ASTRONOMY

Most Modern Telescope Taking First Looks at Sky

New Instrument of U. S. Naval Observatory Has 40-Inch Mirror With Special Curves and Is Air-Cooled

THE WORLD'S most modern telescope is now peering at the stars from the U. S. Naval Observatory, Washington, D. C.

With its great 40-inch diameter mirror fashioned to special curves devised by its maker, George W. Ritchey, this telescope will photograph a larger sky area than some telescopes that have larger mirrors.

Mr. Ritchey and his assistants are now engaged in making test photographic exposures to determine just how the new instrument performs. The telescope is designed especially for photographic observation.

Capt. J. F. Hellweg, superintendent of the U. S. Naval Observatory, considers that the telescope is now complete and he expects that it will soon go into active service adding new knowledge to astronomy.

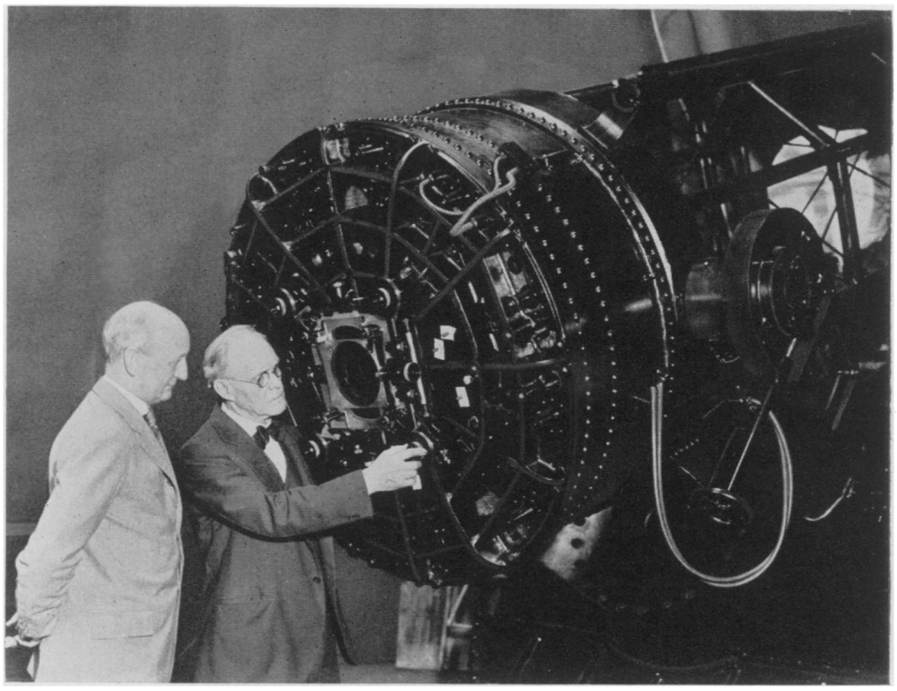
It is the first air cooled telescope. This most modern accessory is not for the comfort of the astronomers who will use the telescope, but to assure better observations.

The entire observatory building is built of very light metal, with double walls, so that at night the temperature will soon become the same as the surrounding air. With more massive buildings, the stone and brick absorb heat all day, and give it off long into the night, producing objectionable air currents which spoil the clearness of the telescopic images. In order to keep the telescope at its night time temperature, a felt canopy will be placed over it in the daytime. This is connected with air cooling equipment, so that all day the telescope will be kept at the temperature expected that night.

The entire tube of the telescope is constructed with a unique system of counterpoises, so as to prevent bending. Convenience of the observer is also remembered, as he is provided with a movable observing platform which automatically keeps him at the eyepiece as the telescope turns to compensate for the rotation of the earth. Thus he does not need to interrupt his work frequently to adjust himself.

The curves to which the mirrors are ground are novel. In a reflecting telescope the light from a star falls on a large concave mirror. It is then reflected to a smaller convex mirror above, thence back, through a hole in the large glass mirror to the eyepiece or photographic plate. With conventional reflecting telescopes, the large mirror is ground to the shape known as a paraboloid. Such a shape has the disadvantage of a very small field, that is, the star at which the telescope is directly pointed may be focused sharply, but others nearby are fuzzy. In astronomical photography it is desirable to have stars focused sharply over a larger area, and this can be accomplished by grinding the mirrors to new curves. These have been developed by Mr. Ritchey in collaboration with Henri Chrétien, French optician, and so the new instrument is known as the Ritchey-Chrétien telescope. The Naval Observatory installation is the second to use these curves. Several years ago, while in France, Mr. Ritchey constructed one with a 20-inch mirror, which is now in the possession of the Duc de Gramont.

Science News Letter, May 26, 1934



WORLD'S MOST MODERN TELESCOPE

George W. Ritchey lovingly adjusts the new great 40-inch telescope that he has labored three years to build for the U. S. Naval Observatory at Washington, D. C., while Capt. J. F. Hellweg, Superintendent of the Observatory looks on. The 40-inch mirror contained within the great bolt-studded base is fashioned to special curves devised by Mr. Ritchey. Although there are larger telescopes, this telescope will photograph a larger sky area than some telescopes with larger mirrors. It is about to go into service photographing the sky. It is the first air-cooled-telescope. A felt canopy above shrouds it during the day and air cooling equipment keeps the telescope at night temperatures so that the delicate mirror will not be distorted.

PSYCHIC RESEARCH

Medium's "Force" Fails To Photograph in Infrared

IF THERE is a mysterious "force" which manifests itself when a medium goes into a trance, it has eluded the keen eye of infrared or heat rays.

To test the psychic powers of Rudi Schneider, well-known medium, two British investigators have made a series of experiments using an infrared light beam and also a camera installed with a movie film sensitive to infrared. The camera thus equipped is capable of taking pictures in feeble red light or even in the absence of visible light, thus