of Bell Telephone Laboratories and their associates. Several months ago, after Paracon had been demonstrated practicable at the laboratories, information was made available to the Baruch Rubber Committee and the War Production Board. Details as to the process involved were turned over to several chemical manufacturing companies to enable quantity production, and the Resinous Products and Chemical Co. is now producing Paracon.

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PSYCHOLOGY

What Bombardier Needs

To operate Norden Bombsight, you must have good eyes and mental as well as manual agility. Must be calm under fire.

➤ IF IT IS your ambition to be the one to shout "Bombs away!" over Tokyo when America moves on Japan, you can start practicing now some of the skills you will need to operate the Norden bombsight.

Now that the bombsight is no longer kept boxed away in strict military secrecy, it can be told just what sort of abilities a man needs to work this precious all-American gadget.

First of all you must have good eyesight. And this means more than just ability to see a capital E at a distance of 20 feet. It means being able to pick out a camouflaged war plant from a background of trees or city pavements or other roof tops. You must be able to spot, at a great distance, an objective you have seen before only on a map. And you must spot it quickly. You have only something like 25 seconds—that is less than half a minute to do everything. If you waste many seconds in spotting your target, you won't have many seconds left in which to make the adjustments on your instruments.

If your plane is flying at a great altitude, you may have a little longer in which to search for your target. But if you are flying low, the ground will go whizzing along below you at a great rate.

Your eyes must be very good at detecting small movements. In operating the Norden bombsight, it is necessary to set the sight so that the cross-hairs are placed accurately over the target. If you should get it exactly right at the first setting, you won't need to do anything more; the instrument will go on and do the rest. But most people are not that good. If the setting is imperfect the target will start to drift just perceptibly off the exact intersection of the cross-hairs and it will then be up to you to detect this drift instantly and make the necessary correction.

If you are going to be one of Uncle Sam's bombardiers, you must be able to make the adjustments on a precision instrument with great accuracy and great speed.

You must be able to use calculating devices such as a slide rule. You must be able to make lightning calculations in your head. You must be able to hunt up values in tables of figures quickly. You must be able to do a great many operations always in the proper order and without forgetting a single item. And you must be able to do them all at top speed.

And you must be able to remain quite calm and unflustered while you go through all this complicated procedure even though a Messerschmidt has a machine gun pointed straight at you.

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PHYSICS

Million-Volt Industrial X-ray Machine Installed

➤ A POWERFUL million-volt X-ray machine has just been installed at the University of Rochester, made possible by the collaboration of eight Rochester industries with heavy war contracts, Dr. Alan Valentine, president of the University, has announced.

"A number of Rochester firms with millions of dollars' worth of war contracts each wished to build one of these X-ray laboratories, but the cost and effort would have been too great," he states. "By combining forces they have not only cut the pro-rata cost to a fraction of the total, but they also have acquired a metallurgical laboratory whose research on alloys and new materials will be valuable long after the present immediate need has been met."

Each of the eight contributing industries will use the giant X-ray machine to inspect and test war materials, thus greatly speeding up their work on vital government contracts. The University's scientific staff will assist in testing, and will use the equipment for research on alloys, plastics and similar products, for medical therapy and experiments involving the use of the deeply penetrating rays.

There are about 30 of these powerful X-ray machines in use in various places, but all are in industrial plants. This is the first of them that has been put into a university.

The Rochester industries collaborating in the purchase and installation of this huge X-ray machine are the Eastman Kodak Company, Bausch & Lomb Optical Company, Symington-Gould Corporation, Pfaulder Company, Delco Appliance Division and Rochester Products Division of General Motors Corporation, General Electric Corporation, and General Electric X-Ray Corporation. The machine was designed by Dr. E. E. Charlton of the General Electric X-Ray Corporation.

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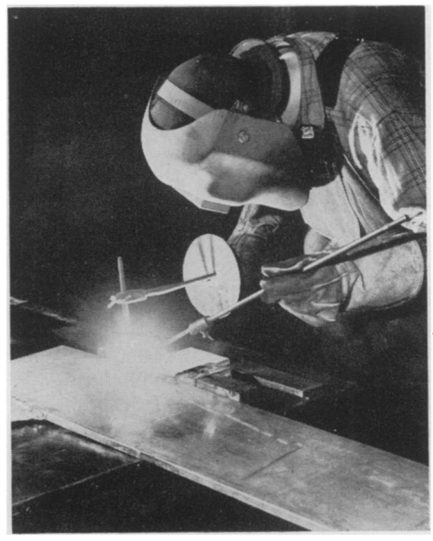
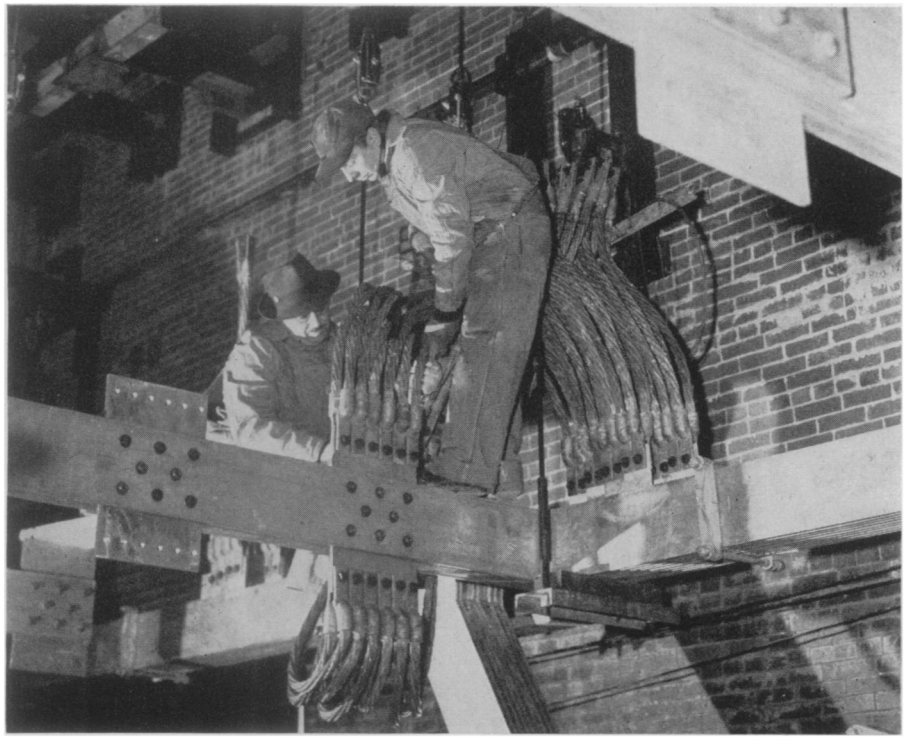


SILVER—Loaned by the Government, this solid silver bus bar is now doing war service at the Dow Magnesium Corporation's new Michigan plant, relieving the demand for copper needed for cartridge casings and other types of ordnance equipment.



STARTER CABLES—They are leading to the solid silver bus bar now at work in the production of magnesium for the war.

ENGINEERING

Silver Bus Bars

Solid silver used to carry current for magnesium production in new plant "somewhere in Michigan." Almost completely replaces copper.

➤ SOMEWHERE in Michigan electric current flowing through huge bus bars of solid silver brought another great magnesium plant into production as the Dow Magnesium Corporation poured its first metal in the fifth Dow-process plant built by the Austin Company for the Defense Plant Corporation to meet the wartime demand for this lightest of all structural metals.

Washington officials representing the Defense Plant Corporation and the War Production Board looked on as the metal, derived from salt brine, flowed from the first of hundreds of electrolytic furnaces soon to be in service at this plant, "somewhere in Michigan." In full production, it will equal the largest of its kind.

The silver almost completely replaces copper in the power distribution lines required for large scale production of magnesium. It was loaned to the Defense Plant Corporation by the government for this use, to release copper for shells, ordnance equipment and other war needs, in which no substitute will do. The silver is even more efficient than copper as a conductor of electricity but would not normally be used because of its excessive cost.

Designed by Austin engineers with a view to saving critical materials, the plant makes extensive use of wood and plastics where steel and other metals would normally have been used. It includes a rigid frame concrete structure with a double hinged arch of exceptionally wide span, which will house all the alloying operations.

The start of magnesium production anticipates the early beginning of operations at Dow Magnesium's companion plant across the state. There magnesium chloride for use here will be produced from subterranean salt brine by the method inaugurated by Dow at Midland, Mich., over 26 years ago. This cell feed will be transported across the state in covered gondola cars to the eastern plant, which was placed in this new location because of the availability of power required for the processing.

The starting of this plant marks a climax in the Defense Plant Corporation's magnesium production program and opens a concluding chapter in developments which have kept a portion of the Austin organization continuously at work on magnesium plants for a period of more than four years. At times, during the past two years, Austin has had as many as 600 engineers and 15,000 construction workers on the design and erection of magnesium facilities from the Great Lakes to the Gulf.

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MEDICINE

Dr. Charles B. Huggins Given First Mayer Award

➤ DISCOVERY that surgical or chemical castration can banish pain, prolong life and restore health, at least temporarily, in men suffering from cancer of the prostate has won for Dr. Charles B. Huggins, University of Chicago professor of surgery, the first Charles L. Mayer Award of $2,000.

The award was announced by the National Science Fund of the National Academy of Sciences which administers it. It was offered for the most outstanding contribution made during 1942 to present day knowledge of factors affecting the growth of animal cells with particular reference to human cancer, and as a new type of prize for the advancement of fundamental scientific research administered under a new type of philanthropic foundation.

Dr. Huggins' discovery is not, he has stated, a cure for cancer, but a helpful method of treatment. Either removal of the male sex glands by surgical operation or the chemical castration method (doses of female sex hormone) reduces the amount of male sex hormone activity. This in turn seriously interferes with the enzyme systems vital to the living processes of the prostate cancer cells.

The advisory committee assisting in the selection of the winner consisted of Nobelist George H. Whipple; Dr. R. R. Williams, discoverer of vitamin B_1; Dr. Alan Gregg, director for the Medical Sciences of the Rockefeller Foundation; and Elihu Root, Jr. A similar award will be given in 1944.

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