MUELLER Record

JUNE • 1964

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Jim M. Milligan
Manager of Communications

Joe Penne
Editor

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Contents

IT LOOKS THE SAME

But Inside, the MUELLER® /107 Hydrant Is Totally New From Bonnet to Shoe

What is a fire hydrant supposed to look like? Ponder that question a moment.

The outward appearance of a hydrant has developed pretty much to accommodate its functions with little consideration given to its aesthetic design.

Mueller engineering and sales people are usually concerned with utilitarian features of products; but, a few years ago they started thinking about the aesthetic also, and "what a fire hydrant is supposed to look like", as well as what it does.

An outside industrial design firm was hired to find out what people in the trade thought a hydrant should look like, and then come up with an artistic concept of what *THE* hydrant should have in the way of appearance.

After an independent survey of fire department personnel, water works people and engineers, and a broad outline of specifications set down by Mueller people, the designers were turned loose. They produced dozens of sketches of hydrants—oval hydrants, square hydrants, triangular hydrants, fat ones, tall ones, plain ones and fancy ones.

Finally, after numerous studies and reviews of the artists' concepts, it was decided that Mueller had been producing "what a hydrant was supposed to look like," for more than 30 years. It has attractive lines. It looks sturdy. It conveys the feeling of massiveness and dependability.

However, the appearance of the hydrant was but a portion of the overall project undertaken by the outside firm. It was also commissioned to do a detailed study of the job a hydrant must do and then to decide the best way to meet these functional needs—again completely ignoring previous methods and designs.

After exhaustive analysis of every requirement, these consultants confirmed the belief of Mueller design engineers that the new Mueller hydrant included all of the necessary features and that the compression-type main valve, which closes with the pressure, was the best means of shut-off.

With this in mind, Mueller engineers set off to improve the features already in use, and ultimately they came up with the MUELLER ®/107.

This month the new MUELLER ®/107 fire hydrant was introduced at the AWWA conference in Toronto. The outward appearance is similar to what it has been for 30 years. It "looks like a fire hydrant is supposed to look", but inside it is "totally new from bonnet to shoe".

After planning, development, and a testing period of about eight years, the MUELLER®/107 boasts a list of some 15 new features, from its new unitized dry top bonnet with a factory-sealed lubricant reservoir, to the new shoe design which provides maximum flow and minimum pressure loss.

Where do the ideas originate which ultimately lead to the improvement of a product that has been widely accepted for more than 30 years? Through 107 years of experience, Mueller Co. and its trained engineering, sales and manufacturing personnel have gained valuable data and information which is vital in research and development work. Also, new materials, methods and equipment become available almost daily, and make possible improvements that couldn't be considered a few years or even months ago.

Except for the newly designed weathercap, the MUELLER®/107 fire hydrant's exterior is the same, but inside it is "totally new from bonnet to shoe."

In addition to the Mueller people who are directly concerned with product design and development, Mueller salesmen, the people they call on, and the people they talk to at meetings are sources for ideas. A comment passed on to a salesman by a fire chief at a convention may bare a problem of which engineers were unaware. A water works man may tell a Mueller representative that "in X community, we could use a gidget with a gadget and make our job easier." It could turn out that such a variation could be used in many areas, but no one had bothered to point out the need.

Variations on original hydrant designs are not new—in fact, they are accepted as normal. John J. Smith, Mueller Co.'s chief products engineer, says, "A Mueller fire hydrant could be classed as a custom-built item. There are literally thousands of variations available to our customers."

Mr. Smith points out that Mueller's Chattanooga factory is capable of producing 350 different nozzle threads alone. In addition, the customer is able to select and specify such things as: the size and type of shoe, the depth of bury, breakable or non-breakable flange, type of operating nut, whether the valve opens left or right, color of paint, the type of operating nut on the cap, whether it has chains or not, and the size and arrangement of nozzles.

The "imagineering" of customers, sales personnel, engineers, and manufacturing people is reflected in the new MUELLER®/107 hydrant.

Blending this myriad of ideas into a sound, workable product which is competitive in cost, has taken an estimated 10,000 man-hours of designing, experimenting, calculating and testing.

The first reference to the new hydrant, found in a 12-inch stack of related correspondence, dates back to 1955. Then early in 1956, the ground rules for the development of a new hydrant were prepared. After studies, surveys and meetings, the first model hydrant was constructed in 1957.

At this point, the first laboratory testing of the new hydrant got underway and a specially-built cycling machine was constructed by Mueller personnel to test the performance and dependability of operating mechanisms, main valves and drain valves. Before the final design of the MUELLER®/107 was accepted, it operated from full open to full closed positions 12,000 times—the equivalent of two cycles per week for 100 years.

Parts and materials went through tensile testing, corrosion examinations and fatigue checking. Test hydrants were built, installed and then knocked over with a truck to be sure that the safety flange and safety stem coupling design was strong enough to resist operating, shipping, and handling loads, yet break cleanly on impact.

Eight years seems like a long time to spend on the design and development of a product, but the care and testing that went into each innovation to be sure that it was the best possible, could not be slighted.

For example, the perfection of the seal for the dry top bonnet extended over a period of years and was finalized by the availability and use of Quad-rings.

Mueller had pioneered the use of

Mueller officials found a clean, dry break after the new Mueller hydrant was knocked over by a heavy truck (below) during an actual traffic damage test. One of the new features of the MUELLER®/107 is the location of the safety stem coupling below the breakable safety flange. This design prevents a wheel from accidentally depressing the stem and opening the valve.

"O" ring seals for hydrants. Now the company wanted an even better method for sealing the water pressure away from the operating mechanisms and of sealing in the lubricant.

Many materials were tried. Dry lubricants were tested. One material would have the necessary sealing quality but lacked durability. Another product would stand up under tests but didn't meet the specifications outlined in another area.

Finally, Quad-rings became available, and using them in combination with "O" rings, Mueller engineers were able to produce an exclusive design which provides a completely sealed lubricant reservoir which is factory-filled—yet allows the bonnet to be easily detached from the stem with no loss of lubricant.

The unitized and permanently sealed bonnet design eliminates the need for any field maintenance. The bonnet assembly makes it possible to perform all bonnet maintenance (if ever needed) in the shop.

The entire bonnet can easily be removed as a unit and replaced with a new assembly. The reservoir of the MUELLER®/107 is filled with the proper amount and type of lubricant at the factory during assembly. This permanently-sealed unit eliminates any lubricant loss during shipping, storage, installation, use or when removing the bonnet for repairing traffic damage.

Each special feature—from the "increased net valve opening" that required closely metered flow tests, to the safety stem coupling that was repeatedly sprayed with salt-water to check its resistence to corrosion—involved model building, destruction or cycling testing and exhaustive statistical analysis.

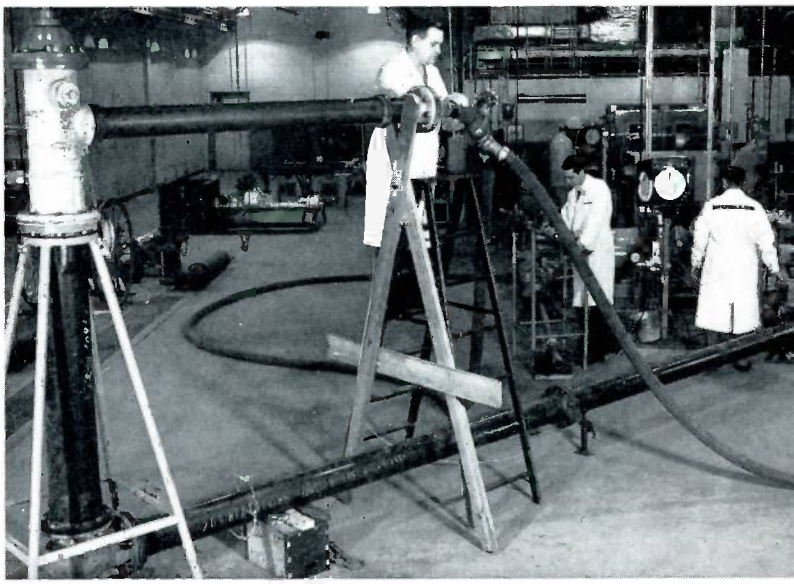
Models were built and tested until everyone was satisfied that the new design would do the job outlined for it, and that it was possible to produce the hydrant, including all of its new features, at a price comparable to other hydrants.

Finally, capital funds were committed for new productive equipment, the hydrant was "released" for production, and plans were made for the introduction of the product into the industry.

A study of methods of introducing the new hydrant began shortly after the first of the year, when Mueller Advertising and Sales Promotion Manager Hugh L. Baker talked to builders of models and exhibits and to Mueller's advertising agency. These talks resolved the theme that the introductory program would follow.

Since the new hydrant was to be unveiled at the AWWA meeting, in Toronto, special emphasis was placed on the exhibit that would display the new product. A new 40-

Hundreds of hours of tests confirmed the calculations of Mueller engineers. Performance and long-lasting dependability of the operating mechanism, main valve and drain valves were proved by continuous operating cycle tests (left). Carefully metered flow tests (below) were conducted to prove the maximum flow capability and full flow performance of the shoe, main valve, barrel and nozzle waterway.

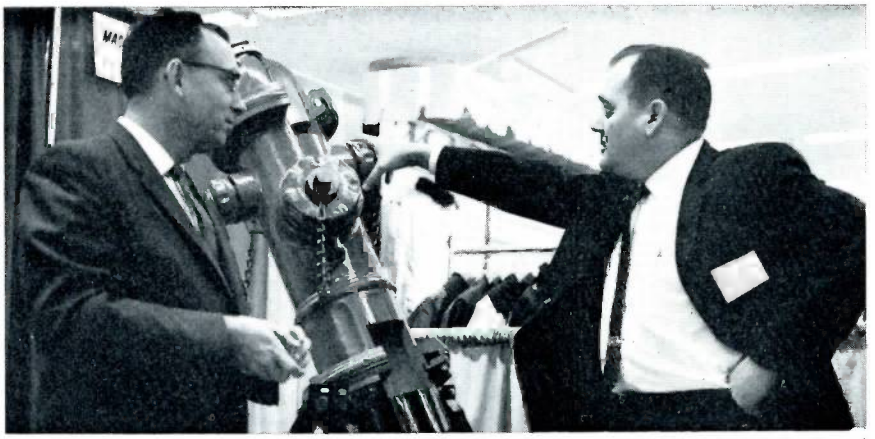


foot automated exhibit, with the center 20 feet devoted to the hydrant and its outstanding features, was designed, built and put on display at the exhibition hall in Toronto.. This month and during succeeding months, advertising through trade journals and direct mail pieces will carry the story to the trade. In addition, Mueller salesmen will be making their rounds, personally outlining the features of the MUELLER®/107.

The news and information about the new hydrant were sent to Mueller salesmen all over the country by a unique "Do-It-Yourself" sales meeting. The individual "get-together", the first of its kind in the history of the water works industry, consists of seven meeting sessions, each conducted by a Mueller Co. executive via the U. S. mail.

In addition to the many hundreds of hours of work on the more obvious aspects of the program, much time was spent on patent research and the filing of patent and copyright applications.

The name "MUELLER®/107 Hydrant" was selected by Mueller management from many suggestions. Many of the names submitted accented just one of the many points found in the new design, while, according to Mr. Baker, "MUELLER®/107 HYDRANT" maintains corporate identity and conveys the feeling of reliability and know-how which comes with the 107 years of operation which Mueller Co. has enjoyed.



Bill Cessna (left), a Mueller sectional sales manager, talks about hydrant design with Paris, Tenn. Fire Chief John McClure at a national meeting of fire chiefs. Chats such as these often lead to ideas for product improvement.

Chief Products Engineer John J. Smith (left) discusses a part design for the new hydrant with Del Parks, Sales Manager—Outside Sales.

Members of Ross Advertising, Mueller Co.'s ad agency, review plans and material which were prepared to introduce the MUELLER®/107 hydrant. From left, are: Ken Westerdale, art director; Marlin Kriegbaum, creative and copy director; Wayne Flittner, Mueller account executive; Lew Ross, agency president; and Mrs. Lois Schad, secretary.

introducing the new

MUELLER® / 107

Fire Hydrant

totally new from bonnet to shoe

The new Mueller/107 is the proudest product of Mueller Co.'s long list of water distribution "firsts" . . . 107 years of experience, research and product development for the water industry have produced this totally new fire hydrant . . . 107 years of service and dependability back its performance.

New Ductile Iron Operating Nut and Weather Cap assures easy operation under icing conditions and discourages tampering.

New Unitized Dry Top Bonnet simplifies installation and repair.

New Factory-Filled, Sealed Lubricant Reservoir eliminates maintenance and insures easy turning.

New Automatic Main Valve Travel Control limits opening travel, to eliminate compressive load or torque on stem or main valve.

New Quad-Ring Stem Seal Design seals lubricant in and seals water out of bonnet.

New "Teflon"*-Coated Anti-friction Washer provides permanent lubrication between operating screw and bearing. Assures easy opening.

*DuPont registered Trademark

New Safety Stem Coupling located below flange, insures full protection from traffic damage.

New All-Bronze Double Drain Valves assure automatic operation and positive drainage.

New Quad-Ring Drain Valve Seals provide long valve life and positive sealing.

New All-Bronze Drain Waterway provides maximum corrosion resistance.

New Shoe Drain Ports provide four openings for maximum drainage.

New Main Valve Design allows easy removal and reinstallation, by one man, with new compact seat removal wrench.

New Seat Ring Design provides easy main valve removal and reinstallation.

New Bronze Shoe Bushing resists corrosion and assures easy seat ring removal.

New Full Net Valve Opening Area For Each Nominal Size Of Hydrant provides maximum water flow and pressure.

New Shoe Design provides maximum flow and minimum pressure loss.

New Base and Back Pad Design makes setting easy, simplifies back blocking and strapping.

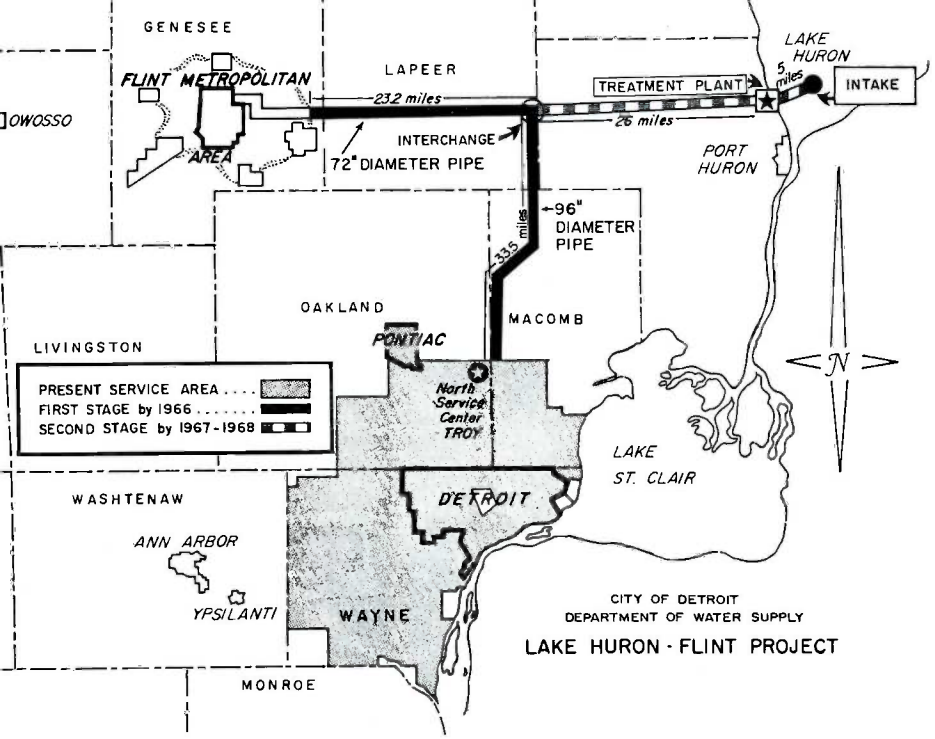
Meets or Exceeds the American Water Works Association Specifications C-502-54.
150 psi Working Pressure.
300 psi Test Pressure
Available in 4", 5" and 6" sizes.

MUELLER CO.
DECATUR, ILL.

Factories at: Decatur, Chattanooga, Brea (Los Angeles)
In Canada: Mueller, Limited, Sarnia, Ontario

W-433

For complete information see your Mueller Representative or write direct for Brochure 9270.



Detroit, Flint Consolidate Plans For Lake Huron Water Supply

Development of a Lake Huron intake and water treatment plant—a five-year dream—is expected to become a reality soon.

The timetable for the $98 million project was announced recently by Mayor Jerome P. Cavanagh and Gerald J. Remus, General Manager of the Department of Water Supply (DWS), Detroit.

The Detroit-Lake Huron project—planned since 1959—will include linking the Flint metropolitan area to the DWS system.

The Flint City Commission agreed to abandon plans for its own Lake Huron plant and join Detroit, thus bringing Genesee County's 300,000 persons into the Detroit water system.

The Flint Commission's action makes it possible to develop one water system for the "industrial corridor" that is developing in southeast Michigan. It allows for the development of one utility on principles long accepted, namely, more reliability and lower average costs for everyone. Further, and very importantly, it gives better capability of handling pollution problems. This action also makes it possible to speed up the Lake Huron plant construction.

Mayor Cavanagh hailed Flint's decision to join the Detroit water system as a "prime example of how two metropolitan communities can work together to arrive at a mutually agreeable solution."

Mr. Remus said the Lake Huron plant will "greatly increase the reliability of our system by providing a second source of water—65 miles away from our present source, the Detroit River."

"With the Lake Huron plant we will be drawing water from the largest body of fresh water in the world—the Great Lakes," he added.

The vast construction project will be split into two stages with the final completion date scheduled for 1967 or 1968, Remus said.

The first stage will cost $38 million and take two years to finish.

It will involve construction of a 56.7-mile pipeline, six and eight feet in diameter, from the DWS North Service Center, Dequindre and Twenty Miles Roads, Troy, to within 10 miles of the Flint city limits.

When that line is completed, Flint area residents will begin receiving water from the four DWS treatemnt plants in the Detroit-area.

A contract for soil testing along the proposed pipeline route is in the process of being approved by City officials.

The second stage will cost an estimated $60 million, Remus said. The completion date is 1967 or 1968.

The second stage calls for construction of 26 miles of pipeline, the Lake Huron intake, and the first section of the treatment plant.

The 287-acre plant site and six acres of lake frontage, located about five miles north of Port Huron, were purchased by DWS in 1962. Design, soil borings, aerial photography, and similar preliminary work is well under way.

When the second stage pipeline is completed between the treatment and pumping plant, and the pipe laid during the first stage, the water being pumped from Detroit to Flint will be shut off and Lake Huron water will flow to both the Flint and Detroit metropolitan areas.

Flint's water department, which will act as the master distribution system for Genesee County, will make $9.7 million of improvements. Flint will finance the construction within Genesee County and will serve its suburbs.

The first section of the Lake Huron water plant will be able to provide all of Flint's needs and also to deliver 300 million gallons of water a day to Detroit-area users.

The Flint area is guaranteed a supply of 125 million gallons a day.

The plant is designed so that it can be expanded by stages, Remus said, eventually reaching a capacity of more than 800 million gallons daily.

Negotiations between the two cities have been going on since January, 1963.

The Detroit system now serves 3.3 million persons—more than 40 per cent of the State's population—in Detroit and 58 neighboring communities.

Mac McCown

McCown Retires

Sales Personnel Changes Made In Western Section

Bill Hill

Don Kelley

Mueller sales personnel changes in Northern California, including the retirement of F. C. "Mac" McCown, took place June 1.

Mac, referred to by some as the "elder statesman" among Mueller sales representatives, completed 24 years of service in the San Francisco sales territory.

A native of Texas, Mac joined Mueller Co. on June 1, 1940, when he took over the Northern California sales territory from Lloyd Logsdon. Prior to joining the Mueller organization, Mac worked for Consolidated Supply Co., a Mueller distributor in Portland, Ore.

Mac's warmth and genuine interest in his customers have gained many friendships for him in the San Francisco area. According to Mueller Vice President and General Sales Manager Dan R. Gannon, Mac is "highly respected by his customers, competitors and associates at Mueller Co. Mac's service and devotion to the water and gas industries and his company are outstanding."

Mac, who likes to play cribbage and fish, plans to remain in Burlingame, Calif., although a trip to Europe is planned soon.

He has been succeeded by William J. Hill, who has been the Mueller sales representative in Northern California and Western Nevada since 1956. Taking over Mr. Hill's former territory is Don W. Kelley.

Bill Hill joined Mueller Co. in June of 1956 after seven years of service with Western Utilities Supply of Seattle, Wash. Bill, 37 years old, a native of Oklahoma, and a U. S. Navy veteran, attended Southern Oregon College of Education and Portland State College.

Bill, his wife Shirley, and children live in Santa Clara, Calif.

Although new on the road, Mr. Kelley is not new with Mueller Co. For almost 10 years, he worked in the Sales Office when the Mueller plant was in Los Angeles. He recently completed a Mueller sales training program, and more recently he spent a number of weeks in the field, familiarizing himself with his new territory. Don, a native of Hanford, Calif., attended Mount San Antonio College in Walnut, Calif. Don, his wife, Nadine, and three children, are living in Concord, Calif.

Asphalt Coated Deserts Could Up Their Rainfall

Artificial rainfall in coastal areas could be induced by means of coating desert areas with thin layers of asphalt, according to one research engineer. The layers absorb heat and boost the soil temperature. This heats the air above and permits moist air to come in from the sea and bring rain. J. F. Black of Esso Research and Engineering states that asphalt is the most likely coating substance because it develops a higher surface temperature than other durable materials, and it is more economical. He estimates that for each acre of desert that is coated, two to three acres could become arable. Installed cost of a coating that would last five years could be as low as three cents per 1,000 gallons of rain.

READY WH

Pirate Ship Among

The legend across the bottom of the stationery for the Tampa, Florida Water Department reads: "Willing Water sez: 'I'm Ready When You Need Me.' "

Since 1923, when the City of Tampa purchased the water works, the department has been living up to this promise. It has taken numerous expansions to keep ahead of the diverse water needs of the second largest city in Florida.

These needs could range from a major league baseball spring training camp, to a race track, a brewery, a cigar factory, and to supplying fresh water for a pirate's sailing ship.

This pirate vessel, which is claimed to be the only full-rigged pirate ship in the world, is the vanguard for one of the most fun-filled celebrations held by a city in the United States.

Many cities have their heroes, namesakes, patron saints or outstanding individuals after whom they are named, or who often are woven into the history and lore of each community. These "heroes" were usually strong leaders who could be looked up to for their virtues and bravery.

Tampa, however, has taken an infamous, rather than a famous, character, Buccaneer Jose Gaspar, and built him up into a civic legend.

For 60 years, Tampa has been invaded annually by a ferocious band of pirates and each year the pirate vessel is welcomed by bigger crowds and a larger flotilla of pleasure craft. The Gasparilla Festival began 60 years ago as a minor local social event, and has grown year after year until it is one of the most spectacular civic festivals in the nation.

This past February, an estimated 700,000 persons participated in the week-long festival. Gaspar, this so-called patron rogue of the Florida West Coast, sets the populace to

This "Willing Water" sign welcomes visitors to Tampa's water plant and main pumping station. These men looking over the sign are not visitors, but people very familiar with the operation. They are: from left, C. S. Snipes, Superintendent of Pumping; R. G. Blount, Superintendent—Water Plant, and J. Erving, Assistant Superintendent and Chemist at the water plant.

IF IT MEANS BETTER LIVIN', I'M ALL FOR IT!

Tennessee's Industrial Development Program Apparent To Everyone

Industrial development as a governmental function is not new, although we can justifiably say it is in its infancy. Of course, we know that water, gas and electric utilities have long been active in this field.

Most states have "I. D." staffs, and all states have some money budgeted for this kind of work. "I. D." has become a battle-cry which rings from political platforms across the nation, and well it should. With state and local taxes increasing, and with the demand for tax-supported services spiralling, new industry and expansion of existing facilities may well become the only significant means of state solvency.

This writer has an acquaintance with industrial development activities in several states, but admits to being very much impressed with what he saw during a recent visit to Nashville, Tennessee.

Certainly in evidence were a sizeable budget, an alert "I. D." staff, attractive promotional literature and the many other signs of an active and successful effort.

But two other—and completely unrelated—items stood out. First: several large stacks of letters from industrial prospects—from people and companies who had seen Tennessee's ads in national and regional publications, and who had written to learn more about the state.

Second: an attitude or a state of mind. This was encountered on a side-trip to Dickson, Tennessee, to look in on a vital water works project which has already—even before its completion—given birth to a new manufacturing facility.

We visited one of several construction sites, and we saw a ditching machine biting huge chunks from a detoured street. As we stood watching, an elderly man in an early-vintage pick-up truck moved slowly out of his driveway and around a barricade.

I waved to him and he stopped. After introductions and a handshake, I asked him how he felt about the inconvenience caused by the water distribution expansion program. With absolutely no hesitancy, but with a firm, enthusiastic voice he answered: "Fella, that water is goin' to mean a lot of new business. New business is goin' to mean we got a better town to live in. Anytime tearin' my road to pieces means a little better livin' for me and mine, I'm all for it!"

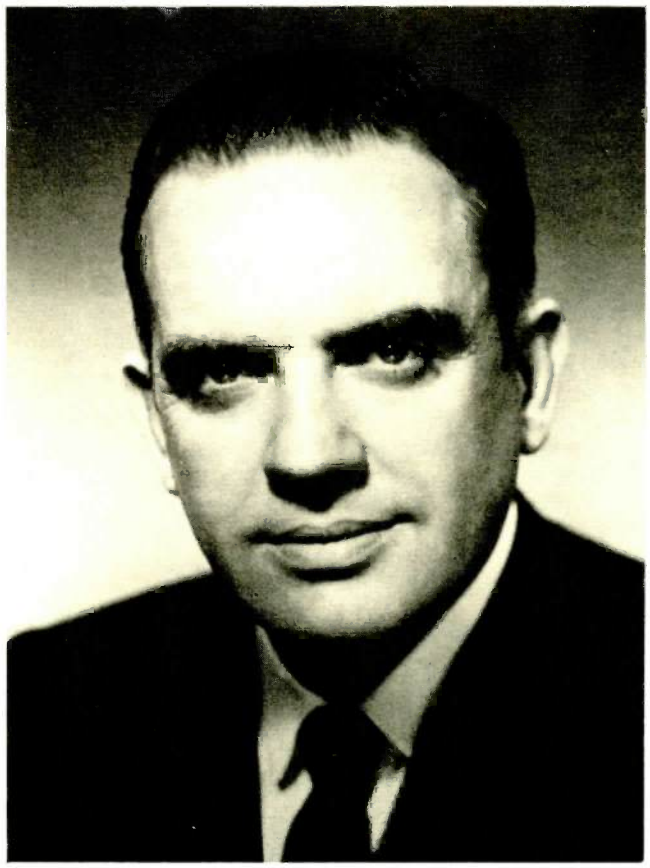
I think many of us have at times been guilty of quite another attitude at some point in our lives. Too often, a street paving job or a water main extension has merely meant an inconvenience to grumble about.

What is happening in Tennessee is happening in several states. Men in high public office—such as Tennessee Governor Frank Clement—have given leadership to this struggle for new vitality and the progress that inevitably comes with it. Speaking selfishly—it isn't every day that we are privileged to have a Governor as a contributor to the MUELLER RECORD, so we are doubly pleased to bring you a first-hand account of "I. D." in Tennessee.

We wish all progressive states well. Perhaps more important is our hope that, in all parts of every state, can be found that eloquent spokesman who will readily say: "Anytime tearin' my road to pieces means a little better livin' for me and mine, I'm all for it!"

Jim M. Milligan

Tennessee... A Realistic Approach To Progress



Governor Frank G. Clement

SPECIAL FOR THE RECORD

By

FRANK G. CLEMENT

GOVERNOR

STATE OF TENNESSEE

Today, Tennessee is experiencing tremendous industrial and economic growth. A fact that can hardly go unnoticed by anyone who travels through our State; for from the Great Smoky Mountains to the Mississippi River, we see a constantly increasing number of new manufacturing plants which offer employment to our ambitious citizens.

Frequently I am asked why our State is attracting so many quality manufacturers within its borders. After consulting with our industrial representatives who work closely with our industrial prospects, I have broken our advantages down into five major areas which I believe to be important in our industrial growth. These basic classifications of advantages are not listed in the order of their importance, nor is every advantage of Tennessee covered, but one or more of these points has figured into every decision to locate an industrial facility in Tennessee.

These I present as the five basic advantages of Tennessee:

I — MINERAL RESOURCES — Tennessee, because of its extreme east-west extension across several geologic provinces, embraces one of the most diversified assemblages of mineral resources in the south. There are about 30 economically important minerals found in Tennessee.

Some extractive industries **must** come to Tennessee because their raw materials are here. Tennessee is the only major copper producing state in the South,

Statehouse, Nashville, Tennessee

and is the south's largest producer of by-product sulphuric acid.

Tennessee is the largest producer of zinc ore in the United States.

Tennessee is the second largest producer of phosphate in the Nation. Based on this resource is a large mining and processing industry, including the world's greatest aggregate capacity for electrothermal production of elemental phosphorus.

Water, probably, has been the mineral most important to the development of the chemical industry, both as a source of power and for processing, and other direct industrial uses. It is certain that Tennessee's excellent water resources will continue to be an invaluable asset for further chemical expansions. But water has played an important role in more than just our chemical industry. Almost every industry needs a good supply of water and Tennessee has an abundant supply. What is even more important is that Tennessee's cities and towns are seeing to it that these abundant water supplies are available to industry where the industry needs it.

Adequate water systems are a prerequisite to industrial development. Our towns have recognized that fact, and are improving and replacing out-moded systems at a rapid pace.

A prime example of this fact is the city of Dickson, which incidentally is the town I call "home". The consulting engineers Barge, Waggoner & Sumner, Incorporated did an outstanding job of improving the Dickson Water system. Today a fine new manufacturing plant is under construction in Dickson which will give employment to more than 400 people. This is the A. Schrader's Son Division of Scovill Manufacturing Company of Waterbury, Connecticut.

The existence of an adequate water system played a big part in bringing this fine plant to Tennessee and to Dickson.

II — GEOGRAPHIC LOCATION — Since the general movement of the U. S. population into the south and west began some 40 years ago, Tennessee has found itself in an enviable geographic position. Located half-way between the Gulf and the Great Lakes, Tennessee is an ideal manufacturing and distribution point for the entire eastern part of the United States, which includes some 74% of the nation's total population. The State itself has four of the "Top 100 Industrial Markets", and ranks as the 15th industrial state. Tennessee's location becomes especially desirable if an industry plans to cover the Nation with only one plant.

III — WATERWAY PLANT SITES — Tennessee is one of the last states in the country able to offer ideal plant sites along its vast navigable waterways. The three master streams in the State are the Cumberland, Tennessee, and Mississippi rivers with their tributaries, forming a system of waterways of 25,000

to 30,000 miles in extent, which cover the State. Due to programs of the Tennessee Valley Authority and the United States Corps of Engineers, the Tennessee waterways are the hub of a system reaching from Minneapolis and Omaha in the west and Pittsburgh in the northeast to the Gulf of Mexico. This low-cost transportation becomes of great importance to the shipper of heavy, bulky freight.

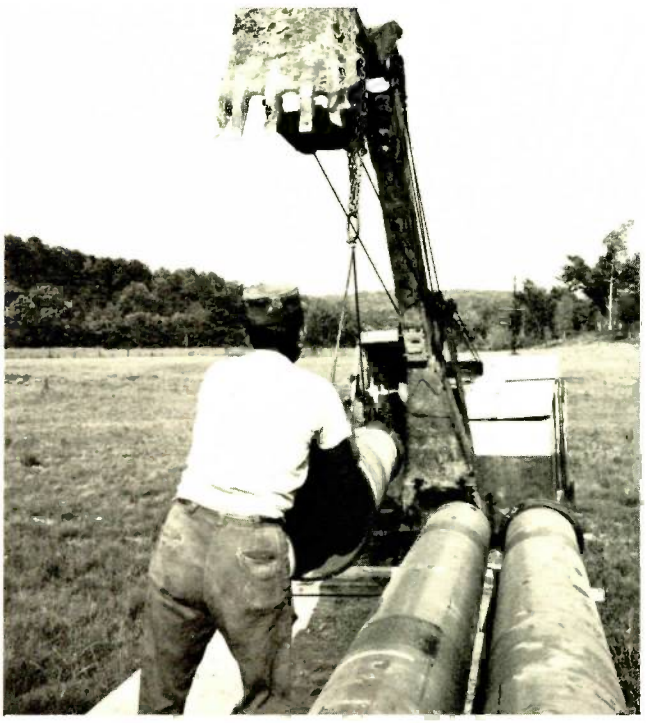
IV — ABUNDANCE OF ELECTRIC POWER — Any location within the State of Tennessee can offer a plentiful supply of electric power at competitive rates, as the State is a part of the largest integrated power system in the United States, and future expansion insures a continued plentiful supply. The only other areas offering such an abundance of electric power are the Pacific Northwest and the Niagara area, neither of which offers a central location for national distribution.

V — INDUSTRIAL CLIMATE — The administration of State government has tried hard to create a desirable industrial climate in Tennessee, and every indication shows that the effort has been successful. While the State makes no tax concessions in order to lure industry into its borders, it does offer a very stable tax structure which has profited both industry and the State. There is no state income tax, and no State property tax. Corporations are subject only to state franchise and excise taxes, unemployment compensation tax, and an annual report and fee. The State authorizes a reduction in use tax on machinery creating employment, and local taxes are reasonable. Tennessee has a balanced budget and an excellent bond rating. Tennessee's industrial climate is one built on realism, and is not "penny wise and pound foolish".

While there are many other reasons so many industries are coming to Tennessee, these appear to be the basic ones. Upon these points are built many subtle branches that further enhance the brilliant picture of Industrial Tennessee.

When we talk about the industrial growth of our State, it is not enough to talk of the new plants coming into Tennessee. A large part of our industrial growth is due to the expansion of our existing plants which have found Tennessee a profitable place to do business. A case in point might be the Mueller Co. plant in Chattanooga. Mueller located there in 1933 and has undergone several major expansions— the latest of which is even now taking place, and will result in a new multi-million dollar plant.

Tennessee is proud of its industry and its industrial growth. It is my firm conviction that all of our citizens are now so aware of the importance of industry to our economy, that our fine industrial climate will continue to improve in the years ahead, and our industrial growth will show even greater strides.



Adequate water systems are a prerequisite to industrial development, according to Tennessee Governor Frank C. Clement. Here workmen extend this important resource

to an outlying area which is the site for an industrial plant. The availability of water has been a big asset for the development and growing prosperity of Tennessee.

EN NEEDED

Tampa's Water Users

dancing in the streets and shouting his name each February.

In creating its famous Gasparilla Pirate Festival in 1904, Tampa's civic organization of Ye Mystic Krewe of Gasparilla tapped the true history of the last of the Buccaneers to sail the Spanish Main. Now he has become a civic legend.

The most spectacular event of the whole celebration is the opening one—namely the pirate "invasion."

For this special occasion, a special square-rigged ship was built in 1954 by the festival committee. Early on the morning of the invasion, it puts to sea with its decks crowded with "pirates" who are dressed the part but who are local business men and pretty girls.

Then, when the word is flashed that the pirate ship is in sight, about every yacht, outboard, and other pleasure boat in Tampa Bay puts out to sea to greet the incoming square-rigger. Real cannon in the gunports are run out and fire blank salutes as the ship proceeds towards its landing spot.

Once the pirates have secured a beachhead, they fall into ranks and become a major part of one of the most colorful and spectacular parades anywhere. This marks the beginning of a week of activities which includes a coronation ball, a fiesta, and special events at the Florida State Fair which is held in Tampa in conjunction with the Gasparilla Festival.

This week of fun-making is climaxed with a brilliant display of fireworks, in the midst of which the pirates file back aboard their ship and pretend that they are sailing away to further conquests on the Spanish Main.

During the early 1800's, Pirate Jose Gaspar apparently had remarkable luck and numerous conquests. His diary reportedly boasts 36 ships captured and burned during the period he terrorized the

Jay North, more widely known as Dennis the Menace, is one of the many notables who annually join the Gasparilla Pirate Krewe during its annual invasion and capture of Tampa. Dennis is shown with bevy of "Pirettes" on board the full-rigged pirate ship Jose Gasparilla. Surrounded by an armada of pleasure craft, (below) the pirate ship heads for downtown Tampa where the pirates secure a beachhead. (Tampa News Bureau Photos).

This pirate vessel is claimed to be the only full-rigged pirate ship in the world. It serves as the vanguard for one of the most fun-filled celebrations held by a city in the U. S.—the Gasparilla Festival. (Tampa News Bureau Photo)

Gulf waters around Florida and Louisiana. It once was rumored that he kept his captured women in a special harem on a little island off Fort Myers. The island, whether the story is true or not, bears the name Captiva.

Gaspar's end came when an American frigate disguised itself as a helpless merchant ship. When Gaspar pounced upon it, the American sailors uncovered guns and blasted away. Fearing correctly that if he were captured he would be hanged, Gaspar wrapped the anchor chain around himself and plunged into the water to his death.

Even though the Tampa area has warm beaches, pleasant weather, and many playgrounds, Tampa and Hillsborough County are by no means "all play, no work" communities. Tampa is called the industrial hub of Florida, and is the distribution and shopping center for a large and prosperous trade area. As a tobacco center, Tampa produces 750,000,000 handmade cigars each year. Its shrimp fleet of 250 boats makes it one of the most active shrimp fishing centers in the world.

Tampa, recognized as a good place to work and live, as well as a good place to visit, has been growing at a steady pace for a number of years.

Giving a hydrostatic test to a Mueller 12-inch gate valve are, from left: J. P. Hawes, Assistant Superintendent of Distribution; A. Palermo, General Foreman, and O. L. Miller, valves foreman.

Pacing the city's development—so that Tampa will *continue* to grow — is the City of Tampa Water Department. In 1941, the water system had just 22,000 customers compared with the 78,600 active accounts of today. Approximately 300,000 residents of Tampa are now served by this department, headed by Superintendent Leland J. Cobb, Jr.

Although the Tampa Water Works Co. was organized in 1887, the City of Tampa actually took over the operation, by purchase, in 1923. Prior to the purchase, all water came from wells, but its quality was poor, and a number of wells had to be abandoned.

The City of Tampa, anticipating the water works purchase as well as a need for another supply, had been searching for another source of water, and shortly after the purchase, the City switched to the Hillsborough River as its main supply.

The Hillsborough River, flows into Tampa from the northeast and empties into Tampa Bay. Tampa takes all of its present supply from a lake upstream from the Hillsborough Dam. While the quality of the raw water, particularly its color and hardness, varied greatly with the wet and dry seasons, time has proven the river to be a dependable water supply. A well field, 14 miles east of Tampa, and natural springs are also available to supply additional water when necessary.

The original treatment and pumping facilities, built in 1925, have been expanded many times, and at the present time a four million dollar project is underway which includes increasing the distribution system, pumping and treatment facilities, and engineering space, and adding a telemetering system. By far, the largest portion of the new program is allocated to the distribution system. More than 60 miles of mains will be added to the 1250 miles already in service. In addition, 28,000 feet of existing water main will be cleaned and lined in the project.

The Distribution Department with its 170 employees, is headed by R. K. Conaway. Along with 1250 miles of mains, the system

has 4,000 fire hydrants, 15,000 valves and 82,000 meters. The largest meter in the system (10 inches) serves Anheuser-Busch, Inc. — the department's largest single customer. This brewery and its gardens are among the state's better known tourist attractions.

The distribution department is mainly concerned with system design, new mains, meter sets, vehicle maintenance, dam and storage tank maintenance.

A big test recently was the trouble-free tie-in of 5,200 customers who had been served by a private water system. The location of a majority of the private system's mains required a great number of connections between the Tampa system and the private mains. The night time job was accomplished using several crews stationed at the connecting points.

New customer hook-ups have kept distribution crews busy. In 1941, there were 22,000 services; in 1946, there were 31,000; in 1950 there were 40,400; in 1954, there were 51,000; in 1960, there were 70,000, and today there are more than 78,000.

Water Treatment is headed by R. G. Blount. Due to the rapid change in raw water quality, water plant personnel must constantly sample the upstream water.

The pumping division is headed by C. S. Snipes, a 28-year veteran with the department. Except for the repumping station, the high and low service pumps are steam driven turbines.

Customer Accounting is headed by E. M. Metcalf. The monthly bills, which are machine processed, also include charges for sanitary sewers, and garbage and trash pick-up. A drive-up booth is one of the methods used to simplify bill payment.

Commenting on the future plans of the system, Supt. Cobb said, "Our present expansion program should take care of our needs for a while, but probably as in the past, before it is 100 per cent complete, we will be working on another one, in our never-ending response and desire to provide all of the water our customers want—when and where they need it."

R. K. Conaway, (right) Superintendent of Distribution, talks with engineers at an interstate highway bridge site over the Hillsborough River. This highway work required the relocation of an existing 24-inch main that crossed the river. (Left), Leland J. Cobb, Jr., Tampa Water Superintendent, looks over a construction site at the left. Below, construction crews work on a new pumping station and raw water intake from a natural spring pool.

Augusta, Ga.

Water Hazards Apply Only To Golf Here

In the spring the people in the Augusta, Georgia, area and golfers all over the country are unusually interested in water, — more specifically, the water hazards at Augusta's National golf course. Each April, the finest golfers in the world gather in Augusta for the Masters Golf Tournament to worry over the rough and the sand traps, as well as the water hazards.

The year around, however, J. G. Cushman and his crews at the Augusta Water Department are concerned with the city's water supply, and, if you will, the hazards that accompany it.

Supplying water for a city of 70,000 is certainly no game, and it might not be called hazardous, but it is tricky and requires a well-run organization.

This city has about 28,000 metered water services fed by approximately 280 miles of main. During the summer, the system pumps an average of 28 to 30 million gallons per day, while in the winter it drops to about 15 million gallons per day.

An awareness of the importance of water supply dates back to the early settlement of Augusta, on the south bank of the Savannah River. The city is located at the foot of the Piedmont Plateau, which is in the center of an agricultural area built on the coastal plains which rises rapidly to the Blue Ridge Mountains to the north.

In 1828, 10 years after the city was chartered, the city granted an individual the right to supply the citizens with water. Prior to this period, the city's water came from springs and wells.

This private system took water from Turknett Springs, and conveyed it by gravity through native pine logs with a six-inch bore, to a reservoir or cistern at the edge of the city. There was no record of a distribution system, and it is presumed that the water was sold at its storage point.

After one year of operation, the system was sold to William Hale, who was mayor of Augusta at the time. He operated the system until 1840, when the city purchased it for $1,800.40. Immediately the supply system was increased, and distribution lines were installed.

Logs with openings of three, four or six inches were installed as the distribution system, and service lines were logs with three-inch holes through them and an upright of the same material and size at the end. The water was drawn through a two-inch orifice by the simple means of withdrawing a plug. Citizens paid $20.00 a year for this service, which was extended to some 300 customers.

The first official sanitary provisions for water supply were initiated in 1846 when the City Council passed an ordinance which read: "No persons shall put into any public pump pieces of brick or other substances. No person shall place or cause to be placed near a public pump any barrel or vessel of copper's ware, nor wash or rinse any clothes, vegetables or other articles within 20 feet of such

The Augusta pumping station is shown above, while below can be seen a 30-inch main leaving the station. In the bottom photo are Superintendent Cushman and Mueller Sales Representative Jack Chilton inside the pumping station.

pump." (There is some speculation that these restrictions were aimed as much at eliminating the muddy conditions around the town pumps as they were to prevent contamination.)

As early as the 1840's, it was realized that in order to attract industry, adequate water supply and water power needed to be made available. By means of a diversion dam on the Savannah River, about seven miles above the city, a nine-mile excavated canal with a fall of 32 feet was dug.

The canal system was completed in 1847 and, since 1859, it has furnished water power as well as water for the water works system. The water goes into the pump house through an underground flume, which is below the level of the canal, and into a wheel pit which drives the pumps.

In 1859, the first iron pipe mains, valves and fire hydrants were installed, and the first use was made of water from the Savannah River. Settling basins were introduced, and pumps and an elevated tank were installed. This elevated tank was 37 feet in diameter, 30 feet high and constructed of quarter-inch boiler plate. It was erected atop a circular brick building which was 66 feet high and had walls 18 inches thick at the top.

By 1882, the water demand of the City of Augusta exceeded both the Turknett Spring supply and the pumping station capacity. A new plant was built, but by 1898, more difficulties were encountered. The advancements in the science of water treatment, linked with the limitations of the system of that day, convinced the people that something had to be done again. A year later, a larger pumping plant and a new filter plant were constructed on the canal about three miles above the city.

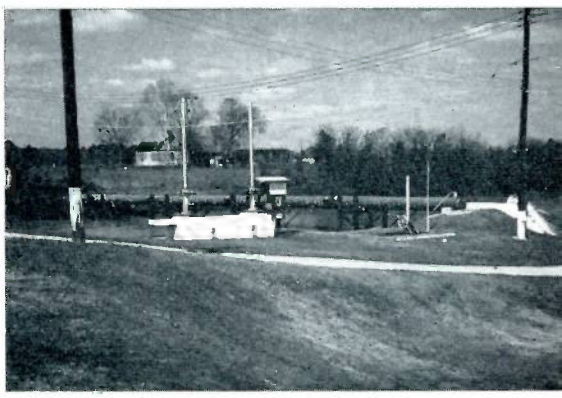
Camp Hancock, an Army camp, which was located outside Augusta, put a heavy strain on the latest system during World War I. This started new activity toward modernizing, improving and enlarging the system.

After many improvements during the 20 years following World War I, a new filtration plant was built in 1939, and the pumping station was rebuilt the following year.

This filter plant today has a capacity of 30 million gallons of water a day. The water power from the canal continues to be utilized for raw water intake pumps which move the Savannah River water into two large reservoirs with a combined capacity of 125 million gallons.

Following purification the water goes into two types of storage facilities—one a 12 million gallon clear well, and the other elevated tanks with a combined capacity of 12 million gallons.

Managing and supervising this busy operation at Augusta is J. G. Cushman—a man of many years



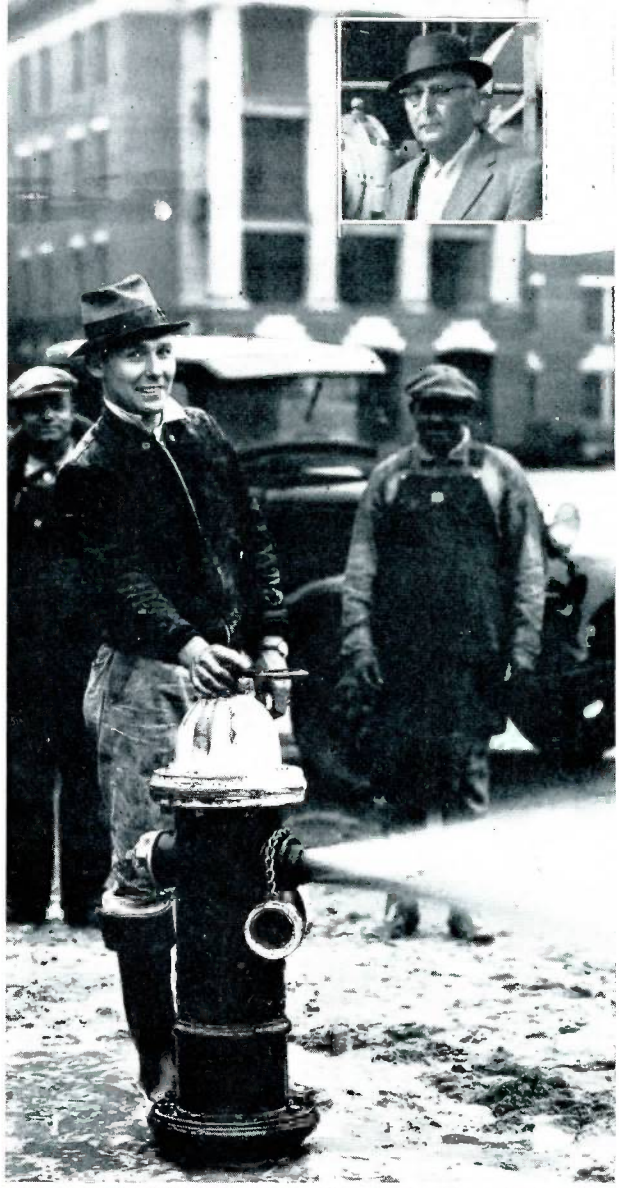
of experience in plumbing and water supply.

Mr. Cushman was born in Greenwood, South Carolina, and came to Augusta at the age of 13. After working for two years in odd jobs, he became a plumber's helper and worked in the plumbing business for the next 17 years. In 1934, he came to work with the City of Augusta as a water works foreman —a position he held for nine years. In 1943 he resigned from his city position to go into the plumbing business for himself.

Thirteen years later, Mr. Cushman returned to the City staff—this time as plumbing inspector. In 1957, he assumed his present duties as Water Works and Canal Superintendent.

Mr. Cushman is active in the American Water Works Association, and this year he and Augusta were hosts for the Southeastern AWWA Section meeting.

Just as Augusta attracts the world's finest golfers each Spring, the city will continue to grow and attract new industry because it has, among many other things, a well planned and efficiently administered adequate water supply and distribution system.



This young water works foreman testing a Mueller hydrant in 1936 is J. G. Cushman, who is now Augusta's water superintendent. (See inset) The Savannah River flows along the east side of downtown Augusta and separates Georgia from South Carolina.

Production Facilities To Expand

Mueller Buys Chattanooga Property

Mueller Co. has purchased the former Cramet Co. property in Chattanooga, Tenn., from Combustion Engineering, Inc. of Chattanooga, according to a recent announcement by Mueller President John F. Thurston.

Mueller Co. plans call for complete rehabilitation and modernization of these structures, and the construction of a completely new office building. The resulting facility will give Mueller Co. a modern, multi-million dollar iron foundry and machine shop of substantially increased capacity.

The Cramet plant was built to produce titanium sponge and began operations early in 1956. This was a government financed project, but development of an entirely new production process soon made the Cramet facilities obsolete. The plant was taken over as surplus government property by the federal government in 1959, and the portion acquired by Mueller Co. was purchased by Combustion Engineering, Inc., in May, 1963.

The land area purchased by Mueller consists of 51.67 acres, with excellent access roadways. Existing buildings are of heavy steel frame, with jumbo brick and corrugated asbestos cement siding. Roofs are pre-cast concrete channel plank with large numbers of ventilators; floors are of concrete.

Mueller Co., which headquarters in Decatur, Ill., became a Chattanooga industry more than 30 years ago when it purchased the Columbian Iron Works in late 1933. In commenting on the purchase of the Cramet property, Mr. Thurston stated that Mueller's present Chattanooga facility will be offered for sale as soon as the move into the new property is completed. This is expected to occur in approximately 16-18 months.

President Thurston expressed pleasure over the opportunity to relocate in the Chattanooga area. He pointed out that recent freeway construction in the area of the present Mueller plant prohibited further expansion there, and that steadily increasing demand for Mueller's Chattanooga plant products (primarily gate valves and fire hydrants) required sizeable facility expansion.

Within the past two years, Mueller Co. has completed work on a 5½ million dollar expansion program in Decatur; built a new plant in Brea, Calif.; purchased a foundry in St. Jerome, Quebec, Canada; and purchased the Adams Pipe Repair Products company of South El Monte, Calif.

Industrial Sales Division Formed By Mueller Co.

The formation of an Industrial Sales Division by Mueller Co. was announced recently by Mueller Vice President and General Sales Manager Dan R. Gannon.

The sales force will handle Mueller and Adams Pipe Repair products which are applicable to industrial use and contained in the new Mueller K-1 catalog and the Adams catalog.

The salesmen will call on suppliers and users of industrial products and manufacturers of original equipment. These calls will be made on prospective customers who have not had prior access to these products through established lines of distribution.

"Many of our products have been used in industry for some time, and we recognize the need to expand our marketing to give this new service," Mr. Gannon said.

In addition to the Adams products, the industrial line will include such Mueller products as: regulators, relief valves, ground key stops, compression stops, bronze and iron body industrial stops, laboratory goods, Oriseal valves, and service clamps. Some products will be re-designed for industrial use.

Heading the Industrial Sales Division, under Mr. Gannon, are C. M. Schuepbach and Robert W. Craig. Mr. Schuepbach, formerly general sales manager for Adams Pipe Repair Products, will be in charge of the outside sales force, and Mr. Craig will handle the inside sales activities from the Decatur office.

Mr. Schuepbach, who was in charge of the Adams sales force for more than 10 years, has traveled all over the United States and Canada and is familiar with industrial sales through these years of experience.

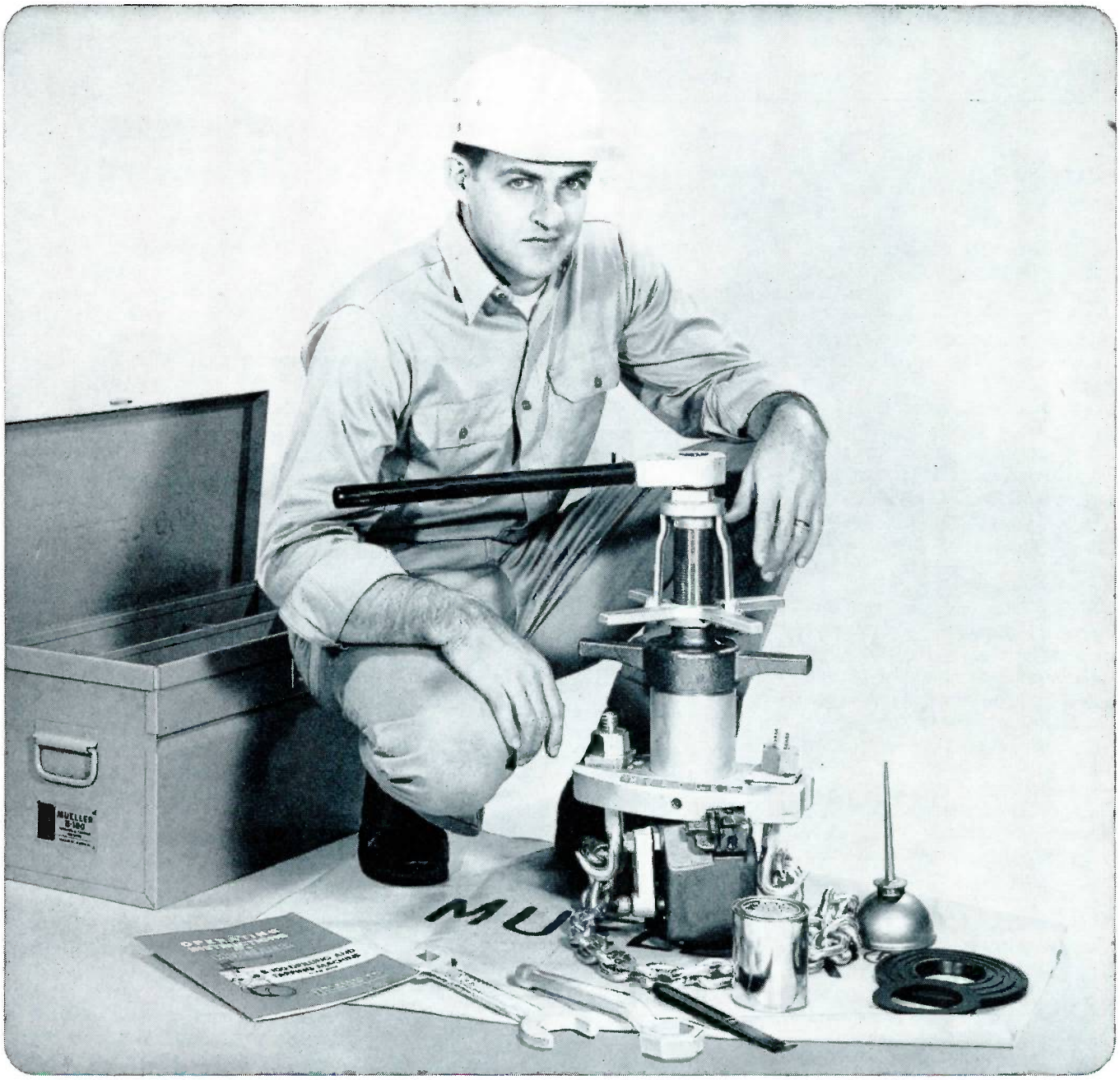
Mr. Craig started with Mueller Co. in 1955 in the water products section of the Sales Division in the Decatur office. In 1958, he was named as assistant to Mr. Gannon —a position which he still holds in addition to his new responsibilities.

Four members of the industrial sales force traveled for Adams Pipe Repair Products before it became a division of Mueller Co. They are: J. E. Williams, A. G. McPherson, George Swanson and J. R. Baird.

Two other men, Stanley E. Lee and Robert H. Martin, recently completed a Mueller sales training program and have been added to the industrial sales force. Both are 1963 graduates of Millikin University of Decatur.

Mr. Lee, 30 years old, spent four years in the U. S. Air Force and formerly worked in sales for Continental Baking Co. He and his wife, Pat, and four children, live in the Dallas-Fort Worth area.

Mr. Martin and his wife, Barbara, are natives of Illinois and live in Atlanta, Georgia.



"service" is also attention to customer problems!

"**Service**" may mean more complete information to those who have immediate need for detailed facts.

"**Service**" can mean a better selection of tools to those who have special installation problems.

"**Service**" *is* the acknowledged responsibility of the manufacturer to the customer to furnish practical answers to the customer's needs, (even if it involves no more than the tools and information to extend the usefulness of a tapping machine.)

Mueller "customer" service in complete tools, equipment, and information is another reason you can depend and **Standardize on Mueller.**

MUELLER CO. **DECATUR, ILL.**

Factories at: Decatur, Chattanooga, Brea (Los Angeles)
In Canada: Mueller, Limited, Sarnia, Ontario

W-410

Strictly *Off the Record*

Suitor: "I am seeking your daughter's hand, sir. Have you any objections?"

Father: "None at all. Take the one that's always in my wallet."

* * *

There was a terrible crash as the train struck the car. A few seconds later, Mr. and Mrs. crawled out of the wreckage. Mrs. opened her mouth to speak but Mr. stopped her. "Don't say a word," he snapped. "I got my half of the car across. You were driving in the back seat, and if you let it get hit it's no fault of mine."

* * *

Meek voice over the telephone: "Doctor, this is Mr. Henpeck. My wife just dislocated her jaw. If you're out this way next week or the week after, you might drop in and see her."

* * *

Hobo: "Lady, have youse got any old cast-off husband's clothing?"

Lady: "Why no, we're still living together."

* * *

The decrepit old car drove up to the toll-bridge.

"Fifty cents," cried the gateman.

"Sold" replied the driver.

* * *

Diner: "Have you any wild duck?"

Waiter: "No, sir, but we can take a tame one and irritate it for you."

* * *

A railroad agent in Africa had been "bawled out" for doing things without orders from headquarters. One day his boss received the following startling telegram:

"Tiger on platform eating conductor. Please wire instructions."

* * *

First Secretary: "How do you like your new boss?"

Second Secretary: "O.K. except he is narrow minded."

First Secretary: "Why is that?"

Second Secretary: "He thinks words can only be spelled one way."

* * *

"Doctor" said the pale-faced man to his physician, "I'm in an awful state. Whenever the phone rings I almost jump out of my skin. The doorbell gives me the willies. If I see a stranger at the door, I am shaking. I'm even afraid to look at a newspaper. What's come over me anyway?"

The doctor patted him on the back sympathetically. "There, there, old man I know what you're going through. My teenaged daughter just learned to drive, too."

* * *

The owner of a car repair shop jumped in the air with joy and yelled, "Hooray."

"What's up?" somebody asked?

"Remember last year when my water pipes froze?"

"Yes."

"Well," cried the proprietor, "the plumber who fixed them just brought his car in for an overhaul."

* * *

Mr. Smith believed emphatically that a husband was entitled to a night out alone each week. So every Tuesday night, he went out. One Tuesday he went out and didn't return. Exactly seven years later he came home at 5 p.m. on a Tuesday and his wife was so happy to see him that she began to phone all of her friends.

"What do you think you are doing? asked Mr. Smith suspiciously.

"Why arranging a welcome home party for you tonight," answered Mrs. Smith.

"What!" protested her husband. "On my night out?"

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