years later by the Parsons Marine Steam Turbine Co The year 1887 saw the construction of the first compound turbine; the year 1892 that of the first condensing turbine. From the 75-kilowatt set of 1889 the turbine gradually grew in size, sets of 3000 kilowatts being made in 1902, while to-day there are machines in use of 60,000 kilowatts. The development of the marine turbine is represented by the engines of H.M.S. *Hood*, of more than 150,000 horse power. The first turbine-driven vessel was the *Turbinia*, and this was followed by the destroyers H.M.S.'s *Cobra* and *Viper*, the cruiser *Amethyst* and the battleship *Dreadnought*, and other vessels for commercial purposes.

The work of Sir Charles Parsons during the last forty years has often received acknowledgment. He has been a fellow of the Royal Society since 1898, and is an honorary doctor of science of six universities. From the Royal Society of Arts he has received the Albert Medal; from the Institution of Electrical Engineers, the Faraday Medal; and from the Franklin Institute of America, the Franklin Medal. In connexion with the award of the last, it was remarked that "it is no exaggeration to say that the work of Sir Charles Parsons has halved the cost of producing electric power, and reduced in still greater proportion the capital cost of generating machinery."

The Magnetic Storm and Aurora of October 14-15, and Associated Solar Activity.

THE magnetic storm which was recorded in NATURE of October 23, p. 603, was accompanied by a display of the aurora which, owing to cloudy skies over a large part of Great Britain, was not seen generally. It is therefore of added interest that Mr. W. B. Housman, of Seaton, West Cumberland, was able to secure eight photographs of the phenomenon, four of which are reproduced herewith (Fig. 1).

It will be recalled that at Greenwich the commencement of a magnetic disturbance of moderate intensity was recorded on October 14 at 20 hr. This disturbance, which lasted for about 12 hours, was followed on October 15 at 19 hr. by another of considerable magnitude, the magnetograph traces showing a total displacement of more than 1° in declination. The two upper photographs of the aurora were taken at 1 h. 30 m. on October 15 during the precursory disturbance, and the lower photographs show the aurora on the evening of the same day at 22 hr., that is, about three hours after the commencement of the major disturbance. The photographs were taken with a camera with an aperture of 2 in. and focal length of 4 in., the exposures being from 10 to 15 minutes. In the upper photographs, taken with the camera pointed to left and right respectively of the centre of the auroral light, the constellation Lyra is seen on the left, and on the right the brilliancy of the aurora practically absorbs all the star trails, while the Scotch coast, 20 miles distant, is revealed by the light. The two lower views show the western extremity and the north-eastern region of the aurora on the following evening. Some details of the photographs are of course lost in reproduction.

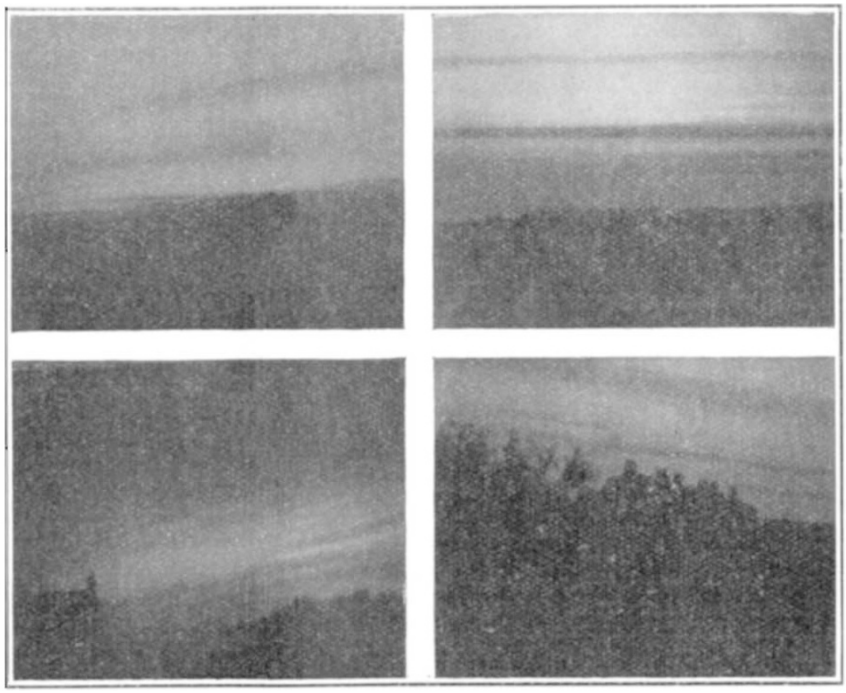

FIG. 1.—Auroræ of October 14-15, 1926. From photographs by Mr. W. B. Housman.

Mr. Housman's remarks on the phenomenon may be quoted in full: "In all views taken, and particularly in these four, dark bands are to be seen running concentric with the auroral arc of light. They were noted visually, and are even more pronounced photographically, their position and persistent continuance suggesting a connexion with the aurora itself. The colours seen in this display were very beautiful. On October 14, 23 h. 30 m., G.M.T., the arch frequently shone with a rich crimson glow, and on October 15, about 22 hr. G.M.T., the N.E. end was quite a bright green. Orange and pale straw colour also appeared in the arch at different places simultaneously. On the night of October 15-16 the auroral green line was seen in a pocket spectroscope all over the sky except in the south-east, where moonlight was strong for a time."

It is known that there is a definite tendency for auroræ, as well as magnetic storms, to occur at intervals of about 27 days—the same interval in which the spot producing zones of the sun make one rotation as seen from the earth. Mr. Housman mentions that the recent aurora is apparently a return of a fine display seen on September 15; a recurrence of the phenomenon should therefore be looked for about November 11. Mr. Evershed in a letter to NATURE of December 29, 1921, p. 566, describes a sequence of disturbances lasting for six months, the mean period being 27·3 days. It is perhaps of interest to mention that at the time when the magnetic storm was most intense there were

no indications, judging from the reception of the Annapolis time signals registered at Greenwich, that conditions for radio transmission were in any way abnormal.

As stated in NATURE of October 23 last, there were, at the time of the magnetic storm, four large spots on the sun's disc, none of which, however, from its telescopic appearance suggested any unusual activity. From a discussion of the occurrence of a number of magnetic storms, Mr. E. W. Maunder found that the average position of spots, which were apparently related in some way to the disturbances, was about 14° west or 1 d. 2 h. past the sun's central meridian at the time of their commencement (*Monthly Notices, R.A.S.*, **64**, 206). This would indicate, in the present instance, the group of spots with central meridian passage on October 13·7.

Mr. A. A. Buss states that this group showed pronounced spectroscopic activity, and particularly so on October 13, when observations at 13 h. 30 m. indicated that very brilliant eruptive prominences were being shot out in different directions from the immediate vicinity of the chief spot. Considerable line of sight motions in the spectrum line *Hα* were also observed by Mr. Buss in connexion with the spot of central meridian passage, October 16·7. Another fact, probably merely a coincidence, but not to be entirely overlooked, is that the time interval between the preliminary and great magnetic disturbances is roughly equivalent to the difference in longitude between the leading and following spots of the third group with central meridian passage, October 11·2.

The recent magnetic storm is the fourth to be recorded at Greenwich during the present year. That of January 26-27 was described at the time as being the largest magnetic disturbance for five years. The progress of the sun's periodic activity may be readily gauged from the following table giving mean daily areas of sunspots, corrected for foreshortening and expressed in millionths of the sun's visible hemisphere. The year 1917 was the maximum for the last cycle.

Year.	Area.	Year.	Area.
1917	1537	1922	252
1918	1118	1923	55
1919	1052	1924	276
1920	618	1925	829
1921	420	1926	still increasing.

During the last eighteen months there have been 19 unusually large spots which have been recorded naked-eye spots in our astronomical columns. Two of these have coincided with two of the four magnetic storms. Three of the remaining large spots have coincided with moderate or active magnetic disturbances. Coincident with the few days near the central meridian passage of the remaining 14 spots, the magnets have shown slight or no disturbance at all. It is in connexion with the anomalies met with in the attempt to correlate magnetic storms with particular solar disturbances that the work of the Mount Wilson observers on sunspot polarities, and also that of solar spectroscopists in general, is of much importance.

University and Educational Intelligence.

CAMBRIDGE.—The following re-appointments have been made: Dr. C. G. Lamb, Clare College, to be reader in electrical engineering, and Mr. P. Lake, St. John's College, to be reader in geography; Mr. W. E. Johnson, King's College, to be Sidgwick lecturer in moral science, and Dr. H. Lamb, Trinity College, to be Rayleigh lecturer in mathematics.

At the recent matriculation, 1650 freshmen were matriculated.

For the sixth year in succession, Trinity College announces the offer of a Research Studentship open to graduates of other universities who propose to come to Cambridge in October next as candidates for the degree of Ph.D. The value of the studentship may be so much as 200*l.* a year if the pecuniary circumstances of the successful candidate require so large a sum. Applications must reach the Senior Tutor not later than July 1, 1927. The College also offers, as usual, Dominion and Colonial Exhibitions to students of Dominion and Colonial Universities who wish to come to Cambridge next October as candidates for the degree of B.A., M.Litt., M.Sc., or Ph.D. These exhibitions are of the titular value of 40*l.* but their actual value is such sum (if any) not exceeding the titular value as the College Council may from time to time hold to be justified by the exhibitioner's financial circumstances. If the financial need of an exhibitioner cannot possibly be met by payment of the full amount of his titular emolument, the Council may award him an additional payment. Candidates must apply through the principal authority of their university, and applications should reach the Senior Tutor (from whom further particulars may be obtained) by July 1, 1927.

EDINBURGH.—Dr. David Bain has been appointed lecturer in technical chemistry in succession to the late Mr. Allin Cottrell, and Mr. J. Evans Gordon lecturer in the Department of Agriculture.

LEPLAY House Educational Tours Association has organised a Christmas vacation tour to Rome, which is open to all interested in archæological, historical, and sociological subjects. There will be a special course of lectures on ancient and modern Rome, and visits will be paid to museums, art galleries, etc., under the guidance of experts. The party will leave London on December 27, and return to London on January 11. Full particulars may be obtained from Miss Margaret Tatton, Leplay House, 65 Belgrave Road, Westminster, S.W.1.

THE "Leicester, Leicestershire and Rutland University College," Leicester, offers in its prospectus for 1926–27 full preparation for the Arts, Science, Commerce, Law, and Music Degrees of the University of London. Although founded so recently as 1921, it had last year 126 (including 68 full-time) students, all preparing for degree examinations, and it is already able to point to a long list of academic honours obtained. In the session 1925–26 departments of chemistry and physics were inaugurated. During the first term of the current session a "co-ordinating course," consisting of one lecture by each lecturer in turn on biology, chemistry, classics, English, French, geography, history, mathematics, physics, is being given experimentally. Several important public lectures are announced. Hostel accommodation within the College precincts is available for women students, the fee for residence being 60*l.* per annum. The inclusive fee for tuition for any stage for a first degree in Arts or in Science is 25*l.* per annum. Such low fees are made possible by a substantial income (6000*l.*), from endowment. The College is not on the University Grants Committee's list of universities and university colleges, but it has received a grant from the City of Leicester. Should the scheme for an East Midlands University, mentioned in the article which appeared in our issue of October 16 on "English Provincial Universities," come to fruition, this college, as well as the Technical College, Leicester, would no doubt be a constituent part.