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We Supply STEAM Too

From THE OHIO EDISONIAN

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Editor: CHARLES CARTER

When several hundred customers in Akron, Springfield and Youngstown pay their monthly Ohio Edison bill, it's for steam.

Many people — some Company employees included — are not aware that the Company supplies steam to customers — a total of 745 of them — in those three cities.

But why is an electric company in the steam business?

It all started back before the turn of the century when steam was a by-product in the manufacture of electricity. Exhaust steam from turbines or engines driving electric generators was distributed through wood insulated pipes to answer heating and processing needs in nearby buildings.

Today most companies like Ohio Edison no longer pipe exhaust steam to their customers. Special boilers in special plants produce steam, which is delivered to the customer through improved distribution systems.

Steam from the North Avenue Steam Plant in Youngstown, the Rockaway Steam Plant in Springfield, and the Beech Street Steam Plant in Akron, is used by Company customers mainly for heating. It heats areas as large as a 28-story office building and a 16-story hotel, and as small as single pullman cars stopped on a rail siding for the night.

But steam has a surprising list of other uses, too. Laundries use steam for cleaning and pressing clothes; hospitals use it for cooking and for sterilization; research laboratories use it in product tests; it dries paint and grain; it cures rubber, helps package goods, and heats water. And it makes possible temperature and humidity control in places like data processing rooms, where climate must remain constant so that computers will work properly.

The supplying of steam for heat in Springfield was started in 1898 when the Home Light, Power and Heat Company was organized and constructed a small electric plant near our present office building there. Exhaust steam from that electric plant was the sole downtown commercial heating system until 1904, when the Peoples Light, Heat and Power Company was organized, erected a new electric plant, and began serving 13 downtown customers with exhaust steam for heating. Then, just four years later, the Springfield Light, Heat and Power Company was organized, acquiring the properties of both previously mentioned companies.

In 1909, that Company constructed the Rockaway Plant and ran an 18-inch steam line to supply the previous steam heat distribution systems in downtown Springfield. Steam customers in Springfield have grown from the original four back in 1898, to 205 customers drawing 183,072,000 pounds of steam through more than 5.4 miles of steam mains and service lines during 1967.

Youngstown entered the steam age in 1899, one year later than Springfield, when an independent electric company supplied exhaust steam to a handful of downtown customers. Seven years later the Youngstown Steam Heating Company constructed a plant to supply steam to about 25 buildings. Oddly, there was no electric generation associated with this early steam heating operation.

Mahoning County Light Company was organized in 1913, and two years later purchased the properties of the Youngstown Steam Heating Company. Then, in 1917, the Mahoning and Shenango Railway and Light Company acquired the steam heating facilities and began supplying steam from exhaust at the North Avenue generating station, which had been constructed in 1889. Following various mergers and consolidations, this plant became the property of the Pennsylvania-Ohio Power and Light Company which, in 1930, was merged into Ohio Edison Company.

Electric generation was halted at the North Avenue plant in 1928, and to this day it has been used solely as a steam supplying plant for Ohio Edison customers, which numbered 196 in 1967. Those customers drew 477,919,000 pounds of steam through more than 5.6 miles of steam mains and service lines in 1967.

The Beech Street Plant was constructed in Akron in 1927 on the site where a power plant and substation had been constructed in 1888 by a predecessor company of the Northern Ohio Power and Light Company. Electric generation had been halted there in 1913 with the completion of the Gorge Plant. And the site was chosen for a steam plant in 1927 when downtown Akron was witnessing a boom in commercial building which resulted in the present O'Neil and Polsky department stores, the Sheraton Hotel, and other commercial establishments. *(Continued on page 22)*

This picture, taken at a steam construction site at State and Main Sts. in Akron, was flashed around the world in June 1940 by the wire services and appeared in Time Magazine. That's Republican Presidential Nominee Wendell Willkie campaigning for the votes of Edison steam employees (clockwise from Willkie's left) Edwin Kook, Joe Stanley, Dominic Fatica and Julian Keevan. Mr. Keevan is now steam sales representative in Akron. At the time of the picture, Willkie was president of Commonwealth and Southern Corp., a holding company of which Ohio Edison was a part.

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The Beech Street Steam Plant went into operation in October, 1927 with two boilers. The third steam boiler was added in 1929, another in 1931 and two more in 1948. In 1967, 344 customers were served some 682,628,000 pounds of steam through 13.7 miles of steam lines.

Ohio Edison Company is one of the more than 50 utilities belonging to the National District Heating Association, the steam-heating trade association organized in 1909. The Association holds meetings for discussion of common problems and it complies data and statistics useful to its members in better serving their customers.

Although the NDHA members had more than $104 million in steam sales in 1967, one of the greatest problems faced by suppliers of steam is the high cost involved.

In the operation of a steam distribution system, steam losses, extensive corrosion causing heavy maintenance, the cost of laying steam distribution line (from $70 to $90 per foot), and difficult metering are problems peculiar to the steam business.

The most common metering practice is to measure the weight of condensate after a customer has used the steam, since a pound of water is the same weight as a pound of steam. But this type of metering is not adequate for all types of customers, such as those who use the steam in some manner which lets much of it escape into the air. For these customers Ohio Edison uses a flow meter, which measures the steam at the point of delivery.

The biggest problem of all in the profitable distribution of steam is the weather. Constantly varying weather conditions call for widely varying steam heat demands, by far the largest single use for steam.

There is, however, a growing list of steam uses during the non-heating season. A hydronic system like that in the Company's Engineering Building in Akron allows steam to heat in winter and cool in summer. And structures like the Engineering Building at Youngstown University are heated by steam in the winter and cooled in summer by a steam absorption system.

Some customers, like tire retreading plants, rubber testing laboratories and laundries and dry cleaners, have fairly uniform steam demands throughout the year. But space heating remains the principal load.

Even with these problems, it looks like the use of steam in Akron, Springfield and Youngstown will continue for some years. In all three cities, new buildings are going up with new requirements for steam. In Akron, a steam line is being extended by more than 2,000 feet to serve an addition that will about double the size of the Akron General Hospital. In Springfield, the beautiful, new Lagonda National Bank is the Company's newest steam customer And, in Youngstown, steam use at the University is continuing in its buildings now under construction.

New buildings like the Lagonda National Bank in Springfield, rely on Ohio Edison steam for space heating. And others, like the Youngstown University buildings, are also cooled in summer by steam.

Steam is still in demand for heat, for processing and for a variety of other uses. So, Ohio Edison will be in the steam business for a long time.+

(Our thanks to The Ohio Edisonian and Charles Carter, Editor, for permission to reprint. Ed.)

...HAVE YOU HEARD!...

That, according to published literature, the first district heating installation in Europe was in Manchester, England in 1911; but it is known that installations were in operation at Dresden, Germany in 1900, and in Warsaw, Poland in 1901.

That, Europe has a district heating handbook entitled *District Heating, A Survey of Practice in Europe and America.* It was prepared by The Heating and Ventilating Research Association on behalf of the Design and Heating Study Group (solid fuel).

That, in Poland, about 80 per cent of public buildings and all industrial buildings are provided with central heating.

That, the main theme of the Japan World Exposition in 1970 will be "Progress and Harmony for Mankind." The Exposition will be in Osaka, and the Expo '70 authority sent a study team to the United States in the spring of 1968 to visit district cooling facilities because it intends to construct one of the largest of this type of installation in the world to serve the buildings at the exposition.

That, the first steam heating plants in the United States used a direct steam heating system, or live steam, instead of exhaust steam from a power plant; and probably the first electric company to become interested to any extent in central station heating was the Brush Swan Electric Light Company of Auburn, New York which installed, in 1885, a direct steam heating plant. The fact that as far back as 1878, direct steam heating systems were installed in Auburn, New York, Springfield, Massachusetts, and Detroit, Michigan, shows that it was fully ten years after the first general knowledge of district heating that exhaust steam systems were adopted.+