Lacertae. On September 18 Mr. Tamm in Sweden discovered a nova of the slow-rising kind in Aquila; an examination of older plates at Harvard and in Germany showed the nova to have appeared before the end of July, and Miss Harwood's plates at Nantucket first recorded it, below the fifteenth magnitude, on July 17. Nova Aquilae did not attain naked-eye visibility, but an unnamed Japanese observer first reported a fifth magnitude nova in Sagittarius on October 4. Confirmation came from the Cape of Good Hope; this object, Nova number 16 in Sagittarius, has faded rapidly to the eighth magnitude.

To the list of novae in the Milky Way can be added a supernova just found on a Harvard photograph of the southern external galaxy I.C. 4719. This extremely remote object apparently exceeded in brightness the total light of its million-star galaxy. At its brightest the object was of the fourteenth magnitude, but it has now faded hopelessly away.

(6) The misbehavior of the bright northern star Gamma Cassiopeiae has monopolized the attention of astronomers during the past few weeks. Since 1932, according to the University of Michigan, the spectrum of Gamma Cassiopeiae has shown peculiar and numerous changes. Apparently these changes, like rumblings before a volcanic eruption, were preliminary to a general outburst. Abnormal brightness of the star was noted in July by the French observer, P. Baize, but Dr. Marshall's photographs in August showed that it had subsided. Suddenly on the morning of October 5 the star increased about 60 per cent. in its radiation, a change detected by Dr. Cherrington at Delaware, Ohio. The preceding evening Mr. Peltier's observations at Delphos, Ohio, had shown the star in normal light. During the past two weeks Gamma Cassiopeiae has been slowly returning from its maximum magnitude of 1.6 toward normal brightness at 2.25, but it is unlikely that the troubles are over. Both light and spectrum should be carefully watched.

(7) The development of a method for rapid measurement of the velocities of faint stars has been completed during the past year by Dr. B. J. Bok and Dr. S. W. McCuskey, and the first results have been announced. The continuation of the work with northern and southern telescopes will contribute new material during the next two years for the determination of the rotation of the Milky Way and the interpretation of galactic structure.

(8) The granulation of the sun's surface has been analyzed, observationally and theoretically, by Professor Harry H. Plaskett in an important investigation of the brightness, dimensions and meaning of the granulations or "rice grains" which cover nearly uniformly about one half of the sun's surface. Although the granules average more than two thousand miles in diameter, they come and go rapidly, with an average lifetime of only a minute or so. At maximum they are about 10 per cent. more luminous than the intergranular areas, and are indicative of the continual turbulence of the solar atmosphere. Plaskett's results are based on an exceedingly skilful technique in making and analyzing the spectrograms obtained by him with telescopes at Victoria, B. C., and at Oxford.

(9) A new member of the family of the Trojan planets has been discovered by Reinmuth at the Heidelberg Observatory. These distant asteroids move around the sun in the same average period as Jupiter. They are, in fact, managed by that planet. The total number of Trojans now known is eleven. All bear names of the heroes, Greek or Trojan, of the ancient battles before Troy. Number eleven has not yet been named.

(10) The most thorough investigation of the masses of the stars has been completed by Professor Henry Norris Russell. He has studied mainly double stars. He finds that the masses and luminosities are closely related, in confirmation of the well-known theoretical deduction by Eddington.

SCIENTIFIC EVENTS

THE NEW ULTRA-CENTRIFUGE PLANT AT THE LISTER INSTITUTE, LONDON

ACCORDING to an article in *Nature*, the governing body and the director of the Lister Institute entertained on September 29 Professor The Svedberg, of Upsala, and a number of interested physicists, biochemists and biologists on the occasion of the completion of the new ultra-centrifuge plant. In welcoming the guests, Professor J. C. G. Ledingham explained that, in anticipation of Professor Svedberg's visit to London on his way home from the Harvard celebrations, every effort had been made to put the finishing touches to the new installation. Dr. Macfarlane, Lister Institute fellow in biophysics and a former pupil of Professor Svedberg, had been almost entirely responsible not only for the design of the building to accommodate the new plant, but also for the supervision of the lay-out and assembly of all the accessory connections, electrical, optical, refrigerating, etc., carried out by the institute's engineering staff. Throughout the whole work, he had enjoyed the constant advice and cooperation of Professor Svedberg. The total cost of the installation, including the new building, was about £7,000, of which sum the Rockefeller Foundation had contributed £3,400 toward defraying the cost of the new machines.

The new laboratory is specially designed and equipped for investigations into the physical nature of very small particles, particularly protein molecules, but it is hoped also to extend its use to the study of the less well-defined entities such as viruses, phages and antibody complexes.

The ground floor is largely taken up by two ultracentrifuges and their auxiliary machinery. Both machines, which were made in the workshops of the University of Upsala to the design of Professor Svedberg, have optical arrangements which make it possible to observe and photograph the contents of the rotating cell.

The smaller of the two machines is called the equilibrium centrifuge and is used for the determination of absolute particle size or weight. It runs at speeds up to 18,000 r.p.m. and usually for several days and nights continuously. The particles have then ceased moving, and a state of sedimentation equilibrium is set up, which allows of the calculation of absolute size from the final photograph.

The larger machine generates much greater centrifugal forces, up to half a million times gravity, and serves to throw down even the smaller protein molecules completely in a few hours. It is used to measure the sedimentation velocity constant of pure proteins and of the components of a mixture. In the case of native protein mixtures, such as blood serum, it is possible to centrifuge these without previous chemical treatment and to determine from the photographs the concentrations in which the component proteins are present.

On the upper floor a roomy laboratory is provided for general chemical and physical investigations. A smaller room which is maintained at a constant temperature is intended for measurements of pH, conductivity, refractive index and cataphoresis constants. For measurements of the latter an optical system is set up, similar to those on the centrifuges, and this enables photographs to be taken of charged particles migrating in the electric field at a rate which is proportional to their charge. Two modernly equipped dark rooms are provided, and in another room examination of plates is carried out and calculations made incidental to the various techniques in use.

GIFTS AND BEQUESTS TO MUSEUMS

IT is stated in *Museum News* that recent gifts and bequests to museums from individuals amount to more than $464,350. In addition, the Carnegie Corporation of New York appropriated $350,000 for the Carnegie Institute at Pittsburgh, and the Rockefeller Foundation and General Education Board appropriated $2,000,000 for the Oriental Institute.

With the payment on June 6 of a bequest of $10,000 from the estate of Walter B. Scaife, the Carnegie Institute, Pittsburgh, collected the $200,000 which was the condition of an added gift of $200,000 on July 1, 1936, from the Carnegie Corporation of New York for the endowment funds of the institute. A fund of $150,000 started by Willis F. McCook for purchases of works of art was exceeded before July 1 and drew a matching sum also from the Carnegie Corporation.

The Oriental Institute, University of Chicago, has received from the Rockefeller Foundation and the General Education Board an unrestricted appropriation of $2,000,000. This is in addition to a grant of $1,354,722, the unexpended balance of a ten-year appropriation in 1928 to finance expeditions to the Near East.

By the will of Miss Virginia Palmer, of New London, Conn., the Lyman Allyn Museum receives $200,000.

By the will of Zenas M. Crane, the Berkshire Museum, Pittsfield, Mass., receives $200,000 and his collection of paintings and art objects. Provision is made in a codicil for completion of the museum addition started by the testator and his sister, Mrs. Samuel Gilbert Colt.

By the will of Joseph S. Stevens, of Jericho, N. Y., the Charleston Museum, Charleston, S. C., receives $25,000. The sum became available as the museum's share of the purchase price of Mr. Stevens's 1,600-acre plantation, Myrtle Grove, on the Combahee River, S. C.

By the will of Mrs. Roxana Atwater Wentworth Bowen, the Chicago Historical Society receives $15,000.

By the will of William Kennon Jewett, the Metropolitan Museum of Art receives $5,000.

By the will of Emma Toedteberg, the Long Island Historical Society receives $5,000.

By the will of Nora D. Woodman, the New York Historical Society, the National Academy of Design and the New York Public Library receive $5,000 each.

The William Rockhill Nelson Gallery of Art at Kansas City has received an anonymous gift of $2,000 for the library.

The Chandler Chemical Museum, Columbia University, has received a gift of $1,500 from the Chemical Foundation.

By the will of Harry de Berkeley Parsons, the New York Zoological Society receives $750.

By the will of the late Mrs. Emily C. J. Folger, the residue of her estate is left to the trustees of Amherst College for use of the Folger Shakespeare Library at Washington.

By the will of William Louis Abbott, the Smithsonian Institution receives one fifth of the residuary