

THE PRESIDENT'S LETTER

# THE NEW WORLD OF BOF

**Mr. Patton asserts that  
advance training  
and preparation smooths start-up  
of Republic's revolutionary  
type furnaces**

*Fellow Employees:*

Seldom is success a matter of accident; rarely is it luck. Almost always, it's a result of preparation.

Now, let me tell you a success story—two success stories, in fact. In recent weeks, both at Warren and at Gadsden, Alabama, we started up our new basic oxygen steelmaking furnaces (BOF's). At both installations, the men working on the very first turns produced several heats of top quality steel. In a matter of days, production moved along to the point where the managements at both plants were able to shut down the old open hearth furnaces, which the BOF's were designed to replace.

These results were very encouraging, especially since the basic oxygen process is a far different method than open hearth steelmaking.

Was it just luck that our people at Warren and Gadsden moved into the world of BOF steelmaking with good speed and efficiency? Nothing of the sort. These were results that were prepared for by Republic engineers who specified the most advanced equipment obtainable. And prepared for, too, by our operating and maintenance crews, including both our supervisors and our wage-roll employees.

**Men Had Know How**

When the first oxygen blows occurred at Warren and Gadsden, the Republic men there knew *what* they were going to do and *why* they were going to do it. Long in advance of the startups, our supervisors visited similar installations of other companies, observed their operations and practices . . . and even operated their

furnaces and related equipment under production conditions. They visited, too, the plants of the makers of electrical equipment, whose engineers gave them a thorough indoctrination into the nature of the equipment, how it functions, and how it could be maintained.

The supervisors brought this information back with them and passed it on to the men who were going to make up their crews. These same crews listened to lectures conducted by engineers from companies that made and installed the equipment. In understanding these lectures, our crewmen were aided by previous classroom work they had undertaken at the Human Engineering Institute, an organization that assists Republic and other companies in their employee training programs.

And then, before any metal was processed through the new furnaces, the Gadsden and Warren crews conducted dry runs during which they manipulated the controls, pressed the buttons and practiced the precise steps they would follow in actual operations. In other words, they got the "feel" of the equipment before the big test came.

**Much Teamwork Required**

This entire pre-training exercise required the teamwork of everyone concerned. It called for a respect—yes, even a hunger—for knowledge and understanding. It called for an appreciation of the importance of each man thoroughly understanding his function in the accomplishment of the team goal.

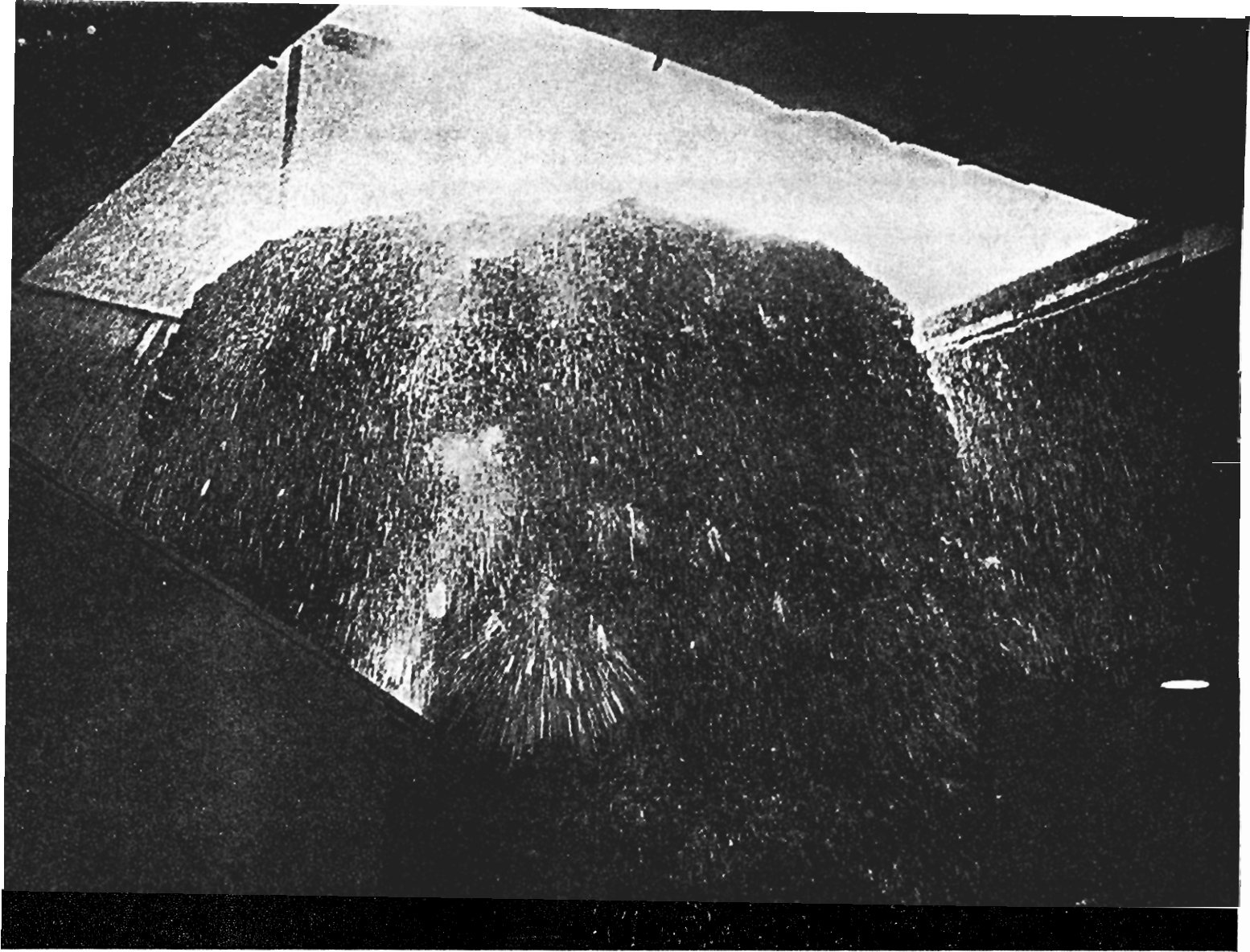
What does it all add up to? Well, I think it's bound to improve the competitive strength of these two plants and increase the job security of the men who work there. It signifies that Republic is very much involved in the great thrust of American steel companies to stay modern. It's one of our most powerful answers to the challenge of foreign steelmakers and producers of other materials.

Next year, an even larger Republic oxygen steelmaking plant will swing into production—this one at Cleveland. Meanwhile, other important new mills and facilities either will be completed or under construction throughout our company. Let's not only compliment the fellows at Warren and Gadsden for the job they did in getting their BOF's underway—let's learn from their success as well. Let's make sure that the rest of us do an equally good job in preparing for the new challenges that come our way.

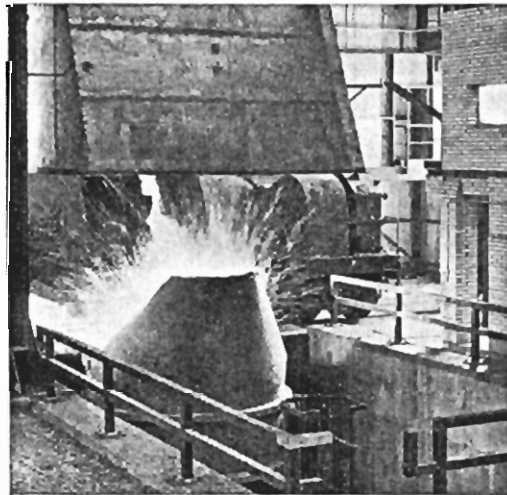
In this highly competitive industrial world, there's no substitute for knowledge and the self-confidence that comes from "knowing that you know." That's what keeps a company and its people among the leaders. That's what can make certain we play a vigorous role in the industrial progress that lies ahead for efficient producers.

Sincerely,

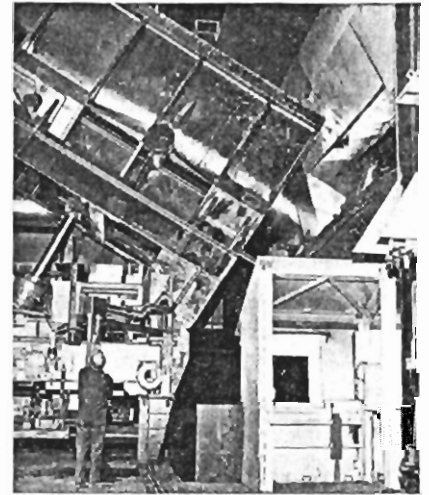




A shower of sparks at the height of the oxygen "blow" is the result of turbulence inside 150-ton vessel at Warren District.



The steelmaking cycle begins when hot metal, transferred from blast furnace to the melt shop in a bottle car, is poured into a ladle.



Meanwhile, a charging machine with a hydraulic lift dumps scrap into vessel which has been tilted toward furnace charging floor.

# age OF THE BOF

## Start-up of Warren and Gadsden Furnaces Signals New Steelmaking Era in Republic

At 1:30 a.m. on last June 29 a new chapter in company history was written at Warren District when the first heat of Republic steel was tapped from a BOF or basic oxygen furnace.

About a month later on August 1 at 3:17 a.m. the first heat poured from a BOF at Southern-Gadsden was the first from any steel plant in the South.

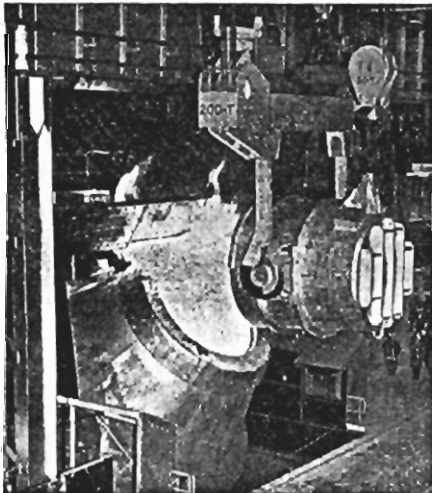
T. F. Patton, Republic's chairman and president, hailed the two start-ups as "significant milestones in Republic's expanding efforts to take commercial advantage of technological advances occurring so rapidly in the steel industry." He has made the BOF's the subject of The President's Letter on page 3 in this issue.

On hand to make a pictorial record of these important events were Republic photographers, Fred Perdue and George Engle, for the Warren shots and Claude Womble, industrial engineer, for Gadsden.

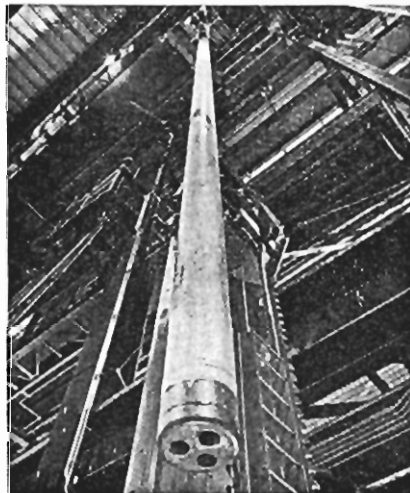
With the tapping of these new furnaces and of those to be completed at Cleveland District in 1966 a long painstaking and costly road has been traveled in a relatively short time.

It was in March, 1963 that Mr. Patton announced Republic would undertake a \$400 million improvement program, an important part of which would entail the construction of BOF's at three plant locations. Mr. Patton said that, as a major step in attempting to reduce Republic's

*(Continued on pages 16 and 17)*



Then, hot metal from ladle is charged into vessel. Size of men observing Gadsden start-up operation (arrow) gives an idea as to dimension of the huge facility.



A water-cooled lance nearly as long as a telephone pole is lowered into the vessel until it is a few inches above "bath" of scrap and molten iron.



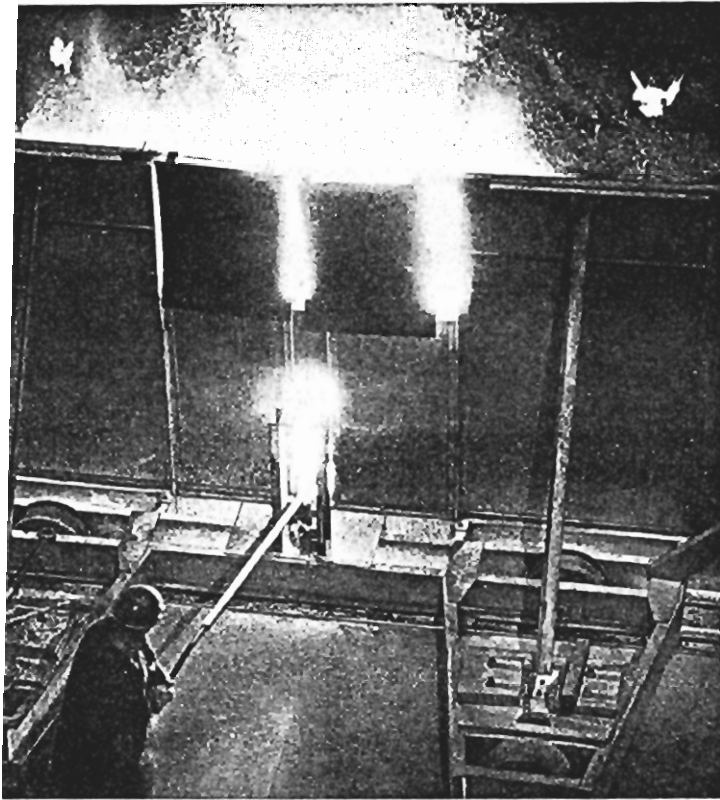
E. W. Carlson, Southern District manager, left, and L. B. Wright, superintendent of the melt shop, Gadsden, look on as lance is being lowered.

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(Continued from page 9)

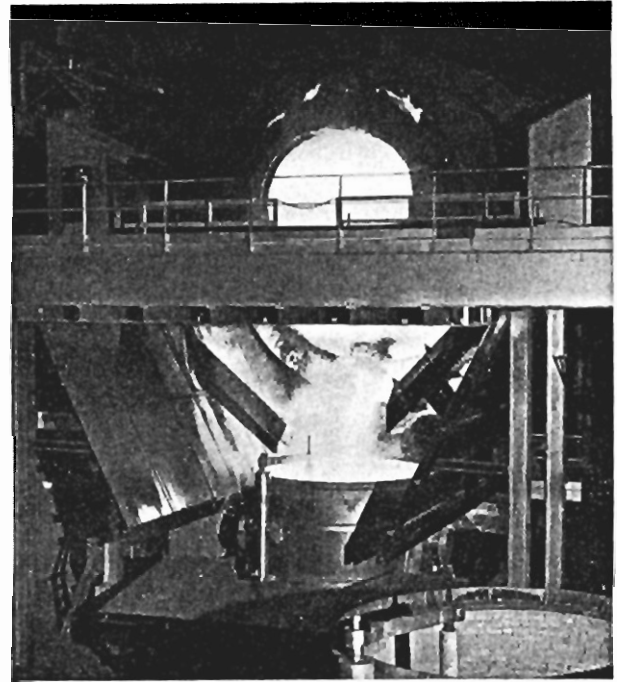


Albert R. Edeburn, melting process foreman, Warren, observes "blow." The operation will be computer controlled when correct timing and routine are established.



At the end of the "blow" the lance is removed and the furnace tilted for a temperature test and to permit taking a sample of the heat of steel to be sent to the chemical laboratory for analysis.

The required temperature and analysis having been met the vessel is tapped into a waiting ladle and the steel poured into ingot molds in the usual manner.



The material cannot be used in the main plant

costs of production, conventional steelmaking at the plants by the familiar open hearth method would be partially or entirely replaced by the basic oxygen steelmaking process. Warren, Gadsden and Cleveland District steel plants were selected because the basic oxygen process is ideally suited to the production of steel for ultimate "flat rolling" into products such as sheets, strip and tin plate—most of which require low carbon content.

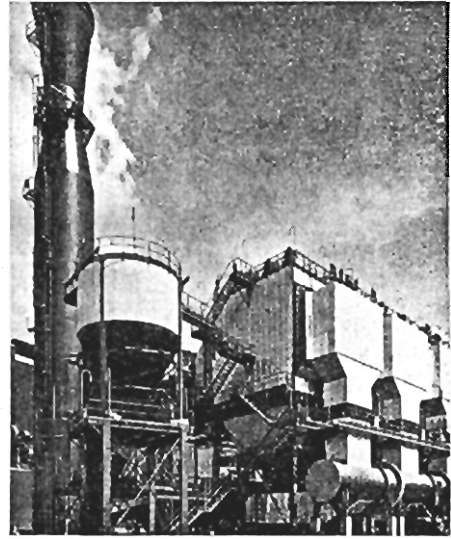
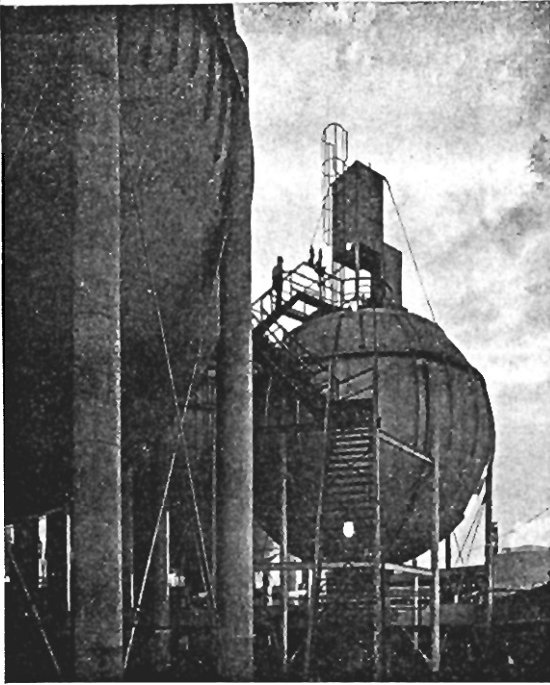
BOF production has now replaced open hearth operations at Warren and Gadsden. At Cleveland, only open hearths in the old No. 1 Melt Shop will be affected.

The new BOF installations are expected to give Republic a major boost in meeting both domestic and foreign competition.

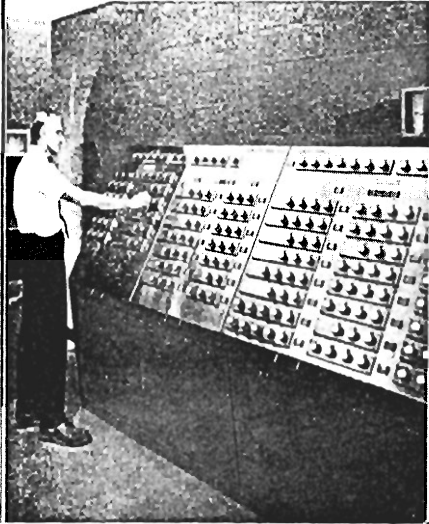


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The most important material used in a BOF cannot be seen. That material is oxygen. To provide a continuous supply of the gas for the facility an independent company maintains an oxygen plant on adjoining land.



Each BOF plant has a precipitator. Constructed at a cost exceeding \$1 million the equipment helps keep the outside atmosphere free of smoke, fumes and dust.



J. F. Morrill, assistant superintendent, is responsible for operating the multi-million dollar Warren installation in an efficient and productive manner.

Recent aerial view shows the old and the new at Warren. Flanking buildings housing the BOF installation, center, are the open hearth, left, and the electric furnace melt shop, right. The oxygen plant can be seen at extreme top of picture.

Rapid analysis and precise control of a heat of steel made in minutes rather than hours are vital functions in a BOF operation. At Warren, left, Nicholas Perrella, turn analyst, receives sample via pneumatic tube; Emerson Waltz, chief chemist, checks out a spectrometer, an instrument used in making the analysis; Harold Krause adapts computer to ascertain results which are relayed to Jack Harrington, general turn foreman in control room, who observes panel signal.

