MUELLER Record

AUGUST • 1955

THIS MONTH'S COVER

DISNEYLAND'S CREATOR . . . Walt Disney poses with one of the colts being raised at his Magic Kingdom in Anaheim, California. Opening of the $17,000,000 wonderland on July 18 marked the realization of a 20-year old dream of Disney's.

Recording Our Thoughts

ONE OF THE MOST unusual flower beds we have ever had the opportunity to see surrounds well house No. 1 at the North Pumping Station in Leeper Park at South Bend, Indiana. The flowers are in an area known as the Fragrance Garden for the Blind. Although the fortunate with sight come to view and enjoy the garden daily, it was for the blind that the garden was planted.

The blind are brought to visit the area and they walk near the flowers where they may enjoy the fragrance. It is said that some blind persons learn to distinguish the various flowers simply by smell.

It is a wonderful gesture by the city and the South Bend City Water Works to maintain this unusual garden.

* * *

CITY WATER COMMISSIONER Frank Schwemler of Cleveland, Ohio,

(Continued on page 11)

MUELLER Record

August • 1955

WALTER H. DYER, Editor

MUELLER CO.

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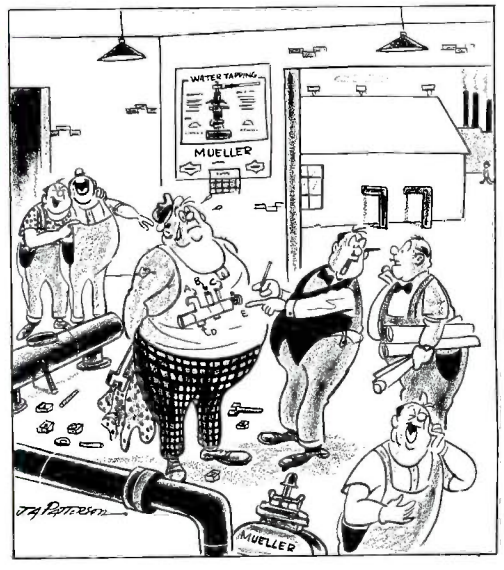
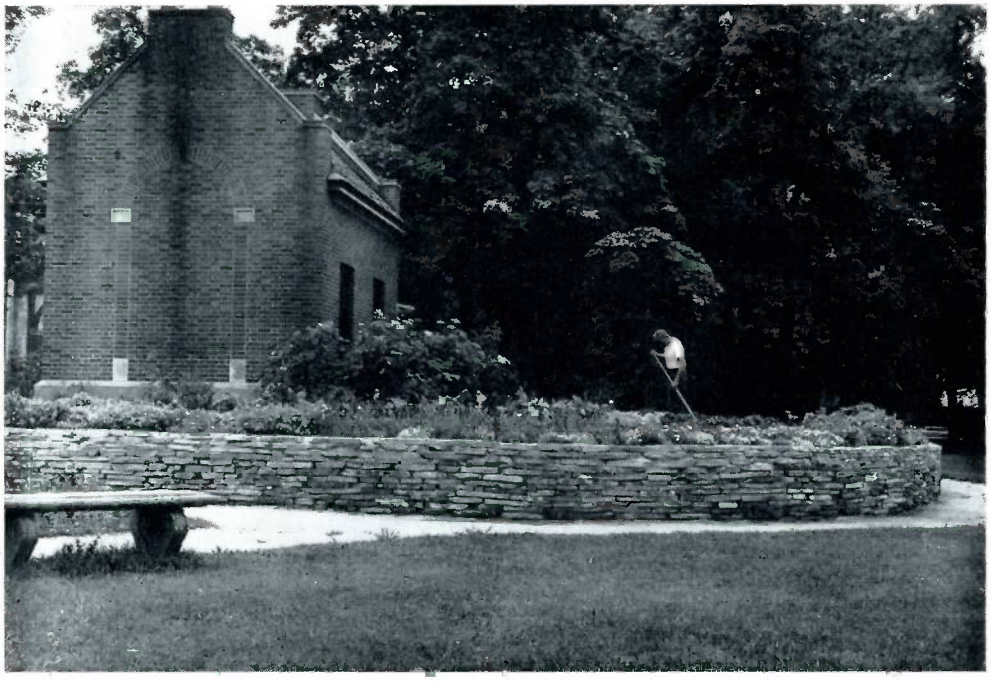


". . . After you get A, B and C hooked up to D, right here on Fatty—set in your Mueller Gate Valve."



Well House No. 1 is located at the North Pumping Station in Leeper Park. The well is surrounded by the Fragrance Garden for the Blind. North Pumping Station has four wells with a capacity of 7,000,000 gallons per day. This is the station for which pressures for the system are controlled. A 6,000,000 gallon reservoir is located at this station.

South Bend, Indiana

This Historic, Industrial Center Has Been Dependent on Wells Since 1886

THE CITY of South Bend, Indiana, has been dependent on wells as a source of water supply for 69 years. Favorably situated in the valley of the St. Joseph River, which is underlain by extensive deposits of sand and gravel, the city and its varied industries have pumped many millions of gallons of water from wells since 1886.

The original public water supply system was established in 1873, and used water from the St. Joseph River until the first wells were drilled at the city's Central Pumping Station in 1886. The use of river water was abandoned then, and although its use for public supply has been reconsidered several times by city officials and consulting engineers, high treatment costs, pollution of the river, and an adequate ground-water supply have made the further use of river water impractical up to the present time.

Twenty-five wells ranging from four to eight inches in diameter with an average depth of 87 feet were drilled in

1886. Wells were originally operated by steam suction pumps to the distribution system. By 1915, the number of wells at the central station had increased to 38 and in that year the average pumpage was about 2.42 million gallons per day.

In 1921, the station was rebuilt and electrified. The maximum pumpage from this system occurred in 1922 averaging 3.42 million gallons per day. A big change in the system occurred in 1942 when a large gravel-wall well was drilled at the southeast corner of the pumping station. The well has an outer casing 50 inches in diameter, an inner casing 38 inches in diameter, and a total depth of 108.5 feet. That same year the 35 remaining wells of the old suction system were abandoned and sealed.

Superintendent William J. Kiel at work in his office.

The South Bend City Water Works is headed by William J. Kiel who took over the job as superintendent in April, 1954, after serving 13 years as an executive with the Bendix Aviation Corporation in South Bend. A native of Elgin, Illinois, Mr. Kiel joined Bendix in 1940 and made a rapid rise in that organization until his appointment to the water system post by the mayor of South Bend.

Since taking over the department, Mr. Kiel has completed construction of two

The control building at the South Station which has four wells with a daily capacity of 7,000,000 gallons. Shown are C. Ziegert, left, and F. Hildebrand, operators.

wells already underway when he accepted the post, and he has added two new wells to provide water for the city's fast-growing population. A total of five new wells have been added since 1952. Present wells range in depth from 150 to 207 feet.

John A. Scott is mayor of South Bend. The Water Works Board, whose duties are to oversee the City Water Works on a policy making level, consists of James A. Bickel, city controller as chairman, Raymond S. Andrysiak, city engineer, Irving A. Hurwich, city attorney, and Superintendent Kiel.

Today, the South Bend water system consists of 43 wells in eight locations. Rate of capacity is 50,000,000 gallons per day.

Two reservoirs holding six million and seven million gallons respectively maintain a substantial water supply. In addition, there is a booster station with an overhead tank capacity of one-fourth million gallons.

South Bend's water distribution system also has 320 miles of water mains, 2,404 fire hyrdants, and 5,436 valves ranging in size from two inches to 30 inches. There are more six-inch valves in the system than that of any other size.

All pumps are operated electrically except one steam plant which has a capacity of seven million gallons.

The city's water system is chlorinated at each well, and the water enters the distribution system directly from the well. The chlorine formula is five parts chlorine to one million gallons of water. In addition, one part pollyphospate per million gallons of water is added to combat rust. The city has very hard water—an over-all hardness of 20.27.

The daily average consumption is 20,000,000 gallons, and the high for 1955 thus far is 38,500,000 gallons.

The City Water Works, which has 170 employees, does all its own installation and maintenance. Some of the department's major equipment includes a crane backhold, two air compressors, two tapping machines, one dump truck, one crane truck, 13 utility trucks, two 1½-ton panel trucks, two business cars, one tractor and lowboy trailor and one bulldozer.

All accounts are 100 per cent metered and there are a total of 37,036 meters in the city. Both industrial and residential meters range in size from 5/8-inch to 12-inch.

The department does all its own meter repair service, and a garage is maintained for repair work on all equipment. In addition to repairing City Water Works equipment, other city equipment also is repaired at the garage, time permitting.

Bills are sent to water customers once each month. Sewer charges, which are

The 250,000 gallon tank at the booster station. Also at the station is a 7,000,000 gallon reservoir. Water is pumped directly from the system to the reservoir. It is then pumped to this tower. Water in the tower rides on the system and is gravity fed into the system.

based on the amount of winter consumption, also are mailed monthly. The office staff uses stub accounting, and Burrough Business Machines and addressograph machines for mailing have been adopted for the office system.

In addition to the large quantities of ground water pumped for the municipal supply, many of the local industries are dependent on private wells for water supply and for condenser cooling and air-conditioning purposes. It is believed that the position of South Bend as one of Indiana's leading industrial centers is due at least to the large supplies of underground water which have been made available for industrial use at a relatively low cost.

The four major industrial users are Bendix Aviation Corporation, Drewry's Ltd., Oliver Farm Equipment Company and Studebaker Corporation. Major industries in South Bend are in the following categories: automobiles and accessories, aviation products, agricultural implements, toys, paints and varnishes, sewing machines, lathes, baits and fishing rods, steel ranges, home laundry machines, folding cartons and boxes, men's and women's wear, special machinery and tools, wallpaper, waste-paper baskets, metal furniture, elastic and surgical goods, brass, iron and semi-steel castings and dress patterns.

The new one million gallon per day capacity well which was placed in operation in May, 1955. Located in Erskine Park, the operator is S. Rose.

During recent years, it has been generally believed that the water levels in the South Bend area have declined and that at some time in the future the present ground-water supplies may become insufficient to meet the needs of the city and the industries in the area. In looking ahead to future municipal and industrial expansion, the question of the adequacy and future of the ground-water resources of the South Bend area as a whole is being considered.

South Bend is located in St. Joseph County in northern Indiana, about six miles south of the Indiana-Michigan line. The population is estimated at 140,000, showing a rapid increase since the 1950 census, when the count was 115,911. Ten years earlier in 1940, the census reported South Bend's population as 101,268.

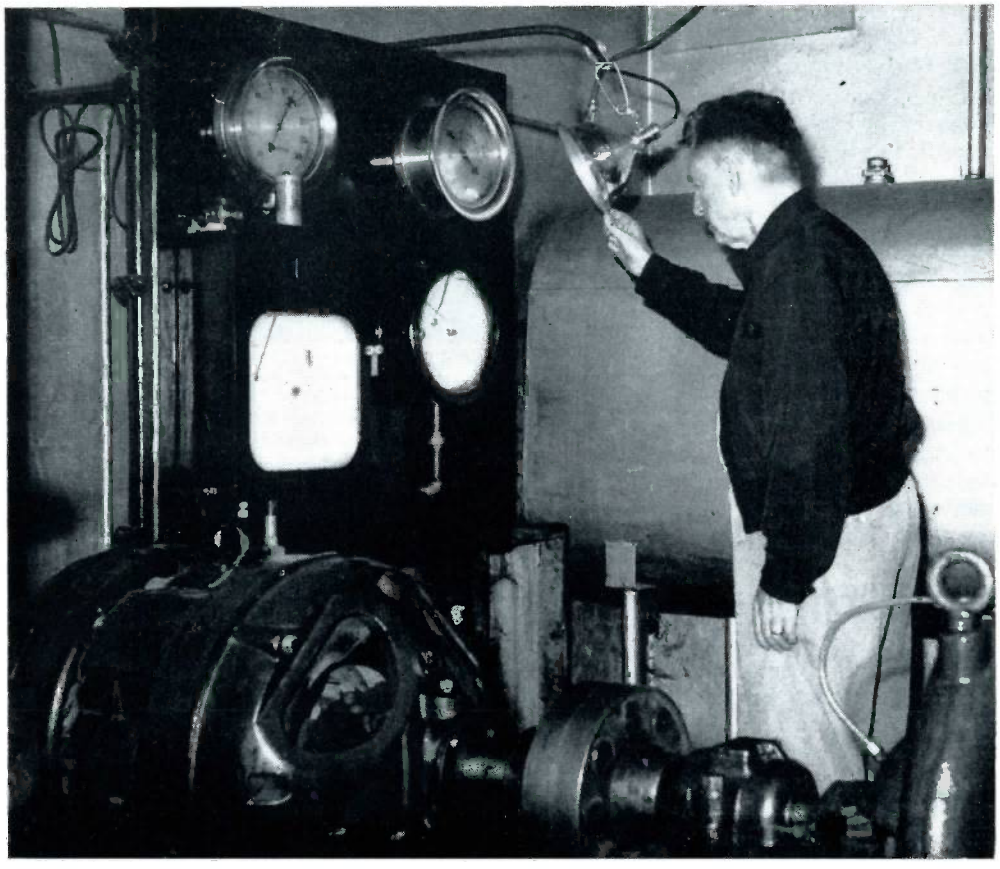
The history of South Bend is a colorful one, rich in tradition and sprinkled with famous names from American history and industry. Although the city was officially settled in 1823 by Alex Coquillard, it's history may be dated to 1820 when a trading post for the American Fur Company was established. Coquillard, the first settler, came three years later.

It is the region traversed early by missionaries and explorers.

In 1831 when the population was a bustling 128, the town was laid out. It was incorporated in 1835 and chartered as a city in 1865. The population had grown to 1,652 by 1850, and after that year, the number of residents grew steadily and substantially.

Across the northern portion of the city was the old portage from the St. Joseph River to the Kankakee River, famous in early French and Colonial days. Two famous visitors of the 1600s to this area were LaSalle and Father Marquette, both principal figures in the area's early history.

LaSalle first came to the area that is now South Bend in 1679. He returned in later years from the "lakes" to the



One of three pumps and gages at the booster station. The operator is K. Smith.

interior where he found an Indian village, the Miami tribe. Later the Pottawatomies occupied the place.

Famous names associated with the civic and industrial history of South Bend are James Oliver, Schuyler Colfax and the five Studebaker brothers. Before the coming of the auto, the Studebaker brothers already had made South Bend famous as the center for wagon and carriage factories. James Oliver is the forerunner of the Oliver Farm Equipment Company and founded the first modern hotel in the city, the Oliver Hotel, which remains one of the city's better hotels today.

Just outside the city limits is Notre Dame village, home of two of the nations best known Catholic schools—the University of Notre Dame, a school for men, and St. Mary's College and Academy for women.

Notre Dame has its own water system and is not dependent on South Bend for its water supply.

Railways crossing this industrial center for northern Indiana are the Grand Trunk, New Jersey, Indiana and Illinois, New York Central, the Pennsylvania, the Chicago, and the South Shore and South Bend Electric Railways. All major airlines have access to the city.

South Bend, the county seat of St. Joseph County, is bounded on the east by Mishawaka, another industrial center. Other communities in St. Joseph County include Walkerton, North Liberty, New Carlisle, Lakeville, Osceola and Granger. They are small agricultural towns widely spread through the county. Walkerton, North Liberty, New Carlisle and Lakeville have municipal water-supply systems.

South Bend is surrounded by rich peppermint-growing muck. The area also

produces potatoes, celery and onions besides various truck produce. Dairying also is an important business.

The climate of the South Bend area is typical of northern Indiana and southern Michigan. Although the area is comparatively close to Lake Michigan, the effect of the lake on climatic conditions is probably small. The prevailing wind is from the Southwest. The mean annual temperature at South Bend is 48 degrees F. The temperature has ranged from a maximum of 109 to a minimum of 22 below during the period of official weather bureau records.

Precipitation in the area is fairly well distributed throughout the year, although the winter months are usually somewhat drier than the remainder of the year. The normal annual precipitation, basis of United States Weather Bureau records, is 34.76 inches. The heaviest precipitation generally falls in May, when conditions for ground-water recharge are especially favorable. During the spring months the ground is generally unfrozen and losses by evaporation and transpiration are low.

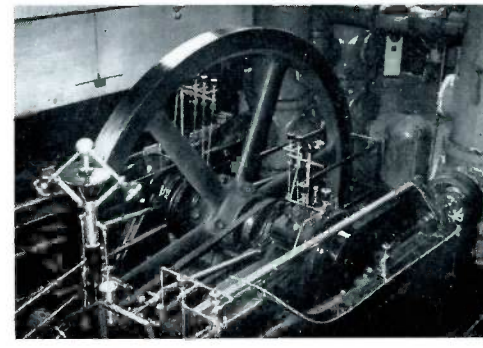
The gathering ground of the source of water supply has an area of more than 100 square miles and the natural rainfall on this catchment down through the years has been more than sufficient to maintain the underground supply.

The St. Joseph River is the main stream in the area, entering the county east of Mishawaka, running westward to South Bend where it swings northward in a sharp bend to enter Michigan west of Roseland, Indiana. The main tributary of the St. Joseph River in St. Joseph County is Baugo Creek which drains the east-central part of the county through what is known as Rogers Ditch.

The flow of the St. Joseph River is controlled by dams throughout much of its length and is utilized extensively for power purposes, particularly at the Twin Branch plant of the Indiana and Michigan Electric Company east of Mishawaka, at Mishawaka and at South Bend. Use of the river for power by the smaller industries is declining, however, because of the availability of more convenient electric power.

Looking ahead, South Bend appears headed for continued growth in the years to come. Its water supply, despite showing some occasional signs of declining with the danger existing that the wells may someday prove inadequate, the city nevertheless has little to worry about for their water needs. For even if the wells should prove inadequate, there is an ample surface water supply to supplement any needs in such an emergency.

The first house erected in South Bend by Pierre Navarre in 1820. The cabin is now located near the reservoir at North Station in Leeper Park. City Water Works Superintendent William J. Kiel stands in front of the cabin.



The 3,500,000 gallon per day steam plant located at Oliver Park Pumping Station. Future plans are to retire this station.

As We Progress

By 1975, it is estimated, our country will be consuming products at twice the present rate, while the available work force is expected to increase by no more than 25 per cent. Whether we call the process "automation" or continued improvement in equipment, it holds our only hope for a rising standard of living.

Tragic Tornado Of Two Years Ago is Recalled

THE DAY WAS JUNE 8, 1953. It had been as uncomfortable as most summer days to Lynn Henderson, water superintendent at Beecher Metropolitan District near Flint, Michigan. It had been hot, and awfully close, and as the day neared its end, so did Lynn's patience. He had had trouble with the automatic controls on an elevated storage tank and had spent most of the day getting it repaired.

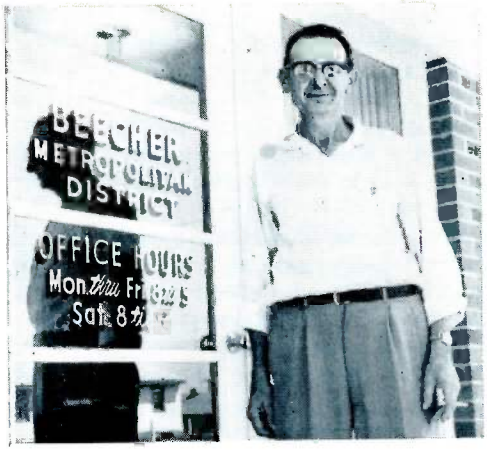
That night when he left work late for home and perhaps a warmed-over supper, he noticed that the storage tank was low on water. "Better take care of that tomorrow" he told himself.

Lynn was careful as usual getting his car in the garage for the night and as he stepped on the front porch he was going over his prepared talk as to why he again had to be late for supper. Being water superintendent and late for meals seemed to go hand in hand anymore.

Just then the fire whistle shrieked, and Lynn who also was a member of the district's fire fighting squad hurriedly retraced his steps to the garage and backed his car onto the road again. He hadn't gone more than 25 feet toward the fire station when he saw it coming.

"I didn't know what it was, but I didn't want it!" That's the way he describes the tornado that spread tragedy over much of the Flint area in a few short seconds. "It was a huge black funnel," Mr. Henderson recalls. "I can't remember it making any noise, but lots of folks can. I wheeled my car around and put her back in the garage. The last thing I remember doing was trying to open the car door. It just wouldn't open."

The next thing Mr. Henderson does remember is sitting up in a hospital bed. He was badly bruised and shaken up, and awfully lucky to be alive.



Lynn Henderson, water superintendent, stands in front of the new office building at Beecher Metropolitan District near Flint, Michigan.

What did happen was that the garage was in the direct path of the giant funnel. It swept into the garage tearing it to bits, picked up the car and tossed it 400 feet giving Mr. Henderson the longest auto ride by air he has ever taken. He apparently was knocked unconscious, saving him the horror of remembering the experience of being tossed through the air.

Mrs. Henderson was inside waiting for her husband's return from work. It was 8:30 p.m., a long-time to wait supper, she was thinking. She was just settling down to watch "I Love Lucy" on television. Then without warning a rock smashed through a window. The lights failed, and in the darkness of her home the funnel hit. The walls crumbled as the house was picked up, carried across the road with Mrs. Henderson aboard and crashed into the home of a neighbor.

Their daughter, Lynnette, was in the basement. She remembers the terrible feeling of seeing the house and basement stairway move away leaving her behind to be rolled around the basement floor as a tiny leaf caught in a whirlwind.

The next few seconds brought death to 116 residents of the district. Nine hundred more were injured, many critically. Ripped from their foundations were 185 homes. The area at the time

had 2,220 homes and many of those not destroyed were badly damaged.

So fierce was the wind that for a distance of one mile every home but one in a two-street stretch was destroyed. Left partially standing was a cement block home which lost its roof, although the sides withstood the tornado.

With the wind as always came several fires including one at the district high school. Residents stood by helplessly watching the fires grow and then finally burn themselves out. There was no water available to halt the fires around the city.

WATER WAS UNAVAILABLE

Water was unavailable almost immediately because with the destruction of 185 homes, there were that many service connections wide open with the much needed water going to waste.

Over at the Water Department, the overhead storage tank which holds a maximum of 250,000 gallons, was down to 34,000 gallons when the funnel fought its way through town. That amount was soon drained through open service connections. The well pumps stopped and at about the same time the roof on the old water office was torn loose and sailed through the air several hundred feet before nose-diving into the earth.

Although his physician advised him against any immediate activity, Mr. Henderson knew he was needed back on the job. A water superintendent couldn't stay in bed when his city was without water, so after three days hospital care, he came back to view the damage.

What he saw was the tragic emptyness of a once lively community. Death had taken its toll, and he was grateful his family had been spared. His severely injured wife spent seven weeks in the hospital. She suffered broken bones in both feet, a badly injured arm and abrasions about the body. His daughter escaped serious injury.

Lynn sized up what had taken place the three days during his hospitalization. The power in the pumping station had been knocked out and the area was without water the first day. The second day, the city of Flint supplied water by means of a hydrant to hydrant hookup. The district was fortunate for this type service is possible only when hydrants in the two cities are close enough to make it practical.

"The first good news I received," Mr. Henderson recalls, "was that the State Health Department inspection revealed no contamination existed in the water system."

In getting the water system back to normalacy, the district water employees had to rewire the pump house, get the pumps functioning, and pressurize the flow of water through the mains again. Despite the pressure drop, no contamination existed. Immediately following the tornado, available water employees valved off certain sections of the city to bring under control the ripped out services.

Once power was returned to the pumping station, Lynn instructed his men to use heavy doses of chlorination, and in addition the people were asked to boil all drinking water for the next few days. "We just wanted to play it safe," he said.

"We had offers of help from everywhere. It was wonderful to see the cooperation our residents received from other cities. Plumbers and other workmen came here from all over to give us a hand. And when they started to rebuild the homes, we were faced with our most difficult problem—that of locating the curb boxes.

"With the house gone, we had a hard time finding the curb boxes. This resulted mainly because in cleaning up the area, bulldozers had plowed the curb boxes under tons of dirt," he said.

All curb box locations were referred to from the home, and with 185 homes gone, finding the curb boxes became a difficult problem. Mr. Henderson said it would have been much better in such an emergency if curb boxes were measured as distance from the nearest fire hydrant.

Yet it was a problem that was solved despite the difficulties. Some 60 per cent of the persons whose homes were destroyed, rebuilt on their old property sites. Others, perhaps due to deaths caused from the tornado, sadly moved from the district rather than start life anew in an area surrounded by memories of personal tragedy.

Beecher Metropolitan District has rallied and today there is little evidence

to show for the tornado of two years ago. The area is growing, and in fact is larger now than before the fateful day of June 8, 1953. There are 2,451 meters whereas, a total of 1,190 meters were in use at the time of the tornado. The loss of 185 homes means that only 1,005 meters existed after the storm. The growth from that figure to 2,451 is considerable for a two-year period.

The area's continued growth has prompted the Water Department to drill a new well, giving the district a total of four wells. Tests run on the new gravel well indicate it is a good one.

Lynn Henderson and his water employees are looking forward to still greater growth and are making plans for future expansion. A new modern office building has replaced the old structure and new office equipment has been installed to enable the department to offer better customer service.

As for the past, Lynn prefers to forget it. "We just think of the present and future around here," he said.

And if Lynn Henderson's present abilities measure up to his proven performance of the past, Beecher Metropolitan District water users can be assured some very excellent service in the future.

JUST AN OIL WELL!

All They Wanted Was Clean Water

Fredonia, a small town in western Kentucky, needed a city waterworks but got an oil boom instead.

The Fredonia Civic Club got busy and collected $200 to hire Al Taylor of Princeton, Kentucky, to drill a well.

At 120 feet Mr. Taylor found a small vein of water, but not enough to supply the town, so he kept on drilling. At 225 feet he pulled out his bit—and found it covered with oil.

Another ten feet down and the drill came up slick with oil. Two Illinois oilmen who happened to be driving by stopped, and after looking over the situation, agreed that Fredonia had an oil well.

Experts say the pool probably is a shallow one, but a small-scale oil boom has started in the vicinity anyway.

The only trouble is—Fredonia still has no waterworks.

Recording Our Thoughts

(Continued from page 2)

recently proved in a rather dramatic fashion that customers get their money's worth and then some when it comes to drinking water. He offered to pay $50 out of his own pocket to any one who could drink two cents worth of Cleveland water in a week.

As every water works man will know, Mr. Schwemler wasn't giving away any money with that kind of a bet.

The way the Cleveland Commissioner figures it, two cents worth of Cleveland water is 234 gallons, or about a ton!

* * *

ALL SWALLOWS don't go back to Capistrano.

Five of them came out of the wild blue yonder recently and found their way between the seat and valve of a Mueller 5¼-inch standard fire hydrant at Otis Air Force Base in Falmouth, Mass. The result was fatal to the birds and very embarrassing to Mueller Co., the Hilco Supply Co. of Sudbury, Mass., the seller, and to Bagarella Construction Co. of Watertown, Mass., the contractor who installed the 21 hydrants at the air base. The birds apparently got in the hydrant as it lay waiting to be installed.

One of the hydrants leaked through the main valve, and the Air Force was very displeased. Mueller Sales Representative Stanley B. Johnson was called in by Hilco and it was Mr. Johnson's opinion that the main valve had been damaged, perhaps by blowing the mains and that a stone may have been lodged between the seat and the valve of the hydrant.

Hilco salesman Bert Tighe and Mr. Johnson strapped a seat wrench on top of their car and drove to the air base. Upon taking the hydrant apart, the five dead birds were found.

It is interesting to note that the 6-inch valve ahead of the hydrant was under water and could not be seen to place a wrench on it. One of the workmen located the valve and with his hand turned it off while the valve was under 90 pounds pressure. Which, as an afterthought, may point up the advantage of using the Mueller "O" ring packed valve.

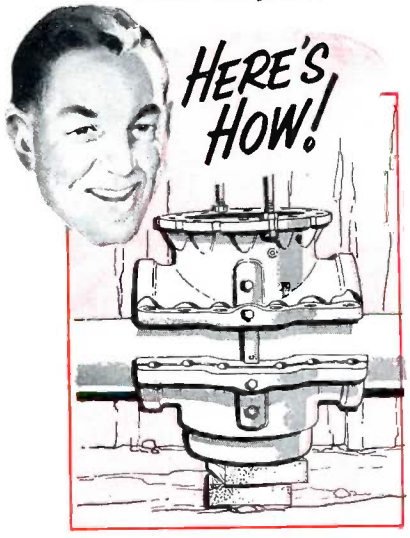
ELIMINATE SERVICE INTERRUPTIONS

INSTALL CONTROL VALVES WITHOUT SHUTDOWN!

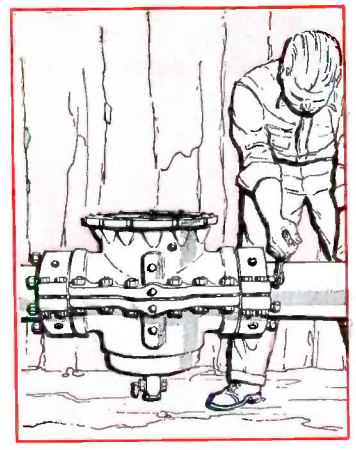
Now you can install control valves without shutting down even a small part of your city's water system. Inconvenience to customers and danger of fire is completely avoided by using Mueller Inserting Valves.

Mueller Inserting Valves may be installed in any existing line under pressure and, once installed, are operated like standard gate valves. In fact, the mechanism of Mueller Inserting Valves is identical to that of Mueller AWWA Gate Valves and repair parts are interchangeable.

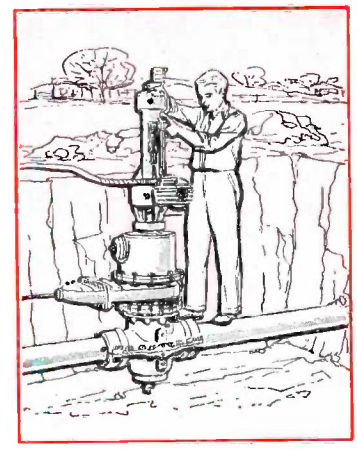
Follow this procedure to install . . .



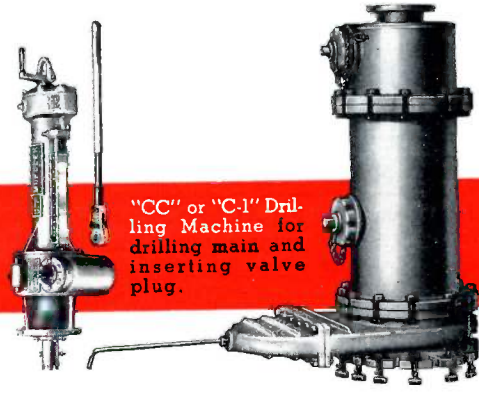
STEP 1. BOLT SLEEVE TO MAIN.
Main is cleaned and sleeve halves are bolted together around main.



STEP 2. PREPARE SLEEVE.
Sleeve is calked and leaded to main in desired position and slide valve is attached.



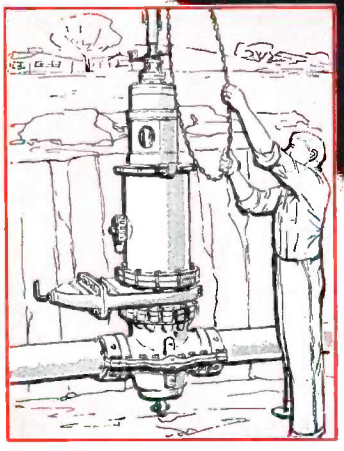
STEP 3. MAKE CUT.
Section of main inside of sleeve is removed with Mueller "CC" or "C-1" Drilling Machine.



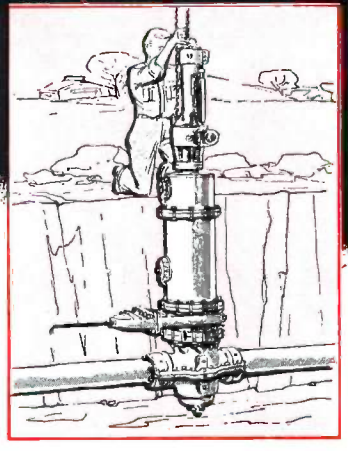
"CC" or "C-1" Drilling Machine for drilling main and inserting valve plug.

H-810 Basic Inserting Equipment permits insertion under pressure of all sizes of inserting valves.

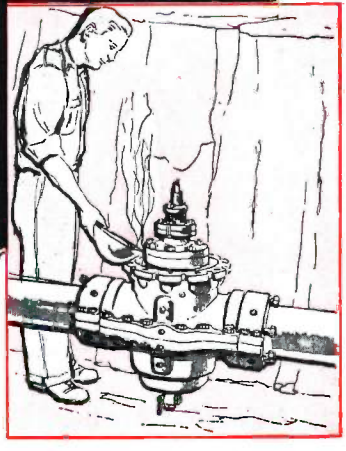
H-800 Inserting Valve
Sizes 4", 6", 8".
Shipment from stock.



STEP 4. PREPARE VALVE PLUG
Long adapter is bolted to slide valve and valve plug is readied for insertion into main.



STEP 5 INSERT VALVE PLUG.
"C-1" machine is fastened to valve plug to lower plug into place under pressure.



STEP 6. COMPLETE INSTALLATION.
Packing screws are tightened and lead is poured into top joint to seal valve plug in place.

Control Valves at vital points permit:

- Installation or repair of fire hydrants
- Isolation of small sections
- Extension of mains
- Modification of system . . . without extensive shutdown

Call your Mueller Representative or write for Catalog H-20 for complete information.

MUELLER CO. DECATUR, ILL.

Dependable since 1857

FACTORIES & OFFICES: DECATUR · CHATTANOOGA · LOS ANGELES · SARNIA, ONTARIO

Disneyland

(EDITOR'S NOTE: Much has been written and said about Walt Disney's Disneyland which already has caught the interest of the entire nation. Its opening July 18 was the fullfillment of a lifetime dream of this great artist whose imagination already has become an American legend. The following story is a description of some of the planning of the work, and of Disney's hopes that went into year's of study prior to the opening of this now famous "magic kingdom". We might add that we have somewhat of a selfish interest in presenting this article—one of which we are indeed proud at Mueller Co. All fire hydrants at Disneyland are Mueller Improved Hydrants, bringing fire protection to the thousands of people who visit this entertainment center daily.)

EXACTLY one year and one day after breaking ground on a 160 acre orange grove in Anaheim, California, Disney-

DISNEYLAND—Walt Disneys' fabulous magic kindom at Anaheim, Orange County, California, as seen from the air. Entrance to Disneyland lies at the bottom, center, with the realms of Adventureland, Frontierland, Fantasyland and Tomorrowland fanning from it in a clockwise direction.

land, Walt Disney's multimillion dollar magic kingdom, was opened to the public.

With this July 18 inaugural, Walt Disney realized a life-time dream in offering Disneyland to the young of all ages to experience active delights of the moment, to savor the challenge and promise of the future, and to older generations to relive fond memories of the past.

For over 20 years—almost from the time Mickey Mouse's voice was heard across the world—Walt Disney envisioned a "magic kingdom" that would create a whole lavish new kind of entertainment designed for family participation, based upon his own wonderful characters.

His original plan was to build the park on the studio lot in Burbank. However, as his cartoon family and other activities grew, so did the dream and it soon became apparent that something far larger than the Burbank lot was necessary.

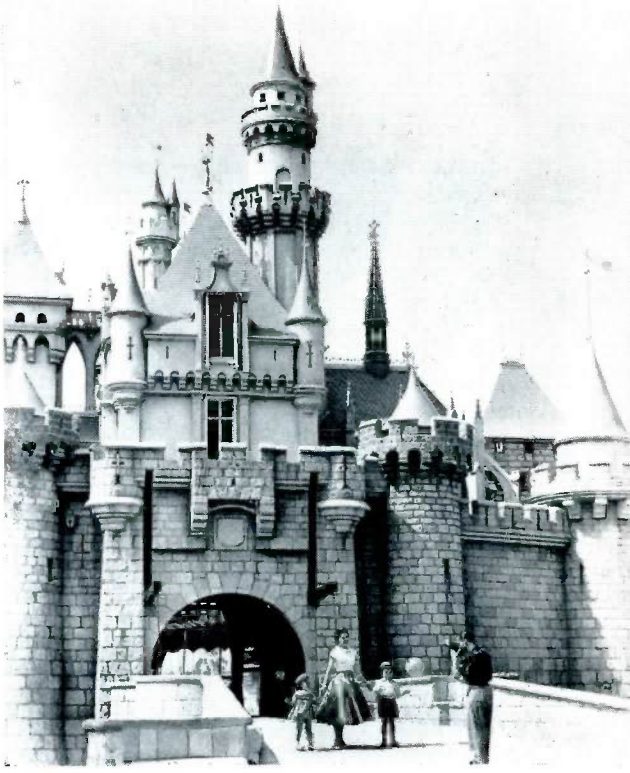
Since location of this unique park was of prime importance, Disney retained the Stanford Research Institute in June, 1953, to make an extensive site and location study. The Stanford project was under the direction of C. V. Wood, Jr. After the survey was completed Wood was assigned by Walt to act as Vice President and General Manager of Disneyland, Inc., to continue with actual construction and organization.

Selection of the site was made from among many after a year's study in location analysis and a complete search of land records. Among other qualifications, utility conditions, accessibility, topography and environmental characteristics were considered. Even annual rainfall figures helped in making the final decision.

During this period Stanford Research conducted a complete economic feasibility study of the entire Disneyland operation. This included a thorough survey of attendance patterns for amusement areas and the projection of an annual rate of operation for Disneyland.

In designing and building Disneyland, nothing was left to chance.

When Walt began to put his ideas into sketches the amount of research and technical data required seemed almost impossible.



The Sleeping Beauty Castle in Walt Disney's Fantasyland area of Disneyland in Anaheim, Calif., is one of the favorite places in the $17,000,000 "magic kingdom" for taking pictures. The wonderland of entertainment opened to the public on July 18th.

By the time the property had been purchased and ground broken, scouting teams were traveling over the United States and Canada to secure authentic equipment for Walt Disney's grand project.

It took three cities to supply the 100-year-old gas lamps that line Main Street. They are set aglow each evening at dusk by a lamplighter, a relic of the turn of the century.

Some of the cresting and railing that is seen in Frontierland and Main Street came from old plantations in Nashville and Memphis, Tenn., and some came from San Francisco, Oakland and Sacramento, dating back to the '49 days.

Part of the marine equipment—used only for exhibit purposes at Frontierland Park—consists of an old anchor which was found in an antique shop in New Orleans, and thought to be about 200 years old. It is believed to have been

a part of a pirate ship—possibly Jean LaFitte's.

Because all construction was on 5/8 scale, mills across the nation were contacted for special narrow-striped awning and umbrella materials.

Tomorrowland presented an unusual situation, since all its equipment had to be designed to fit the future. For this section designers worked tirelessly to present practical ideas. The chairs, benches, stools and other Tomorrowland accessories could not be modeled after any particular period and each is a product of its inventor's imagination as to what will be used in the future.

SERVES 8,000 HOURLY

Eating facilities had to be worked out to accommodate an expected average of 15,000 persons daily hitting a peak of 60,000 on holidays and week-ends. Twenty restaurants and snack bars, capable of serving 8,000 hourly, are strategically located through the sixty acre exhibit area.

Restaurants, as well as other buildings, required authentic interior dressings. It was for these that antique shops across the country were searched.

An old mansion in Los Angeles supplied part of the interior for the Delmonico style restaurant at the Disneyland Plaza. The house was purchased and dismantled with interior wood paneling and stained glass windows, crystal chandeliers and staircases receiving the utmost care, for most of the mansion's features were incorporated into Disneyland's Main Street.

It is on Main Street that the 1890 Santa Fe and Disneyland railroad station is located. From here as many as 300 passengers might board a 5/8 scale train pulled by a mighty little locomotive. This little engine (which weighs 15 tons and was built at Disneyland) created quite a stir when Walt Disney took it down the then unfinished track on its first test run in early June. Guests and Disneyland employees were on hand to cheer and wave encouragement as Walt blew the whistle and opened the throttle.

Careful study was made of passenger and freight cars, as well as locomotive construction, to insure safety and authenticity.

But researching and purchasing authentic equipment were not the only problems that had to be worked out. How to fuse pioneering architecture with Southwestern and how to blend New Orleans cafe facades with log stockades were but a few of the posers encountered by Frontierland artists as this realm took form.

The logs for the stockade and log cabins were cut in the Arrowhead region of California where they were treated to kill insects and preserve the bark. Then they were shipped to the Disneyland site where many specially picked men hewed the logs by hand. These workmen were picked from carpenters who had a log cabin or ship building experience and were familiar with the use of axe and adze. The only power tool used on this project was a gasoline chain saw.

As in all the areas, Walt Disney's personal touch is seen. In Frontierland some of the gnarled pine posts were picked up by Disney on a trip to the Jackson Hole country in Wyoming. He and a friend spotted the logs because of the unusual burls growing on them and had about 60 shipped to Disneyland.

Extensive research was required to authentically outfit the "Mark Twain," Frontierland's 105-foot paddle-wheeling river boat. Being the first of its kind built in the United States in over 50 years, considerable time went into the study of river boats—their building and operating requirements. Because the ship is on 5/8 scale, its engines had to be specially built. This contract went to a machine shop in the local area with qualified past experience. Special construction was also called for in fitting the boiler into the hold. The ship draws about three feet of water and travels in the five-foot deep "rivers of America." Clay and a liquid cement mixture were sprayed over the river beds to make them leak-proof. The "rivers of America" is about 200 feet wide and about one half mile long.

DIRT FROM EXCAVATIONS

Excavations for the waterways supplied a large part of the 350,000 cubic yards of dirt that were moved in constructing the park and in building the 15 foot high berm surrounding Disneyland.

The Mark Twain, a 105-foot paddle-wheeler, and an authentic replica—built to ⅝ scale—of the old time boats that opened river traffic through the American wilderness. Sailing the "Rivers of America" at Disneyland, the Mark Twain docks at the New Orleans section of Frontierland.

This berm, or levee, is planted with trees and shrubs from all over the world with each "land" section setting the landscaping theme.

In importing and transplanting approximately half a million dollars worth of trees and shrubs, vitamins, hormones, peat moss and a solution of nitro-humus had to be supplied to Disneyland's sandy soil to lessen the shock to the plant.

One of the major landscaping problems was presented in Adventureland, where the tropical atmosphere was preserved in every detail. Trees from Australia, New Zealand, South Africa, South America, China and Japan, ranging in age from 30 to 50 years, were imported to make this section truly an Adventureland for tropical explorers.

Adventureland's life-like plastic "animals" also required minute attention before they could be "released" in the jungles. Each animal is electrically operated on a track. Automatic mechanisms operate the jaws, eyes and all movements. These animals had to be tank tested, first in a dry tank, and later in water to be sure they would operate smoothly.

While major attention was given to mechanical devices and building facades, each building is complete in every respect and is equipped with sprinkler systems for fire protection. Eight manual fire alarm boxes are on the site with connections in security offices and the Anaheim fire department. Mueller Improved fire hydrants are strategically located throughout the area.

Statistically speaking, 3½ million board feet of lumber went into the park's construction. More than 3 million cubic feet of paving covers Disneyland and its parking lot and approximately 32,000 sacks of cement were used. Some 800 workmen were employed daily with the figure running up to 2,500 employees working on 10 hour shifts as opening date neared.

Employees serving as permanent Disneyland hosts number from 850 to 1,000 and their occupations range from bus boys to riverboat captains; from livestock handlers to receptionists.

Inasmuch as Disneyland is a fresh, new concept in family entertainment, and, as described by its creator, Walt Disney, "a place for people to find happiness and knowledge," employees had

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Water Rates Report Tops Brilliant Career for Louis E. Ayres

LOUIS E. AYRES, winner of an honorary membership in the American Water Works Association this year, owes a great deal to a high school teacher who first convinced him that he had a "future in arithmetic."

"Latin isn't your field," the teacher told the now famous consulting engineer who heads the A.W.W.A. Committee on Water Rates. And the math teacher's thinking was indeed good. Mr. Ayres followed the advice, boned up on such subjects as plane geometry, solid geometry and trigonometry the same high school year, and then enrolled at the University of Michigan to prepare for the brilliant career which followed.

His Honorary Membership Certificate reads as follows:

"Louis Evans Ayres, consulting engineer, partner, firm of Ayres, Lewis, Norris & May, Ann Arbor, Michigan. A loyal and active member of the Association since 1916. A devoted worker with the Michigan Section. Director for the Michigan Section for the 1953-56 term. Received the Fuller Award in 1950. A consulting engineer of the highest standing. The industrious leader of the Committee on Water Rates, stimulating his associates toward production of a valuable report which will serve as a guide to the water works industry for many years."

The report on water rates is a culmination of many outstanding performances by Mr. Ayres, although it was his career as a whole which won for him a place among the select group of honorary members.

LOUIS E. AYRES

" . . . the secret of winning awards is living long enough."

Looking back over the years to high school days when Latin was his greatest headache, he modestly says that "the secret to winning awards is living long enough." While that is true in the sense that it would take many years to complete all the projects tackled by him and his associates, few careers have been dotted with such successful ventures as that of Mr. Ayres.

A civil engineer by education, he was born March 13, 1886, in Point Austin, Michigan, a town that now boasts 724 residents. "Lots of folks brag about being born on the farm," he laughed. "I always tell them I was born near the farm. In fact, in my boyhood days, it was a little difficult to distinguish Port Austin from farm country. We were just a friendly little village back then."

He lived with his parents for awhile in Buffalo, New York, and there became friends with Father Fosdick, high school principal, whose son is the Rev. Harry Emerson Fosdick, retired New York churchman of national fame.

"I shall be forever grateful to Father Fosdick," he said. "I was just a poor smalltown boy when Father Fosdick took me under his wing. I shall never forget his kindness even though he also advised me to drop Latin!"

Mr. Ayres is proud that he borrowed

$1,000 when his parents returned to Michigan in order that he might attend high school in Detroit. He worked summers to repay the sum to the high school scholarship fund.

He was graduated from the University of Michigan in 1908, and joined the Gardner S. Williams Consulting Engineering firm the same year at Ann Arbor. He was with this firm until 1923 first holding positions of draftsman, inspector and chief draftsman. During the years 1914-16, Mr. Ayres was in charge of appraisal of the Electric Department for the Sanitary District of Chicago, Illinois.

Although he was not an accountant by training, while working with the Sanitary District, he put in a new system of accounts, reclassified all their vouchers and used this system several months while actually operating as accountant.

"I thought about becoming a C.P.A. after that experience," he said. "Of course, I'm happy that I didn't, but that experience has proven invaluable to me in my work on the Water Rate Committee."

His reputation grew when he worked as a designer on the Belle Isle Bridge, City of Detroit, from 1916-17. He became Mr. Williams' principal assistant in 1917 and held that position until 1923.

July, 1923 saw the present firm of Ayres, Lewis, Norris & May organized as consulting engineers on hydraulic problems, water supply and treatment, sewerage and sewage disposal, and electric power.

All four men were employees of Mr. Williams for many years. They have a high regard for their former employer who, in addition to being a consultant, also was a faculty member at the University of Michigan. In past years, he had served on the faculty at Cornell University at Ithaca, New York.

The firm is now consultant for water and sewage.

The first major job of the new firm was that of consulting engineers to the City of Detroit on water supply and distribution from 1923-28 and on storm water pumping and sewage disposal from 1926-30. In 1924, Mr. Ayres wrote a report on Detroit water distribution in collaboration with George Fenkell who at that time was general manager of the Detroit Water Department. The suggestions have been largely followed since then.

He was a TVA consultant on water rights from 1936-38 and is the author of several technical articles on water power, water supply, pumping and treatment.

In addition to his AWWA membership, Mr. Ayres is a member of the American Public Works Association, The American Society for Testing Materials, American Society of Civil Engineers (director 1938-40), Detroit Engineering Society, and the Michigan Engineering Society of which he is past president.

Besides his honorary membership in the AWWA and the Fuller Award, Mr. Ayres was presented a Centennial Citation in 1953 as one of the outstanding graduates of the University of Michigan.

His major projects at present are the City of Flint, Michigan, and the Southeastern Oakland County Water Authority near Detroit. The new all-modern Flint Water Plant will be officially unveiled in September when the Michigan Section holds their annual meeting in that city.

His greatest interest at present remains city water department rate structures. He believes progress has been made, but at an extremely slow pace. He is interested in encouraging water suppliers to set a realistic price on their product.

Disneyland

(Continued from page 17)

to be of the highest standards. Each employee was hand-picked by Disneyland officials with qualifications including disposition, general attitude and appearance.

Each new Disneyland employee was required to attend "orientation classes," part of a training course in Disneyland policies, to become acquainted with the Disneyland way of life.

Every consideration was given to Disneyland to make it truly the magic kingdom of happiness and knowledge and safety that Walt Disney planned. And this realm, Walt assures, will constantly grow and change so that visitors will periodically find the new unexpected to fascinate and amuse.

Introducing

R. K. Levey, Assistant General Sales Manager

ROBERT K. LEVEY, our assistant general sales manager, is the man who among other things introduced the Mueller No-Blo demonstrations to the gas industry.

He personally held the first demonstration at our main plant in Decatur in 1950, and in all gave about 30 demonstrations at the Mueller No-Blo room. Technicians came from throughout the United States to attend those early programs and were guests of the company at Mueller Lodge. Mr. Levey estimates that some 5,000,000 meters were represented by gas men attending the Decatur demonstrations.

Later, in order to make this educational program more convenient for the industry, he organized our traveling No-Blo tours which take the demonstrations direct to the gas man. This program was created about three years ago, and recently was revised at a five-day meeting in Decatur.

Born and reared in Chicago, Mr. Levey attended public schools there and later continued his studies at Northwestern University. He joined Mueller Co. as a sales representative traveling out of Chicago in 1929, and for the next 16 years held the unique honor of being the youngest member of our outside sales force. This points up the fact that Mueller salesmen are a stable group who serve the company and its customers well.

Not until after Mr. Levey was brought to the home office in 1945 as an executive were there younger men on the road than he. In a sales training capacity, he passed on the honor of being the youngest salesman to one of a group of young sales trainees he personally trained in 1946.

After traveling out of the Chicago office for four years, he took over our Ohio territory with headquarters in Columbus. Two and one-half years later he returned to Chicago as head of our Chicago office. Nine years later, he came to Decatur as assistant sales manager.

ROBERT K. LEVEY
Assistant General Sales Manager

He also served as promotional engineer during which time he had charge of advertising, sales promotion and No-Blo demonstrations.

At one time following World War II, Mr. Levey was placed in charge of production scheduling for Decatur plants, and in so doing he developed a method of scheduling, the essential parts of which are still used.

As assistant general sales manager, Mr. Levey serves immediately under Robert H. Morris, vice president and general sales manager.

He is well known among both the water and gas industries, and is a familiar figure to many at national and sectional conventions. He is in charge of company planning for all conventions attended by our representatives.

Mr. Levey is married, has six children and three grandchildren.

He makes his home at Moweaqua, Illinois, a small town 18 miles from Decatur.

He takes an active part in community affairs and is a member of the Moweaqua Volunteer Fire Department and is past president of the Moweaqua Rotary Club. He is a former member of the Executive Club of Chicago and is a charter member of the W.P.A.—Waterworks Peddlers Association.

In addition, he is a member of the Decatur Association of Commerce, an associate member of the American Gas Association, member of the American Water Works Association, a committee member of the Meter and Regulator Division of the Gas Appliance Manufacturers Association, and is an alternate company representative of the Valve Manufacturers Association.

Mr. Levey is a sports car enthusiast, driving the distance daily from Moweaqua to the office in his new Austin-Healey.

"My wife is very irritable. The least little thing sets her off."

"You're lucky. Mine's a self-starter."

One of these days somebody's going to come up with a book on "How To Get out of Doing It Yourself." He'll make himself a fortune.

Two Mueller Co. Engineers Named To New Positions of Chief Engineer

Two Mueller Co. engineers have been promoted to newly-created positions of chief engineer. The appointments were announced by William H. Hipsher, executive vice president.

Walter Bowan, a registered professional engineer who began his career 30 years ago in the Brass Finishing Department, has been named chief engineer of research and development. John J. Smith, an Engineering Division employee since 1935, becomes chief engineer of administration and design.

Both men will be directly responsible to Frank H. Mueller, vice president and director of engineering.

Mr. Smith will, in addition to his engineering duties, handle contacts with the Sales and Manufacturing Divisions

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WALTER BOWAN

JOHN J. SMITH

Sales Promotions, Appointments Announced

RUSSELL L. JOLLY

RICHARD D. KITCHEN

DAN R. GANNON

ROBERT J. OTT

ROBERT J. THOMAS

PAUL B. WATTS

The appointment of three new sales representatives, promotion of two salesmen to sectional sales managers and the transfer of a third sectional manager has been announced.

Dan R. Gannon, for the past two years Southwest Sales Manager with headquarters at Dallas, Texas, has been transfered to Los Angeles where he will be West Coast Sales Manager.

Russell L. Jolly, sales representative in the Chicago area, has been named Midwest Sales Manager. Mr. Jolly has been with Mueller Co. since 1924 when he was with the Engineering Division. He has traveled a number of territories as salesman and oddly enough also has been employed at all three United States Mueller Co. plants.

Richard D. Kitchen, sales representa-

tive in Louisiana and southwest Mississippi, succeeds Mr. Gannon as Southwest Sales Manager. He will make his headquarters in Dallas.

Joining Mueller Co. as sales representatives are Paul B. Watts, Robert J. Ott and Robert J. Thomas. Mr. Watts takes over the Chicago area formerly traveled by Mr. Jolly. He is a graduate of Bradley University with a major in industrial physics. An army veteran, he has been engaged in industrial sales work since 1949.

Mr. Ott will travel Mississippi and a portion of Alabama. He is a graduate of the University of Notre Dame and is a Navy veteran. Prior to joining Mueller Co., he was advertising and sales promotion manager for a large Central Illinois appliance house.

Mr. Thomas will travel the state of Louisiana. He attended Illinois Institute of Technology and Bryant Statton College, both in Chicago. A Navy veteran, he has been in sales work since 1946, most recently representative of one of our allied manufacturers.

All three have just completed an intensive sales training course designed to enable them to bring better service to Mueller Co. customers.

TWO ENGINEERS . . .

(Continued from page 21)

and coordinate the operation of the Experimental Engineering Shop. Mr. Bowan will have full responsibility for all the company's longer range programs aimed at providing new products for the future. He also will have responsibility for establishing testing procedures to assure that new engineering designs are adequately checked.

Both men entered the Engineering Division as junior draftsmen, rising through the ranks as senior draftsmen, junior engineers and senior engineers, their position prior to their present appointment.

Mr. Bowan is married and has two children, Donald of Decatur, and Milton with the Army at Fort Leonard Wood, Missouri. His home is in Decatur.

Mr. Smith is married and has one son, Lewis, at home in Decatur.

Odds . . . and Ends

It is not the load that breaks you down; it is the way you carry it.

The smallest deed is better than the grandest intention.

There's one thing about it—the bigger the Summer vacation, the harder the Fall.

New definition of a rugged individualist: one who can eat chicken with his fingers without making excuses.

Don't drive as if you owned the road —drive as if you owned the car.

The length of a man's life depends not so much on the star under which he was born nowadays as the color of the light when he crosses the street.

The man who continually skates on thin ice finally ends up in hot water.

One of the hardest secrets for a man to keep is his opinion of himself.

QUOTE: "The best way to show that a stick is crooked is not to argue about it, or spend your time denouncing it, but to lay a straight stick beside it."
—Dwight L. Moody.

WHAT'S NEW—A patch-up kit for mending cars with plastic. Garages soon will have them, and its said that repair charges may come down as much as 70 per cent.

World's shortest sermon, preached by a traffic sign: KEEP RIGHT!

Very often the chip on somebody's shoulder is just bark.

City officials from Oelwein, West Union and Independence, Iowa, crowd around August 4 to watch the installation of a new Mueller inserting valve in a water main on 1st Avenue N. W. Ken Tohill of Boone, Iowa, Mueller sales representative, on the right, checks as M. C. Fangmeier, Waverly City Water Works Superintendent, installs the valve. Watching are Merrit Bushby, Independence city engineer; Grant Bower, West Union Water Works superintendent; Harry Illif, West Union city clerk; Forest Borland and Fred Gremmels, Oelwein city councilmen, and Bill Irwin of the Oelwein Water Works. Top feature of the Mueller valve is the fact it can be inserted without shutting off water along the line. (OELWEIN REGISTER PHOTO.)

Newspaper Lauds Mueller Co. Inserting Valves

A newspaper account telling of the installation of two Mueller four-inch valves that were inserted at Oelwein, Iowa, on August 4 is reprinted below. The story and picture appeared in the August 4 issue of the OELWEIN REGISTER. The story follows:

"Officials from several REGISTER-LAND cities were in Oelwein this morning (August 4) to watch one of the latest advances in water main repair and installation.

"One of two new Mueller inserting valves slated to be put into use on 1st Avenue N. W. by M. C. Fangmeier, Waverly superintendent of Water Works, and Ken Tohill of Boone, Iowa, and a Mueller Co. sales representative.

"The Mueller valve was put into place in a four-inch water main without ever closing off water pressure. Under old methods water pressure had to be turned off for an entire section of town while repairs were made.

"On hand to watch the installation along with Oelwein officials were Merritt Bushby, Independence city engineer; Grant Bower, West Union Water Works superintendent, and Harry Illif, West Union city clerk."