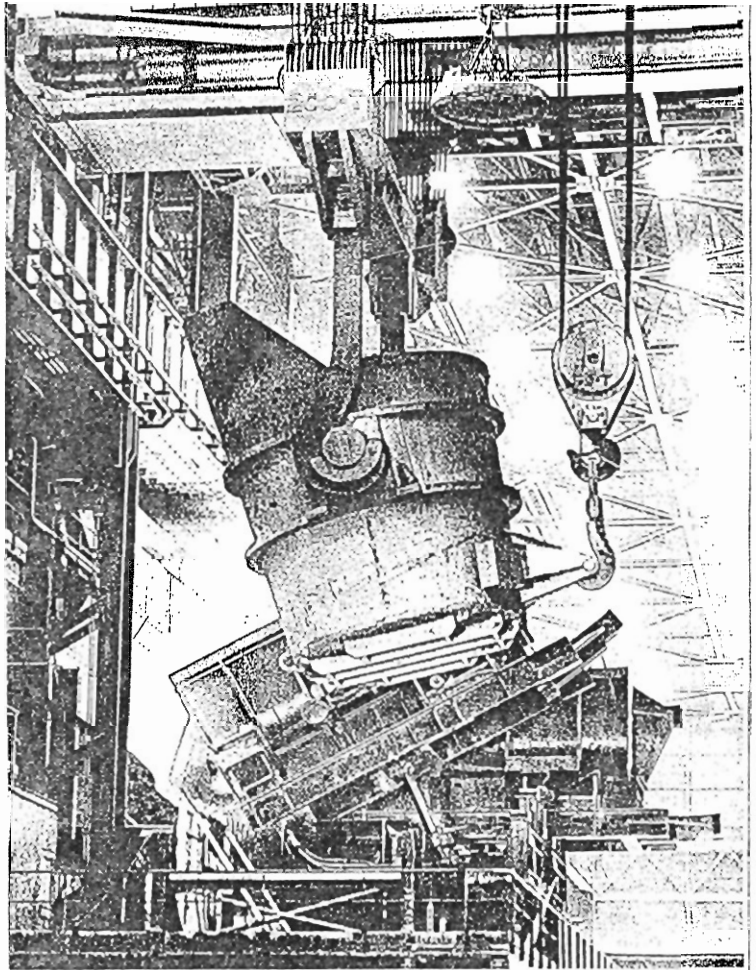


# WARREN- Republic's Second Largest District



Newest facility at Warren is the BOF. In photo, crane is holding ladle of hot metal for addition to furnace to be made as soon as scrap charge operation is finished.

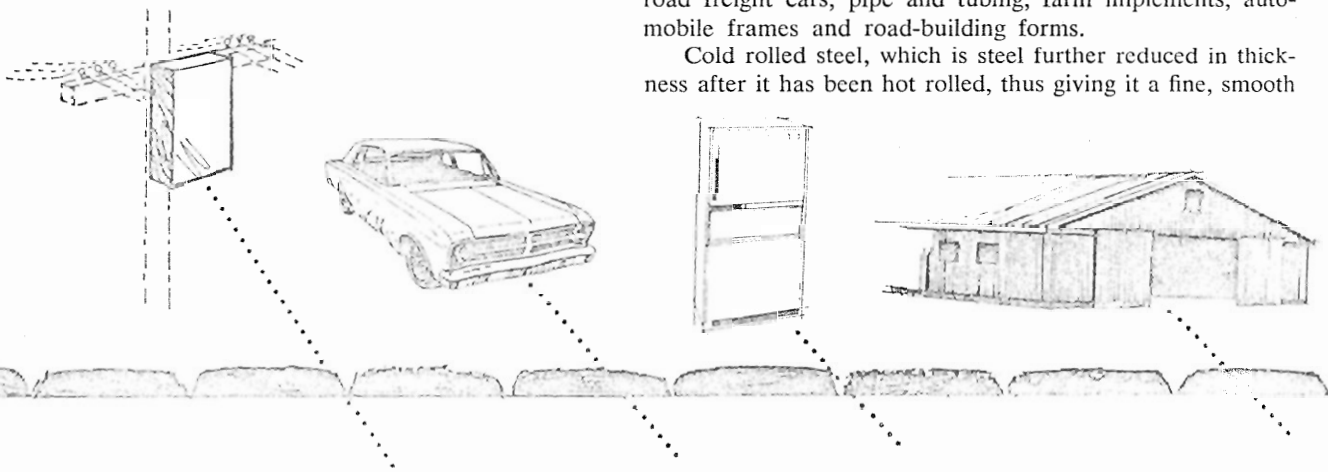
## A MAJOR PRODUCER OF

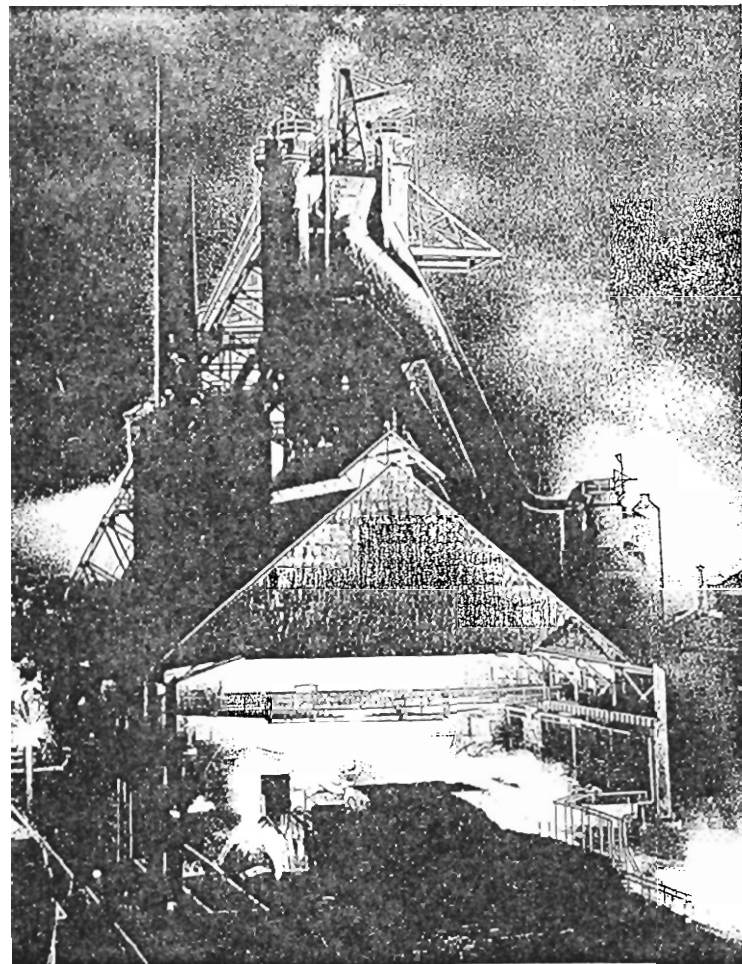
Next time you enter the kitchen or laundry of your home observe the appliances about you. There is a good chance that part of the steel of which they are made was produced by Republic at its Warren District.

The company's second largest operation, it is an important producer of hot and cold rolled steel sheets and strip, and is a leading producer of high quality silicon sheet, strip steel and coated products.

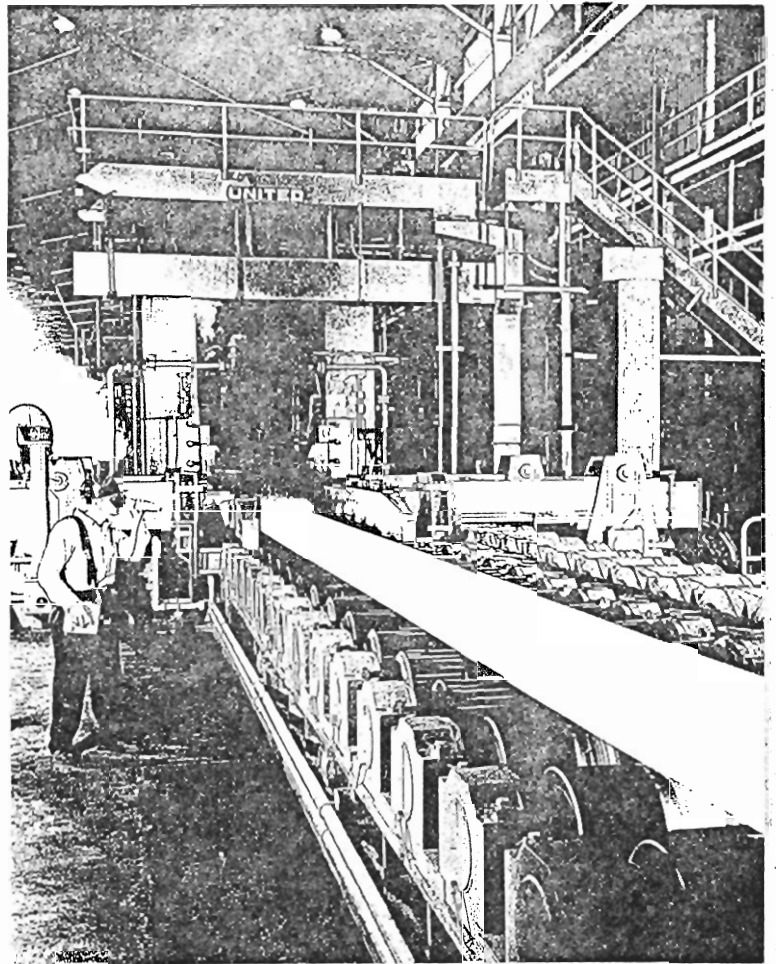
Hot rolled steel is used where light gauge and surface smoothness are not required — in such applications as railroad freight cars, pipe and tubing, farm implements, automobile frames and road-building forms.

Cold rolled steel, which is steel further reduced in thickness after it has been hot rolled, thus giving it a fine, smooth





Hot metal for the BOF is produced in the district's blast furnace. Photograph was taken at dusk during tapping operation which is always a spectacular sight.



Operator using optical pyrometer checks strip steel leaving the roughing stand and traveling to the finishing stands at Warren District's 56-inch hot strip mill.

## HOT ROLLED AND COLD ROLLED STRIP AND SHEETS

surface, is particularly suitable for painting and enameling. Cold rolled steel is used in the manufacture of automobiles, stoves, refrigerators, washing machines, furniture, kitchen cabinets, utensils and for tin plating.

Silicon steels, rolled in the same manner as other steels, have unusual magnetic properties and are used for all types of electrical equipment, including motors, transformers and electric razors.

Two-thirds of the orders shipped from the district go to four major steel markets — namely, auto, construction, electrical machinery, and containers and cans.

The district was founded in 1912 as Trumbull Steel Company. Tin and sheet mills started up in 1914 contributed significantly to the forthcoming war effort.

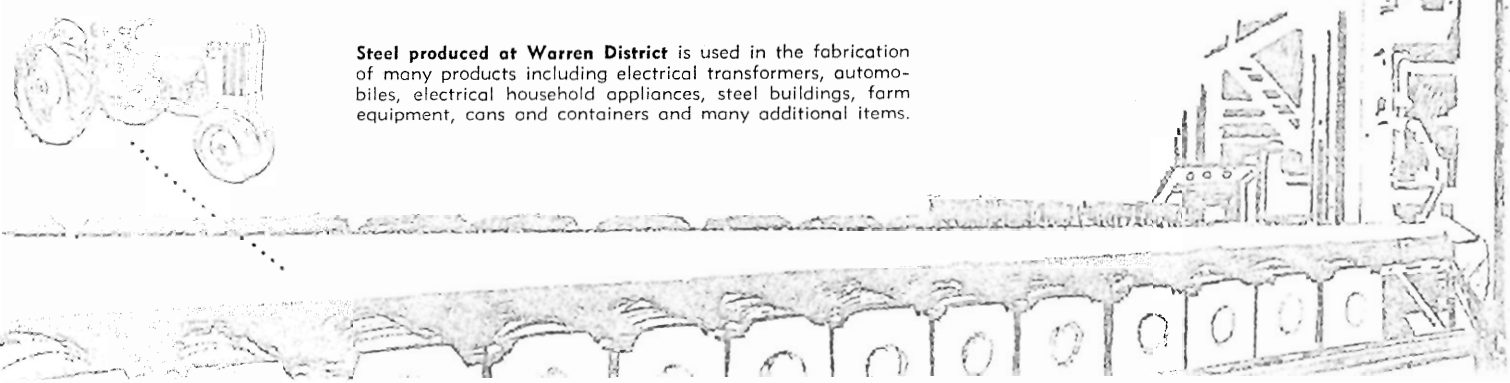
In 1927 — some three years before Warren was to figure in a merger that was to become the present Republic Steel — a 42-inch continuous hot mill installed at Warren was to have considerable impact providing steel for a growing America that demanded products such as electric refrigerators, automatic washing machines and electric shavers.

To better size up this change one must know that by the old rolling method sheet steel was difficult to make, production was slow and the product was too expensive for use in everyday items.

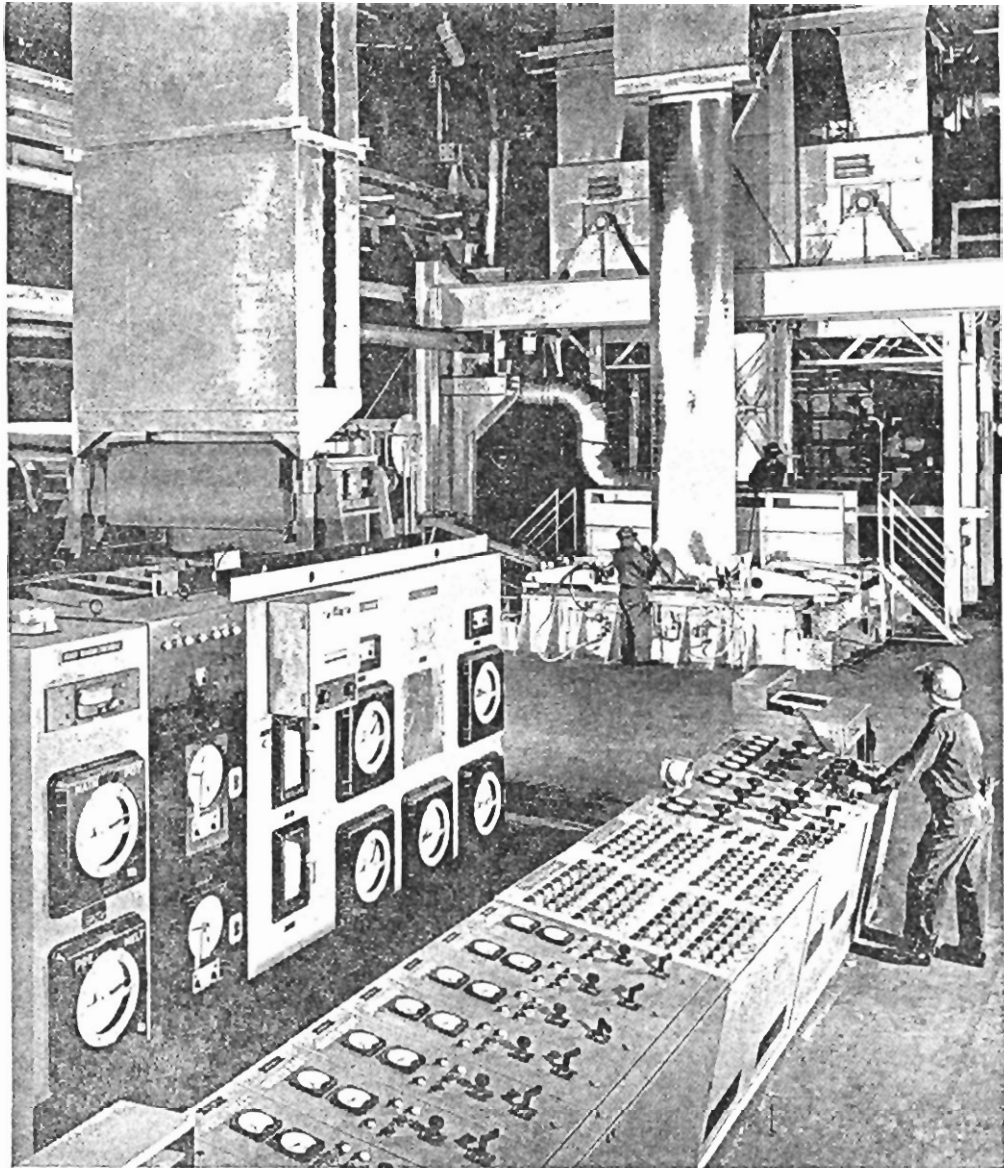
But, the new mills altered all these problems virtually overnight. Both the quality and quantity rose substantially as the uses of steel sheet rapidly expanded. In a century of change, the introduction of the continuous rolling mill stands

*(Continued)*

Steel produced at Warren District is used in the fabrication of many products including electrical transformers, automobiles, electrical household appliances, steel buildings, farm equipment, cans and containers and many additional items.



# WARREN



A section of the continuous hot dip galvanize line is shown. Master control center is in foreground. Strip is shown rising from zinc pot to a 10-story high cooling tower.

as another turning point in the rise of our standard of living.

The 42-inch mill proved its worth in such a positive manner the company was prompted to invest \$55 million in a successor — a 56-inch mill described as “a new mill for a new era.” The mill, which began operating in 1961, was designed for a dual purpose: to not only efficiently produce carbon steel sheets and strip but also handle numerous other types of sheets including special grades of stainless steel.

Earlier, another big step was taken at Warren with the installation of equipment for production of hot dip galvanized strip steel.

A high speed line that can galvanize a mile-long strip of steel in about 20 minutes produces a heavy, uniform zinc coating that is extremely “tight” withstanding subsequent drawing or stamping. It is particularly well-suited for fabrication into corrugated roofing, roof gutters, and downspouts.

Warren has the distinction of being the first Republic district to construct and tap a basic oxygen furnace, the historic event taking place on June 29, 1965. With the tapping of this and other BOF's that later began operating

at Gadsden and Cleveland, a long, painstaking and costly road had been traveled in a relatively short time. Representing an important part of the company's \$400 million improvement program, the BOF's were a major step in an attempt to reduce costs of operations over conventional steel-making by the familiar open hearth method at the plants.

Warren, the only district that produces tin plate, has cold rolling facilities, an electrolytic tin plate line and an electro-zinc line at Niles, Ohio. These facilities have been modernized through the years, the latest work having been the installation of extensive new equipment at the tin mill to take advantage of growing markets.

The district's foundry operation at Newton Falls produces iron, brass and bronze castings mainly for use in the company's operations.

New facilities installed and improvements made at Warren District costing millions of dollars are examples of putting money from profits to work.

This in turn, provides for more business and more security for all employees.

## A BRIEF HISTORY OF WARREN DISTRICT

Republic's Warren District, with plants in Warren, Niles, and Newton Falls, Ohio, was established in 1912 as the Trumbull Steel Company. The plant originally had six sheet and six tin mills. In 1914 these facilities were doubled.

World War I production brought on the need for expansion. In 1916, construction was started on additional plants for the manufacture of hot and cold rolled strip steel. The following spring saw the beginning of a modern steel plant to provide an ample supply of billets, slabs, sheet and tin bar.

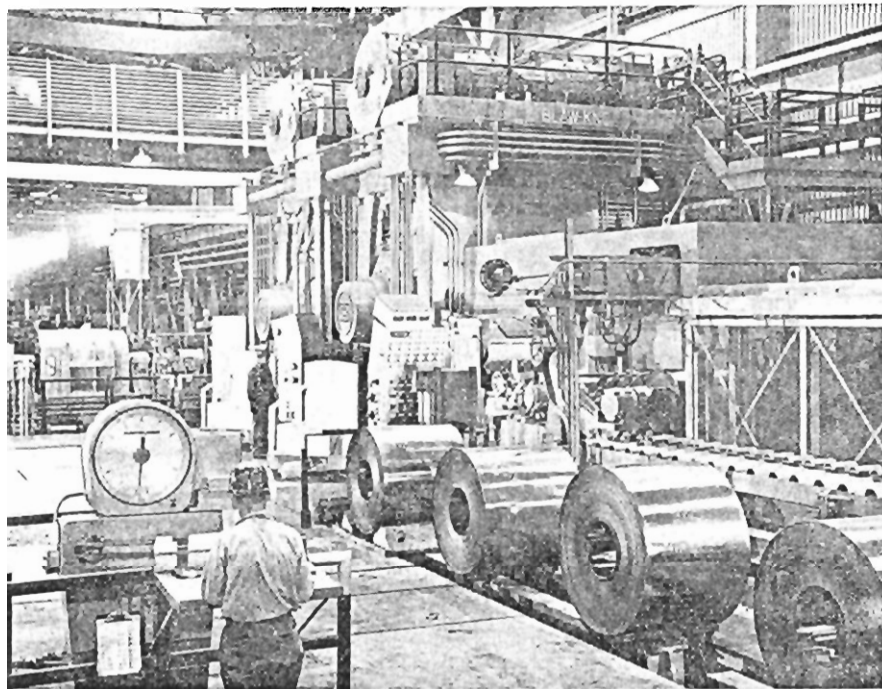
At one time, Trumbull produced 20 per cent of all the hot rolled strip in the country and the cold rolled strip department was the largest of its kind. Trumbull also pioneered in the development of the wide strip mill.

Building from the finishing end back Trumbull later, with Cleveland ore and coal interests, built the Trumbull-Cliffs Blast Furnace, said to be the largest in the world at the time, with capacity of 1000 tons daily. The furnace has since been enlarged several times.

In 1919, Trumbull acquired the entire capital stock and plant of the Liberty Steel Company, another tin plating company.

Trumbull Steel was acquired by Republic Iron and Steel Company in 1928. This marked the first in a series of mergers culminating in the forming in 1930 of Republic Steel Corporation.

Today the Warren District encompasses a land area of approximately 1400 acres and the number of employees in the Warren, Niles and Newton Falls plants total 5000.



**Tin line** at Niles Tin Mill shows finished coils on conveyor crossing the electric scales. Tin plate is used extensively in cans and containers.

**Aerial view** of Warren District shows buildings housing steelmaking facilities in foreground and rolling and finishing mills in the background.

