necessity of the observer climbing up ladders to look through the eyepiece. It is called the "Urania" type having been designed for the Urania Observatory of Zurich, Switzerland. Another like it has been installed in the Deutsches Museum, Munich.

Constructed by the Carl Zeiss Works in Jena, the new telescope has been tested and approved in performance and will be shipped during 1933. The 10-inch lens is made for insertion in a 14-foot tube. An electric drive will turn the telescope around the polar axis, to compensate for the motion of the earth.

In order to prevent vibrations from disturbing the observations from the new telescope, it will be specially installed in the museum building with mountings which are independent of the flooring of the building. Supported by a concrete pier, resting on two large beams which reach from wall to wall, the telescope will be practically vibrationless.

A 24-inch reflecting telescope is also under construction in the memorial, by J. W. Fecker, Pittsburgh. Both instruments will be housed on the top floor of the building, a section of the roof being constructed so as to roll back when the telescopes are in use. In addition, a number of smaller telescopes on portable mountings will be used on the roof.

It is expected that the museum, which will include the Fels Planetarium and other departments, will be open in the autumn of 1933.

THE AWARD OF MEDALS OF THE ROYAL SOCIETY TO DR. HALE AND PROFESSOR HABER

THE Royal Society, at its recent annual meeting, as already noted in SCIENCE, awarded the Copley Medal to Dr. George E. Hale and the Rumford Medal to Professor Fritz Haber.

Nature gives extracts from the remarks of the president of the Royal Society, Sir Frederick Gowland Hopkins, who conferred the medals. Concerning Dr. Hale he said:

> Dr. Hale's first notable achievement was in 1892, when he brought the spectroheliograph to success. This instrument gives a picture of the sun by the light of one spectrum line, and allows the bright clouds of hydrogen and calcium in the upper regions of the sun's atmosphere to be photographed as projected on the disc. The idea had been suggested and tried much earlier, but Hale was the first to make a workable automatic instrument of this kind. About the year 1895 Hale organized the building of the Yerkes Observatory and of the great refracting telescope there, to which an improved spectroheliograph was adapted. To this period belongs also a masterly investigation of the spectra of certain faint red stars. This was the precursor of a much larger enterprise, the Mount Wilson Observatory, with many unique instruments, such as the 150 ft. tower telescope and the 100 in. diameter reflector.
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> At the Mount Wilson observatory Dr. Hale made his great discovery of the Zeeman effect in sun-spots by observing the circular polarization of the edges of the broadened spectrum lines, where they cross the spot. Regions of thousands of miles across were thus shown to be the seat of intense magnetic forces, comparable in strength with those used in the dynamo machine. This discovery has been developed in many important directions.
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> In recent years Dr. Hale has developed the spectrohelioscope, an instrument depending on the persistence of vision, which allows us to observe transient phenomena scarcely accessible to the spectroheliograph. We may confidently expect that it will contribute to clearing up the mysterious relations between terrestrial magnetism and solar phenomena.

In referring to Professor Haber, the president said:

> Alike at Karlsruhe, where he went in 1894, and at Dahlem from 1911 to the present time, Haber has inspired schools of great and highly productive activity. His own early studies of the oxidation and reduction of organic substances by electrochemical methods, and the numerous electrochemical studies which followed this important work, such as his researches on gas cells, on the rate of ionic reactions, on the electrolysis of solid salts, on the velocity of reaction at electrodes, and on the use of the glass electrode, have enormously advanced progress in this branch of science.
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> Haber's profound study of the thermodynamics of gas reactions culminated the synthetic production of ammonia. With van Oort, he carried out a preliminary investigation on the ammonia equilibrium, but owing partly to discrepancy with figures obtained by application of the Nernst theorem, further experiments were made with le Rossignol in 1906. In 1908 satisfactory catalysts had been found and the synthesis of ammonia achieved. The far-reaching technical results of these careful thermodynamical studies are in themselves a monument to Fritz Haber; one of the German factories alone can produce more than 1,000 tons of ammonia daily. The influence of this on the food supply of the world is of the highest importance.
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> Haber's wide interest, combined with his insight and grasp, made possible the application of modern physical principles to a wide range of problems of physical chemistry, such as the determination of molecular structure and calculation of lattice energies, the nature of the amorphous state, chemiluminescence, reaction kinetics and electron emission during chemical reaction. During the past few years, Haber has been successfully making manifest the rôle of the hydrogen atom in combustion processes.

AWARD OF THE PHILIP A. CONNE MEDAL TO PROFESSOR ABEL

THE Philip A. Conné Medal of the New York Chemists' Club was presented on December 28 to Professor