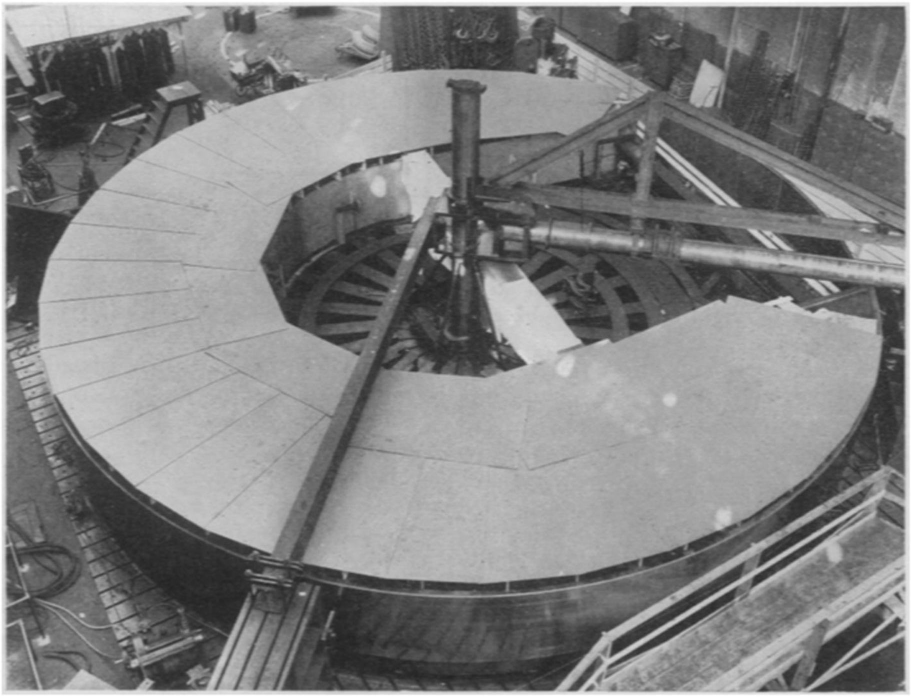

UNDER GIANT SUNBONNET

The great bearing for the 200-inch telescope was protected from the sun's heat as the finishing touches were placed on it.

I walked into the wooden building with a feeling of awe that was not lessened by the sight of enormous pieces of unfamiliar machinery and complicated wiring, nor by the knowledge that probably each of the shirt-sleeved men who looked like garage mechanics and were working ten times as hard and fast, was a doctor of philosophy with important scientific achievements to his credit.

Four hours later, after having talked to Dr. E. O. Lawrence, who invented the cyclotron, and after having it all explained by Dr. Donald Cooksey, who works with Dr. Lawrence, and Dr. Joseph G. Hamilton, who is in charge of the medical angles, I came away amazed not only at what is being done and what may be accomplished, but at the simple, folksy atmosphere and the friendly, genial spirit that pervades the place.

Children Watch

For example, there is the story about Dr. Cooksey and the small boys. Almost every day after school a number of 12- and 14-year-olds can be seen, noses pressed to the windows, eagerly watching the activity inside. Whenever he has time, Dr. Cooksey said, he calls them in and shows them around, explaining the cyclotron and answering their questions. Late one night as he was leaving he found a high school boy and his girl, out on a date, who had come down to the Radiation Laboratory to watch through the windows. Late as it was, Mr. Cooksey brought them inside, too, and talked to them.

Physicists of Tomorrow

The questions these children ask show, Dr. Cooksey said, that theirs is no idle curiosity but an intelligent interest in what is being done in the laboratory. He attributes this to such influences as Buck Rogers cartoons. He believes that as a result in another 10 years there will be a tremendous number of brilliant young physicists in the country.

Another human touch that made me feel more at home was the little boy's express wagon which I saw standing next to the cyclotron and which apparently is used to haul small but heavy material around. This use of a perfectly common, every day sort of object as equipment in an important physics laboratory fitted in with Dr. Cooksey's evident pleasure in telling how they buy pistons from second-hand trucks and remodel them in their own shop to fit a special part of the apparatus. He talked about this piece of economic ingenuity just as proudly as a woman might tell a friend about her success in remodeling last year's dress.

Later when we were standing near the furnaces in which the pistons are melted down, he said the noise always reminded him of Lorna Doone—the part of the book which describes one of the characters hearing a strange noise at night and knowing it meant that the Doones were up to mischief on the moors.

The cyclotron itself is surrounded by three-foot thick gray-painted water tanks to protect the staff from the powerful rays generated when atoms are split, so that it looks like a turret of a battleship. It is surprising to find how many of the impressive pieces of apparatus are not, in a sense, essential parts of the cyclotron but are needed to protect the staff or to keep the apparatus cool, or to operate the (*Turn to Page 92*)

ASTRONOMY

Grind Giant Bearing For 200-Inch Telescope

See Front Cover

THE HUGE 317,000-pound horseshoe-shaped bearing for the 200-inch Mt. Palomar telescope has just been ground and polished until its surface is true to within five one-thousandths of an inch.

Nearly as perfect as mechanical science can make it, the bearing soon will leave Pittsburgh on the long water passage which will take it down the Ohio and Mississippi Rivers, across the Gulf of Mexico, through the Panama Canal and back up the Pacific to San Diego. From there it will be transported slowly up Mt. Palomar to come to rest in its new home at the observatory of California Institute of Technology.

Engineers at the Westinghouse Electric and Manufacturing Company in Pittsburgh were able to obtain the high accuracy of grinding surface only because they built a huge "sunbonnet" that shaded the bearing and reduced the swelling and shrinking of the enormous block of steel under the sun's rays.

It is estimated that the grinding machines traveled over seven miles of surface in smoothing the bearing.

The cover picture of SCIENCE NEWS LETTER this week shows Westinghouse engineer Dr. Stewart Way making the final inspection of the surface on the great bearing.

Science News Letter, August 6, 1938