

Hospital, W.1 (June 30). An assistant librarian (male) for the University of Aberdeen—The Secretary, The University, Aberdeen (June 30). An assistant lecturer in philosophy in the University of Birmingham—The Secretary, The University, Birmingham (July 1). A laboratory steward and lecture assistant in, respectively, physics and chemistry in the Durham Division of the University of Durham—The Head of the Department of Science, University of Durham, South Road, Durham (July 2). A medically qualified demonstrator in the physiology department of the Middlesex Hospital Medical School—The School Secretary, Middlesex Hospital Medical School, W.1 (July 7). A teacher of

engineering subjects at the Gloucester Technical College—The Principal, Technical College, Gloucester. An assistant bacteriologist at the Wellcome Tropical Research Laboratories, Khartoum—The Controller, Sudan Government, London Office, Wellington House, Buckingham Gate, S.W.1. A laboratory assistant under the Sudan Government—The Controller, Sudan Government, London Office, Wellington House, Buckingham Gate, S.W.1. A temporary junior assistant under the directorate of Metallurgical Research of the Research Department, Woolwich—The Chief Superintendent, Research Department, Woolwich, S.E.18.

Our Astronomical Column.

TIME SIGNALS FOR THE ECLIPSE.—Very ample arrangements have been made by the Astronomer Royal, in conjunction with Mr. Hope Jones and Mr. P. H. Hepburn, and with the kind co-operation of the B.B.C., for transmitting time signals on the morning of the eclipse. The 6-dot signals will be sent at 5^h 0^m, 5^h 15^m, 5^h 20^m, and 5^h 30^m U.T. The sixth is the exact minute. Also every second, except 29^s and 59^s of each minute, from 5^h 22^m to 5^h 26^m U.T., which covers the whole period of totality in Great Britain (Summer Time 1 hour greater than above). The minutes and every fifth second will be named verbally. The signals will be transmitted from Daventry (wave-length, 1600 metres), and we understand from London also. A full rehearsal of the programme was given on Saturday, June 11. Probably no previous eclipse has had such facilities for accurate time determination.

NEW COMET.—The sixth cometary discovery of the year has been made by Mr. Gale at Sydney. There are two previous comets in the catalogue, 1894 II. and 1912 II., discovered by Mr. W. F. Gale. As no initials are given in the present case, there is a doubt whether this discovery is due to him or to his son, Mr. A. W. W. Gale. The following two positions have come to hand.

	U.T.	R.A.	S. Decl.	Mag.	Observer.
June	7-604	21 ^h 38 ^m 0 ^s	31° 38'	8.0	Gale, Sydney.
	10-137	21 53 4	31 38	10.0	Gonnessiat, Algiers.

The deduced daily motion is +5^m 57^s, 0'. Not much stress can be laid on the decline in magnitude, as there is considerable personality in estimating this for comets. The comet is on the meridian at 3^h 30^m U.T., but is too far south for convenient observation in England. Its designation is 1927f. Of the six discoveries this year, four are new comets and two are the returns of periodic ones.

A LARGE SUNSPOT.—The large group of sunspots described in NATURE for May 21, p. 759, has made its appearance for the second time, being seen in transit across the sun's disc on June 1-15. When near the sun's east limb, there was a large spot followed closely by a smaller composite one. The latter spot was the nucleus of a growing train, which together with the original leader spot finally stretched across 10° of solar longitude, or about 70,000 miles, and had a total area of nearly 2000 millions of square miles. Latterly the group was decreasing perceptibly. It may be remarked that no magnetic disturbance was registered by the magnetographs about the time of the central meridian passage of the group on June 8. It is also of interest that at the time of the forthcoming total solar eclipse on

June 29, the tail-end of this group of spots, if still existent, will be at the sun's east limb at position angle 70°, measured from the north point of the disc. A solar prominence or any peculiarity in the sun's corona should be looked for in this region. Other details of this naked-eye spot—the largest seen as yet this year—are as follows:

No.	Date on Disc.	Central Meridian Passage.	Latitude.	Maximum Area.
5	June 1-15	June 8-0	16° N.	1/650 of hemisphere

THE NUMBER OF THE STARS.—The Scientific News Service of the Smithsonian Institution, Washington, for May 22, contains an interesting article by Dr. C. G. Abbot on the total number of stars in our system, which he takes as thirty thousand millions, or, as he calls it, 'thirty billions.' (This diversity of use between England and America as to the meaning of 'billion,' 'trillion,' etc., is a perpetual source of confusion, and a decision on the subject by the International Astronomical Union is much to be desired.)

The estimate is derived from star counts down to different limiting magnitudes on photographs of the Kapteyn selected areas. The ratio of increase in numbers for an increase of a unit in the limiting magnitude is found to tend to zero as the stars grow fainter. Assuming that the law continues for still fainter stars, the total number of stars can be arrived at, and is found to be 30,000,000,000.

Earlier investigations of the same kind were made by Chapman and Melotte from the Franklin Adams plates, and by P. J. van Rhijn. The former found the number of stars down to mag. 16.0 to be 33 millions, and by extrapolation similar to that of Dr. Abbot, found the total number in our system to be 3 or 4 thousand millions, which is only $\frac{1}{7}$ or $\frac{1}{8}$ of Dr. Abbot's result. But his is based on photographs showing much fainter stars than the other, so is more trustworthy.

Incidentally, Dr. Abbot gives a fallacious proof that the total number of stars is not infinite; for he says the whole heavens would then blaze like the sun. This is correct only for uniform distribution of stars throughout all space. There is an infinite number of ways in which we could arrange an infinite number of stars, without making the heavens more luminous than they are at present, even granting the perfect transparency of space. We would not contend that the number of stars is infinite, but it is desirable to avoid misleading statements in these articles. Dr. Abbot's estimate of the size of our stellar system is 100,000 light years in its maximum diameter, and 20,000 light years in its minimum one. The article goes on to give some details of stellar physics, including Eddington's recent researches.