

(Standard opening)

*MR. JAMES*

ANNOUNCER: The WTAG Special Events Department *present* presents--DEFENSE ON PARADE!

MUSIC: (Martial air for 10 seconds fading under announcer)

ANNOUNCER: Out of the factories of the nation pours a growing stream of munitions and equipment needed for National Defense. (Music up and fade to)

SOUND: Montage effect symbolizing industry in national defense.

ANNOUNCER: Tanks, airplanes, guns and a thousand kinds of auxiliary equipment increase daily in volume. Worcester industries are doing their part. Through day and night, they hum to the swift tempo of defense. To acquaint our listeners with the facts of the Worcester defense story, the WTAG special events reporters take you inside the factories, whose output, is largely devoted to defense, talk to the men who man them, bring you the exciting story of Worcester industry's part, in National Defense.

MUSIC: Music up--fading to announcer. *radio crew*

ANNOUNCER: Good evening ladies and gentlemen, this is your defense reporter Gil Hodges at the South Works of the American Steel & Wire Company subsidiary of United States Steel Corp. I'm standing in the huge all-steel building which houses the Open Hearth Steel making department of the Company. This building must be at least six hundred feet long, and from where I'm standing on a second floor which runs the entire length, but only half-way across, it appears to stretch up nearly a hundred feet over our heads. With the help of a group of steelmen, who are with me around the microphone, I am going to try and give you a graphic picture of just what goes on in a steel mill. Steel you all know is a basic necessity in the making of armaments as well as in our daily living. Mr. Carl I. Collins, District Manager of the company, is one of the men with me. Mr. Collins, will you give the radio audience an idea of some of the products which the company is making for defense?

*Gift of Chamber of Commerce*

COLLINS: We are turning out a great variety of steel products vital in the manufac-

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ture of guns, aircraft, including engines, tanks, small arms, motorized equipment of all kinds, also for naval craft. Our electrical cable works are producing a range of products which run from tiny wires up to great armored cables used in our mighty warships. The Open Hearth, where we are standing, is where we make the raw steel for the other departments of the mill.

ANNOUNCER: Folks, let me tell you, this is SOME place. I've already described what a vast building this is and now with the help of Mr. Collins and two other gentlemen, Umbert Corsini, assistant superintendent, and Fred Barnes, general foreman, of the department, I'm going to give you a picture of what this business of making steel really is. We are standing close to the wall looking toward a long row of glowing furnaces which run from one end to the other of the building, and stand on the edge of the half-floor, I told you about. In back of the furnaces I can look down to the ground floor. That side of the building reaches unbroken from floor to the top of this great building. Mr. Collins, will you tell us, how many furnaces you have here and about what they will produce?

LINS: There are six of them. They produce a heat of steel about every twelve hours, ranging from forty tons for the smaller ones to seventy-five tons for the others. They are run almost continuously, the only stoppage being between heats to make minor repairs caused by the terrific heat.

ANNOUNCER: I'll say they're hot. Though we must be twenty-five feet back from them I can feel it plenty. Just how hot are they inside?

LINS: Approximately 3000 degrees Fahrenheit.

ANNOUNCER: Just how hot is 3000 degrees Fahrenheit?

LINS: Water boils, as you know, at 212 degrees and the average cooking oven runs from 300 to 400 degrees but it takes real heat to make steel.

ANNOUNCER: What is used for fuel?

LINS: Oil. Over there at the side of the furnace is an oil burner, quite a bit larger than the one you may have in your home. To make a heat of steel in this seventy-five ton furnace requires about the same amount of fuel as it



OUNCER: Boy, when that door opens, there's a blinding glare and a blast of heat that just about scares the liver out of this announcer. You fellows in the steel business can keep your jobs and my hat is off to you. Ladies and Gents, I'm telling all and sundry that it takes real men to make steel. Thanks for the for the glasses Mr. Corsini. (Pause) Say, that stuff is boiling around in there like soup in a kettle. Matter of fact, you men are something like chefs making a kettle of steel soup. A housewife puts in a soupbone and a bunch of vegetables and boils up a soup and you throw in scrap, limestone and pig iron, boil it up and make steel.

SINI: And just about now you're going to see the mixture seasoned. Watch that man with the ladle with the ten foot handle. He's taking out a sample of the metal through the wicket in the door. Now he's pouring it into a small mould and in a few seconds when it hardens we'll have a sample which can be tested to see how the heat is coming.

OUNCER: Can you make an analysis very quickly?

SINI: Yes. The sample is sent through a pneumatic tube to the laboratory and in ten minutes we'll have a report back. From it we can tell what else may have to be added. We can tell a lot also by a quick breaking test here on the floor. By examining the edges of the break an experienced steelman can practically tell if the heat is right.

OUNCER: By gosh that soup comparison is almost pat. You test and season your mixture almost the same as a housewife tastes and seasons her soup. Are there any other tests?

SINI: Well let Fred Barnes tell about them. He's been in this game nearly twenty years an experienced steelman like him can tell almost by second nature how things are going.

OUNCER: Before we get into that Mr. Barnes, what's that machine at the furnace below us. Apparently it's some kind of an electric locomotive that runs on these tracks in the floor.

BARNES: That's a charging machine. It's job is to charge the raw materials into the



furnaces. It runs the length of the building on the track. When we want to charge some material into a furnace it runs back to the end of the building and picks up one of these oblong containers filled with scrap or other material and the engineer runs it up to the door of the furnace where it's wanted. He comes to a stop, the furnace door is raised and that long arm which holds the container shoots into the furnace pushing the container ahead of it. The arm gives a half turn and empties the contents. The machine enables us to do without any trouble a job which would be dangerous and almost impossible without it.

UNCER: Hah, it looks like someone carrying a hot frying pan, coming down the line. They tell me that you veteran steelmen are nearly as good as the scientific instruments at guaging these furnaces.

ES: For one thing an experienced man can come pretty close to telling you the heat of a furnace by a good look at the color of the metal. He ought to come within forty degrees or close to one percent. But steel's got to be closer than that so we use a bath pyrometer which gives us very close readings. Out in back when we tap, one of the crew gets a reading with an instrument called an optical pyrometer. This measures the heat by exactly classifying its color.

UNCER: Mr. Barnes you just spoke of the crew, who is a furnace crew composed of?

ES: Each furnace has a man called a first helper and another called a second helper. First helper has charge of the fuel and the drafts. He orders the charges of material, takes test samples. The second helper weighs the charges. He cleans out the tap to release the metal and re-plugs it before the new charge is put in. He also bosses the pit crew which cleans up the slag on the floor below, between heats. Then there are observers who make technical observations, take temperature readings and record data on furnace operation. We're pretty near ready to tap this heat, how would you like to watch it?

UNCER: Fine, I'm right with you. Folks we're walking to the rear of the furnace



along the back of which runs a sort of catwalk. About halfway it's cut by a clay lined trough which runs from the taphole down to the biggest bucket I've ever looked at, resting on the floor below. The bucket is of steel and apparently lined with firebrick. Across the floor is another railroad track running the length of the building and high overhead is a giant traveling crane with a hook about five feet long hanging from it. Looks as though the crane is for moving this huge ladle which will contain seventy-five tons of molten steel over to those tall iron molds which stand on little flat cars on the track.

NES: You're right. Those are the molds that hold the steel. Ingot molds they're called. After the ladle has been filled, and it takes the whole content of the furnace, the crane operator picks it up carefully and moves it over one of those molds. Another man operates a valve in the bottom with a ten foot lever and allows enough metal to run down to fill the mold.

DUNCER: How much will it take?

NES: Seven thousand pounds and when the metal has cooled for about an hour and the mold is stripped off you have an ingot six feet long and twenty inches square. It's then nearly ready to be rolled.

DUNCER: What is that process like?

NES: To make it brief and understandable, it consists of rolling the red hot ingot back and forth between two large steel rolls with an action something like the ringer on a washing machine. The more it's rolled the longer and thinner and tougher it gets after several different processes/<sup>until</sup> we get it down to a rod from which we make wire. As a matter of fact it goes through several rolling mills before it gets down that small, but the idea is there.

DUNCER: Say, Mr. Barnes, it looks as though they're nearly ready here.

NES: That's right. That fellow there with the oxygen torch is the second helper and he's almost burned out the plug that holds the metal in there. Let's move in a little closer and you can give the radio audience a blow-by-blow description of this thing.

DUNCER: Folks it's a pleasure and it aint, at the same time. This place is mighty

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hot and again I've got to give credit to these men who make steel. The next time I look at an auto or a refrigerator I'm going to mentally take off my hat to the men who made the steel in them. Right on the floor beside me I see paper bags that seem to have in them some of these seasoning things they use in this steel business. Boy, that metal has started to come and I'm not kidding, between the glow of that white hot metal and the sparks, this place is getting to look like a dress rehearsal of Dante's Inferno. That stream of metal is getting wider and hotter and this place looks like forty Fourth of July's had broken loose at once. Now they're throwing in those bags of salt and pepper, or manganese or aluminum or whatever they call it. Listen and you can hear the sound as it pours into the ladle. (Pause while mike picks up the sound for seven or eight seconds). Well, I'm going to move back a bit, nevertheless it's such a fascinating sight that it's hard to take your eyes off it. It has been very interesting to witness this spectacle and we're all of us very grateful to the executives of the American Steel & Wire Company who have helped us bring this interesting process, so vital to National Defense, to the members of our listening audience.

UNCER #2: This tour of local industry cooperating in the speedy building of America's defense, was brought to you through delayed transmission by the Special Events Department of WTAG. Your defense reporter was Gil Hodges. Listen again next Tuesday at this same time for another visit to a Worcester defense industry. In our department store you've ever seen in... Star Spangled Banner--up for ten seconds, fading to break. you see of machines, ...infinitely. And then, you know those little cards which are in some department stores which whisk your money off to the... well, we'll replace those in your mental image with grid tracking... which slide back and forth carrying machines and their parts. ...department stores, especially at bargain... wings... calm, then... his... revision. See,

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