supplemented, was published early in 1906. This is the edition of which a translation has now appeared in Teubner's collection of text-books of mathematical science.

THE fifth volume of the second series of the Proceedings of the London Mathematical Society has now been published by Mr. Francis Hodgson. The volume includes an account of the meetings held during the session November, 1906, to June, 1907, and many of the papers read before the society during the session. Obituary notices are included of the late Colonel Mannheim and Dr. E. J. Routh. As the meetings of the society are recorded from time to time among our reports of societies and academies, it is unnecessary to do more now than mention the publication of the volume containing records of papers presented.

OUR ASTRONOMICAL COLUMN.

OCCULTATIONS OF URANUS IN 1908.—From Dr. Downing we have received, as an excerpt from No. 2, vol. lxviii., of the Monthly Notices, a table showing the times and angles of immersion and emersion for the occultations of Uranus by the moon observable at British observatories during the present year. The places specifically named are Adelaide, Melbourne, Sydney, Wellington, Natal, Perth (W.A.), and the Cape, and the dates of the occultations are April 22, May 19, July 13, August 9, and October 3. Dr. Downing hopes that the publication of these data will enable astronomers favourably situated to observe some peculiarities in the appearance of the planet at the time of occultation.

OBSERVATIONS OF COMETS 1907*d* AND 1907*e*.—The results of the observations of comets 1907*d* and 1907*e*, made at the Vienna Observatory with the 6-inch refractor, are recorded by Dr. J. Holetschek in No. 4231 (p. 99, February 3) of the *Astronomische Nachrichten*. Some of them for 1907*d* are particularly interesting, as, in addition to the brightness of the nucleus and of the comet as a whole, the observer gives the length of tail and the times before sunrise up to which the comet was observable. Thus on July 18, when the brightness of the whole comet was of the fourth magnitude, the brightness of the nucleus being 7·5 mag., the object was followed until 15h. 33m. (Vienna M.T.), that is, until 46m. before sunrise. On August 26, mag. 2·0, it was seen until 20m. before sunrise. The greatest length of tail measured was about 8°, on August 18.

Signor Abetti also records, in the same journal, a number of observations, made at the Arcetri Observatory, of these two objects during November and December, 1907.

PLANETS NOW VISIBLE.—With Mercury at its greatest eastern elongation on February 13, it may be possible, during the next night or two, to observe, with the naked eye, five of the major planets at the same time. On February 13 Mercury will set about 1½ hours after the sun, *i.e.* at about 6.30 p.m., some 10° south of west. Venus is still quite a bright object in the western sky, whilst Saturn sets, nearly due west, some three hours after sunset. Mars does not set until about 10.30 p.m., and is to be found in the constellation Pisces to the south-east of the Great Square of Pegasus.

At 6 p.m. Jupiter is now a striking object in the eastern sky, having risen some three hours earlier.

Mercury will, of course, be the most difficult object to locate, but, following the directions given in these columns on December 5, 1907 (p. 115, vol. lxxvii.), Mr. W. E. Rolston found the planet at 6.35 a.m. on December 6, and was able to follow it easily until 7.10 a.m. The observation was made at Wimbledon Park, the sky being clear and the sun rising at 7.51 a.m.

At present Uranus is in conjunction, and therefore invisible, but Neptune may be found, with a telescope, situated between the stars ϵ and ζ and near to η Geminorum.

ENCKE'S COMET, 1908*a*.—The following is a further extract from the ephemeris for Encke's comet given in No. 4222 (p. 363, December 18, 1907) of the *Astronomische Nachrichten* by M. Kamensky and Mdlle. Korolikov :—

Ephemeris 0h. (M.T. Berlin).

1908	α (app.) h. m.	δ (app.) °	1908	α (app.) h. m.	δ (app.) °
Feb. 12 ...	23 50·3 ...	+6 21·0	Mar. 3 ...	0 27 0 ...	+10 4·5
,, 20 ...	0 3·9 ...	+7 43·7	,, 7 ...	0 35·6 ...	+10 56·1
,, 28 ...	0 18 9 ...	+9 15·3	,, 11 ...	0 44·7 ...	+11 49·6

From this we see that the comet is apparently travelling in a north-easterly direction through the constellation Pisces, and should be sought, in the earlier part of the evening, some few degrees to the south of the Great Square of Pegasus. Its photographic magnitude on January 19 was 12·5, and its distance from both the sun and the earth is decreasing rapidly. According to Prof. Wolf's observations, the above ephemeris required corrections of +2·4m. and −24′ on December 25.

Some interesting notes on the successive reappearances of Encke's comet appear in No. 2 (February 1, p. 13) of the *Gazette astronomique*.

A CATALOGUE OF ZODIACAL STARS.—A catalogue of zodiacal stars, principally prepared for use in occultations of stars by the moon, appears as part iii., vol. viii., of the Astronomical Papers prepared for the use of the American Ephemeris and Nautical Almanac. This catalogue was prepared by Mr. H. B. Hedrick, and all the catalogues employed in the investigation were reduced to the same absolute system as Prof. Newcomb's Catalogue of Fundamental Stars, which appeared as part ii. of the same volume. The catalogue includes 1607 stars, and gives the definitive positions for the epochs 1900·0 and 1920·0. Centennial and secular variations and proper motions are also given.

METEORS OBSERVED ON JANUARY 2.—Observing at Hjörring, North Jutland, Herren P. Muusmann and H. Wanning saw a number of meteors in the region between Cygnus and Pegasus on January 2. The observations were made between 8.10 and 8.20 p.m., and during the last five minutes more than thirty meteors were counted. The position of the radiant is given as 300° + 61° (*Astronomische Nachrichten*, No. 4230, p. 95, February 1).

THE WINDS OF NORTHERN INDIA.[1]

THE phenomena of atmospheric motion may be considered and discussed from three main points of view. They may be (1) regarded in their relation to the general system of winds prevailing over a rotating earth unequally heated, and having an annual period of temperature variation; (2) considered in their dynamic relation to the synchronous distribution of the various other meteorological elements, more particularly the pressure and temperature, in their vicinity; (3) arranged in order to facilitate comparison with one another at different times and seasons, and to exhibit the connection between wind and climatic conditions in such a way as to enable account to be taken of this connection in a general survey of meteorological conditions and in relation to forecasts. In the memoir before us, the main feature is the development and discussion, from the third standpoint, of the results of anemographic records at Allahabad and Lucknow during the years 1890–1904 and 1878–1892 respectively. Sir John Eliot prefixes the discussion by a short account of the synchronous distribution of pressure and temperature at Lahore and Allahabad, which is very suggestive of the method to be adopted and the results to be used in a discussion from the second standpoint. The modifying influences of the orographic distribution are too considerable to admit of close connection between the results recorded and the general atmospheric circulation, and no attempt has been made to develop such connection.

[1] "Memoirs of the Indian Meteorological Department, being Occasional Discussions and Compilations of Meteorological Data relating to India and the Neighbouring Countries." Published under the direction of Dr. G. T. Walker, F.R.S. Vol. xviii., part iii. V. A Discussion of the Anemographic Observations recorded at Allahabad from September, 1890, to August, 1904. VI. A Discussion of the Anemographic Observations recorded at Lucknow from June, 1878, to October, 1892. By Sir John Eliot, K.C.I.E., F.R.S. (London: Harrison and Sons, 1907.) Price 2 rupees.