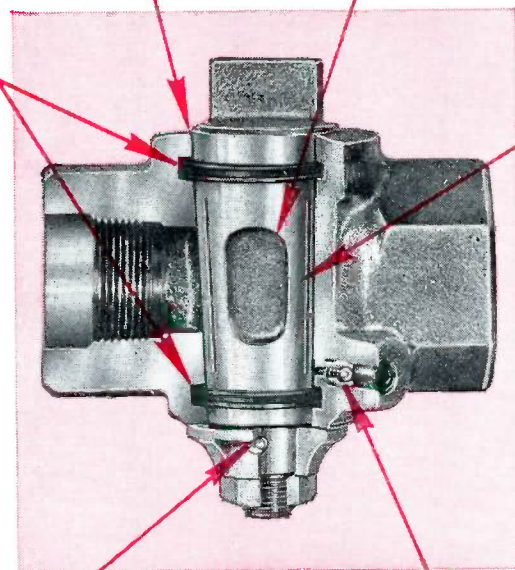
H-11180 Solid Head  
Sizes: 3/4", 1", 1 1/4", 1 1/2", 2"

H-11185 Lock Wing  
Sizes: 3/4" and 1"

For complete information and literature  
write direct to:

### False Ports...

False ports in the key and body are aligned with the true parts in the body and key when the stop is in the closed position. This prevents grit or dust in the gas from settling upon the polished sealing surfaces and later damaging them when the key is turned to open the stop. Seating contact is reduced to only those areas where it is useful, resulting in an easier turning stop.



### Lubricated Key For Easy Turning and Pressure Tightness...

The lubrication system of LubOseal Stops maintains a proper grease film on the seating surfaces, assuring easy turning and pressure tightness. Four vertical grooves in the key distribute the lubricant over the ground and lapped surfaces each time the stop is operated. The quad-rings in the circular grooves and the entire seating surface between these grooves are fully lubricated. In any position other than fully "opened" or fully "closed", the vertical grooves are disconnected from the circular reservoir grooves, preventing the line pressure from forcing the grease out of the lubricant system.

### Triple-Sealed Re-Lubricating Port...

The grease port is located so that a ground and lapped seating surface is between it and the main gas port, preventing any leakage. A spring loaded, ball-check grease fitting provides a second seal. The socket head pipe plug forces grease through the grease fitting into the entire lubricating system and provides a third and final seal!

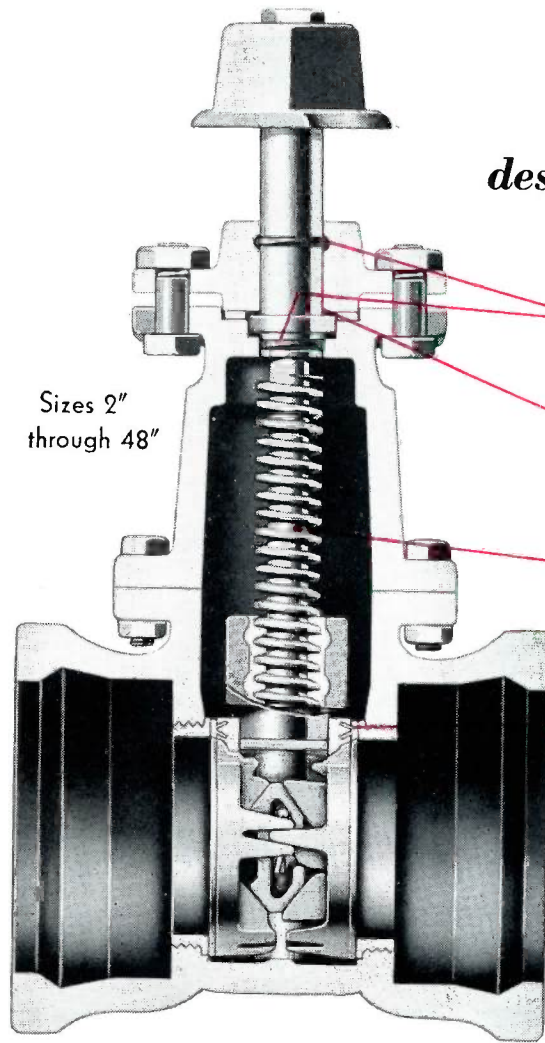


**MUELLER CO.  
DECATUR, ILL.**



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

*designed for minimum maintenance!*



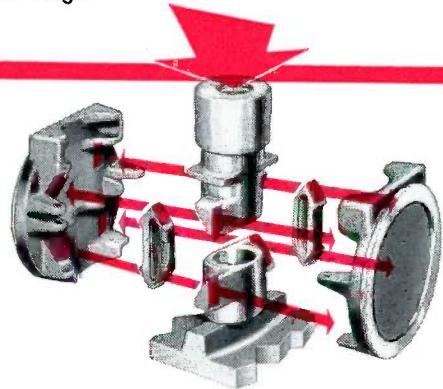
Sizes 2"  
through 48"

**"O" Ring Stem Seals . . .** "O" ring at bottom provides a positive water-tight seal. Upper "O" ring seals dirt and water from bearing surfaces and acts as a reserve pressure seal.

**Lubricant Reservoir . . .** the area between the "O" rings is filled with a special, lifetime lubricant. Each time the valve is operated, both "O" rings and thrust collar are completely lubricated.

**Heavy Bronze Stems . . .** are machined from high tensile strength solid bronze rod for all valves up to 16". Electrically upset thrust collar improves grain structure. Valves 18" and larger have stems cast from extremely high tensile strength manganese bronze.

**Bronze Disc Rings . . .** are dovetailed to become part of the disc and are then machined for precise mating with the seat rings.



**Four Point Wedging Mechanism . . .** exerts even pressure at four points near the outer edge of each disc to eliminate disc deflection and distortion and to assure tight shut-offs.

**Exclusive Disc Movement . . .** discs move in an inverted "T" manner, as shown, when valve is opened or closed. The entire disc and wedging mechanism is held together as a unit by special bronze pins passing through interlocking lugs that are cast integrally with each disc. This permits operation of valve in any position. These pins and lugs also control the amount of disc movement. By maintaining a minimum of clearance, discs positively shear incrustations and deposits from seat ring upon closing.

**Opposed Wedges . . .** on top nut eliminate binding or twisting of stem. Nut is free to rotate and the only forces on the stem are straight up or straight down.

## **MUELLER®** **gate valves**

You can forget about the gate valves in your water supply and fire protection systems when they're Mueller Iron Body, Bronze Mounted Gate Valves. All of these valves are Double Disc, Parallel Seat type specifically designed for water distribution piping. Long-life features, dependability features, and ease of operation features assure you of years of maintenance-free service. These features are typical of the great attention to detail in research, design and engineering that becomes a part of every Mueller product made for the water industry. Write for complete information.

**MUELLER CO.**



**DECATUR, ILL.**

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

# . . . . Around the Water Industry . . . .

## Lake Tahoe Water-Deficient

The mountain resort of Lake Tahoe, with 122 million acre-feet of water in storage, has been declared a "water-deficient area" by the California state commission. Factors behind this surprising development are a confusion of water rights, sewage disposal problems, domestic water shortages and a conflict of interests between lake-front property owners and down-stream water users.

This situation is another example of how the presence of a large body of fresh water is not always a guarantee against water shortages. Even in the Great Lakes area, the high cost of transporting water through pipelines a few miles from the source, seasonal problems in treating lake water for public supply, and diverse interests arising from multiple use of the lakes have at times led to critical water shortages and prolonged litigation.

\* \* \* \*

## Water in Water's Way

Tunneling through water to reach water is the odd predicament facing engineers constructing the 11-mile Clear Creek tunnel of the Trinity River Project in California. Operations have been practically halted by a water pocket which has cascaded as much as 4000 gallons per minute into the bore for more than three weeks.

\* \* \* \*

## Nature's Plants: Blessing or Curse?

Although plants are an essential part of watershed conservation programs, they can consume incredible amounts of water under certain conditions. An ordinary elm tree of medium size can lose 1,800 gallons of water to the atmosphere on a clear, dry, hot day. Losses of water by evaporation and transpiration on well-drained forest slopes can be as much as 30 inches per year where rainfall is plentiful during the growing season.

In many arid parts of the west, man has been waging a losing battle against water-loving plants, such as the salt-cedar, which have little economic value but seriously deplete vital ground-water reservoirs.

\* \* \* \*

## Control Seen for "Red Tide"

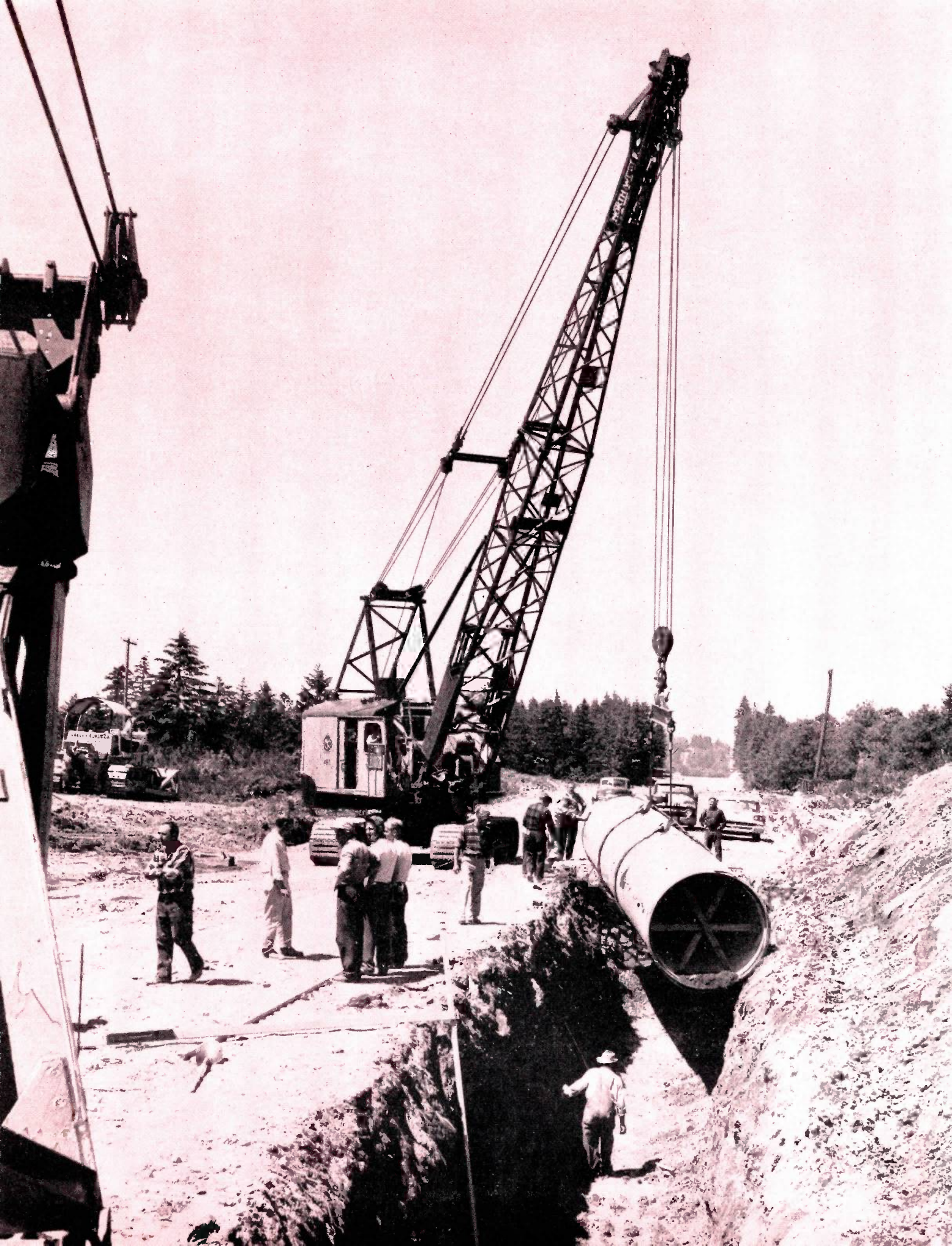
One of nature's most spectacular phenomenon is the explosive expansion of a microscopic water plant which, from time to time, colors the waters of the Gulf of Mexico red. This "red tide" kills millions of fish, fills the air with an irritating gas, and wreaks havoc on Florida resort and fishing industries. Combining oceanographic and weather data, scientists of the University of Miami have arrived at a complicated formula by means of which they believe they can predict the coming of a red tide months in advance. Next step is to devise methods of poisoning waters to prevent the organism's future invasions.

\* \* \* \*

## AEC Studies Waste Disposal

The Atomic Energy Commission will finance studies beginning this year toward the selection of a specific site to dispose of small quantities of low-level radioactive wastes off the New England coast. The need for such a site is becoming more and more critical because of the heavy concentration of industrial, medical and other users of radio-isotopes in that area. Also contemplated for next year are site selections in the Gulf of Mexico.

The AEC and other governmental agencies concerned with the disposal of wastes are proceeding very cautiously in adding new contaminants to the ocean. Some danger signs are already evident. Fishing hauls have dropped to record lows in many areas, and oceanographers are afraid that pollution of coastal regions, fallout from nuclear tests, and the dumping of nuclear wastes may eventually help to upset the delicate balance of ocean life. Population experts are particularly alarmed, because they feel the ocean is our "last frontier" for food and other natural resources, including water supplies.





At the left, the first length of 66-inch diameter modified pre-stressed concrete cylinder pipe is laid in right-of-way. Total length of pipeline: 28 miles. Above, only 25 miles from the Seattle business district and fed

by pipeline from Cedar River, Lake Young's usable storage capacity is over 3 billion gallons, equivalent to more than a 30-day supply for the city.

Seattle, Washington

# Foresight Gives Water - Security

(Courtesy J. Ray Heath, Supt.)

**T**HE first charter of the City of Seattle, dated 1869, makes no mention of water supply, but by 1875, amendments granted the City the power to erect, or authorize erection of, waterworks; to condemn property for construction; and to tax for construction and maintenance, either by the City or by a private company or individual.

The only supply sources at this time were springs located on surrounding hills, and several small water companies were formed to supply various city areas. In a message in 1883, Mayor H. G. Struve, stated, "The best plan would be for the city to construct and maintain its own waterworks, but legislative restrictions place it beyond the power of the city to incur the



Clearing Tolt River pipeline right-of-way in preparation for laying pipe. A maintenance road will also occupy this right-of-way.

indebtedness such an improvement would necessitate."

In an ordinance passed in 1881, however, the city had granted a franchise to the Spring Hill Water Works, and this ordinance included a schedule of water rates. This is the first recorded instance of the city attempting to control water costs. This Spring Hill Company, the largest of the early systems, was to become the first integrated distribution system, and the pivotal point in the ultimate development of the municipal water system; the company was purchased by the city of Seattle in 1890 for \$352,265.67.

The subsequent development of a

water system came about through purchase, through annexation and through gifts. The first mention of Cedar River as a supply source was published in a weekly newspaper in December, 1880. It wasn't until 1888, however, that official action took the form of a letter from Mayor Robert Moran to the Common Council, in which letter the mayor suggested a gravity water system with Cedar River as the source of supply.

On July 8, 1889, at a general election, the proposition to bond the city for \$1,000,000 to build the Cedar River Water Supply System carried by 1875 to 51. Immediately thereafter, Benezette Williams, an

outstanding hydraulic engineer from Chicago, was retained for development of the system. The project was engineered to supply 10mgd—100 gallons a head for an expected future population of 100,000.

Hard times were upon the land; money was desperately scarce; fire-destroyed Seattle was endeavoring to rebuild; money was required for sewers; revenue bond financing had not been developed; so, it was not until April 12, 1899, that bids were opened for the construction of Cedar River Pipeline 1.

In 1892, there were three cities with a population of 20,000 or more in the young state of Washington: Seattle, Spokane and Tacoma. They were limited in incurring indebtedness to five percent of the assessed valuation for general purposes, and an additional five percent for municipally - owned water, light and sewer systems. Spokane and Seattle were up to their debt limits. Spokane had issued its last bonds to replace a water system and to provide a new source from the Spokane River. Flood waters in the first year of operation (1894) destroyed the entire intake system. With no funds to replace the source of supply, Spokane went back to its old system.

No constitution of any state in the Union provided for the issuance of revenue bonds. The Chicago bankers who had purchased the general obligation bonds for installing the new Spokane system came up with a novel solution: they would advance funds for the replacement of the destroyed parts of the system, accepting in payment warrants payable, both principal and interest, solely from the earnings of the system. In a test case, the Superior Court issued a restraining order against the City Comptroller, forbidding the issuance of the warrants; but the Supreme Court, by a 3 to 2 decision, validated the warrants. This was the first revenue bond issue in the State of Washington, or in the entire country. The 1897 Legislative followed this action up by passage of an act authorizing the issuance of revenue bonds to provide for extensions and additions to an existing utility.





### THE SYSTEM TODAY

The Cedar River System has been the sole source of supply for Seattle since 1901; in addition, it furnishes water for wholesaling to 23 water districts outside the city limits. The area of the Cedar River Watershed is approximately 143 square miles. It is forest-covered, and lies between the Green and Snoqualmie River Basins. It receives the entire runoff for Cedar River and its tributaries from an elevation of 600 feet at the intake to the summit of the Cascade Mountains at over 6,000 feet elevation.

Precipitation ranges from an annual average of 55 inches at the intake to 110 inches at the headwaters of the River. Soil structure

At the left, the site of the impounding basin on South Fork of the Tolt River. Below left: looking upstream at South Fork basin, back of impounding dam. Below right: construction of abutment piers for steel plate girder bridge designed to carry pipeline and roadways across North Fork of Tolt River.



is mostly glacial till having high porosity, providing storage of rainfall which, during the summer, flows from springs into the River to sustain the supply.

Logging operations are carried out under the terms of a city ordinance providing for the methodical removal of merchantable timber on a perpetual yield basis. The operation is carried on by the Mountain Tree Farm Company, an operating subsidiary of Weyerhaeuser Timber Company and Scott Paper Company. Allen E. Thompson, City Forester for the past 35 years, supervises all operations to see that they comply with the terms of the ordinance.

These operations, and all sanitary conditions within the watershed are subject to constant supervision by regular sanitary inspectors.

As the Weyerhaeuser Timber Company logs the land it owns, title is given to the city of Seattle. The city owns 12,000 acres of land in other sections of the state which, under agreement with the Federal Government, will be exchanged for government-owned lands after logging has been completed. This land exchange agreement will eventually result in the city's ownership of the entire watershed area. In addition to its water supply value, the city will realize annual income from the sale of timber harvested under the sustained yield operation. Each year, 35 million board-feet of lumber (sufficient to construct 5,000 five-room houses) is taken from the area.

The 29-year average mean flow of the Cedar River at Cedar Falls is 286 cubic feet per second. In order to increase the capacity of the Cedar River System from the present 195 mgd to the maximum of 300 mgd, it will be necessary to increase the storage capacity of Chester Morse Lake or construct other basins.

The original elevation of Chester Morse Lake is 1,530 feet. A masonry dam completed in 1918 was intended to raise the level to 1,580 feet. Due to seepage losses, however, it has normally been utilized at 1,555 feet. To raise the elevation to the desired 1,590 would require grouting the porous walls on the northwesterly and westerly end of the basin. As an alternative, two

new dams could be constructed at the southeasterly end of the lake forming two new storage reservoirs.

### CONDITION OF THE SYSTEM

All reservoirs within the city are of concrete construction and are interconnected. The distribution system is 100 percent metered; is a complete grid system of cast iron pipe, mostly eight-inch and larger in diameter; and includes over 11,855 valves and 12,521 hydrants.

Transmission capacity is 256 mgd. Storage capacity within the city is 379,870,000 gallons.

### TOLT RIVER PROJECT

In 1936, a survey was made of the North and South Forks of the Tolt River. A report was made to the City Council, and a request for water rights filed with the State of Washington Department of Conservation and Development. Plans for development of this new source were outlined by the City Engineering Department in 1952, and were amplified in 1954. The Plan and System Ordinance providing for the development of the South Fork of the Tolt River was passed by the City Council on May 12, 1958.

The complete Tolt River development is designed to supply 180 mgd. The first stage is to be development of the South Fork, which will require construction of an earth-filled dam 200 feet high, with a

length and width at the crest of 1,000 and 20 feet, respectively. The storage reservoir thus formed will have a capacity of 57,900 acre feet.

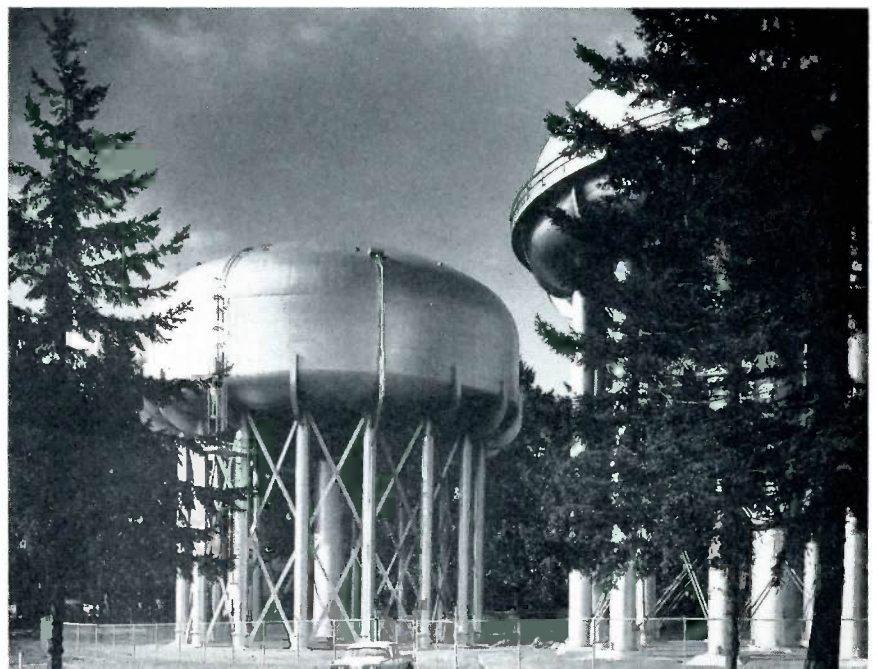
From this dam, 4.9 miles of steel pipe will convey the water to a regulating basin (elevation 760 feet), from which it will be conveyed by an additional 24.2 miles of steel pipe to a reservoir located at Lake Forest Park, four miles north of the city, and with an elevation of 530 feet.

### IN SUMMARY

After completion of this first phase of the Tolt River Project, estimated for 1961, it is expected that no additional financing will be required until after 1971. Whether the development to be undertaken sometime after 1971 will be the second phase of the Tolt River Project, or the development of Cedar River to maximum capacity, will depend on the demand in the service area. An increased demand brought about by industrial development along the Duwamish Waterway to the south would necessitate completion of Cedar River. Increased residential demand to the north and east would require additional development of the Tolt River.

Whichever is found to be necessary, the city of Seattle stands ready to meet the challenge of supplying a first-class supply of water to its residents now and in the future.

Two million gallon radial steel cone on left was built in 1958. One million gallon tank on right was built in 1954. These tanks supply the high elevations in the northwest part of King County.



# Blue Flame Whispers

Construction programs costing an estimated \$34.4 billion will nearly triple the value of the gas utility and pipeline industry's gross plant by the end of 1970, the American Gas Association forecasts. With allowance for retirement of plants, the value will increase from \$18.1 billion in 1958 to \$49 billion.

The A.G.A. Bureau of Statistics estimates that \$16.4 billion will be spent to expand transmission facilities, and \$10.9 billion will be used for distribution system construction. The expansion of production and local storage facilities is expected to require \$3.4 billion over the 12-year period, while underground gas storage projects will cost an estimated \$2.3 billion. The remaining \$1.4 billion will be used for the construction of general facilities.

The gas industry expects to be operating 911,508 miles of mains and pipelines by 1970, compared with 571,500 miles in 1958. Distribution main mileage will grow from 354,100 to 537,000 miles, and transmission line mileage will increase from 165,400 to 282,400 miles.

Net income of the gas utility and pipeline industry advanced to an all-time high of \$692 million last year, according to A.G.A.'s final summary of 1958 statistical studies. The industry's net income represented a 6.8 percent gain from the \$648 million recorded in 1957. Income from pipeline companies alone totaled \$252 million, compared with \$246 million for the previous year.

On October 6, the American Gas Association received the National Safety Council's 1959 association award for activities promoting occupational safety among the industry's 206,000 gas utility and pipeline company employees.

A.G.A., the only large national organization receiving a 1959 Council award, was cited for the well-balanced nature and continuing expansion of its occupational safety program and activities. The gas industry accident frequent rate reduction of 23 percent during the past five years is almost twice as great as the all-industries improvement rate of 14.5 percent for the same period.

Michigan Consolidated Gas Company, Detroit, received top honors in the third annual Public Relations Achievement competition of the A.G.A. The award was made at the A.G.A. annual convention in October. The company's winning program was based on its unique

educational exhibit, GASARAMA, which has been viewed by nearly 150,000 high school and college students in Michigan since its first showing late in 1958. The theatrical production, presented by employees of the company, dramatizes the ultra-modern convenience, versatility and safety of natural gas. It shows how natural gas is produced, transported thousands of miles, and automatically delivered to homes and industry. GASARAMA is planned as a continuing program which will be kept up to date for school audiences as new developments occur in the industry.

Charles J. Dunne, assistant treasurer of Long Island Lighting Co., Mineola, N.Y., has been appointed an assistant treasurer of A.G.A. by that association's board of directors. Mr. Dunne has been associated with Long Island Lighting Co. since 1925, when he joined the general accounting department. He was named to his present post in 1954 after serving as staff assistant in the treasury department and accountant and manager of the materials and supplies division of the general accounting department.



**"Continue with your work, Begley- we're only drawing straws to see who takes the trip to our west coast branch office!"**

NOTICE TO POSTMASTER

If for any reason delivery is impossible please return promptly to sender.

If forwarded to a new address, notify sender on FORM 3547. Postage for notice or return guaranteed.  
MUELLER CO., DECATUR, ILLINOIS

BULK RATE  
U. S. POSTAGE  
**PAID**  
DECATUR, ILLINOIS  
Permit No. 1



We hope that one of your "good resolutions" for the new year 1960 will be to purchase United States Savings Bonds regularly. Help keep our government strong by supporting it in this manner, and build your security, and that of your family, at the same time.