

withstanding the fact that similar diagrams for the expansion considered in the paper have frequently occurred in text-books.

THE business of the *Electrician* Printing and Publishing Co., Ltd., having been acquired by Messrs. Benn Bros., Ltd., 8 Bouverie Street, E.C.4, the forthcoming books of the former company, announced in NATURE of September 20, will be published by Messrs. Benn.

OUR ASTRONOMICAL COLUMN.

SEPTEMBER METEORS.—Mr. Denning writes that a fair number of meteors, including several brilliant fireballs, were observed in September. There was a well-defined shower, not far from the Pole, at $314^{\circ}+79^{\circ}$ at the middle of the month, and at the period from September 19–24 the chief radiant points were at $4^{\circ}+27^{\circ}$, $59^{\circ}+35^{\circ}$, $271^{\circ}+22^{\circ}$, $290^{\circ}+52^{\circ}$, $343^{\circ}+14^{\circ}$, and $352^{\circ}+2^{\circ}$. A very brilliant meteor was observed on September 21 at 10h. 3m., from the radiant in Cygnus. As seen from Bristol it was brighter than Venus, and fell from a height of 67 to 28 miles. On September 23, at 7h. 42m., a fireball illuminated the sky as seen from Clevedon, and it had a long, slow, and nearly horizontal flight from a radiant at $322^{\circ}-23^{\circ}$ in Capricornus. Its path was about 166 miles from over the English Channel to Welshpool, and it descended from 64 to 32 miles. Though it had a very extended path, only two observations of it were received, viz. from Clevedon (Somerset) and Fowey (Cornwall), but the sky was cloudy at many places.

COMET 1916b (WOLF).—The following is a continuation of the ephemeris, for Greenwich midnight, given by Messrs. Crawford and Alter in Lick Observatory Bulletin No. 295:—

1917	R.A.	Decl.	Log Δ	Brightness
	h. m. s.	° "		
Oct. 4 ...	23 38 17	-1 8 2	0.0891	1.22
6 ...	38 22	1 45 27	0.0972	
8 ...	38 31	2 21 9	0.1055	1.10
10 ...	38 43	2 55 5	0.1141	
12 ...	38 58	3 27 14	0.1227	0.99
14 ...	39 18	3 57 37	0.1315	
16 ...	39 41	4 26 13	0.1404	0.89
18 ...	40 7	4 53 3	0.1495	
20 ...	40 38	5 18 9	0.1586	0.79
22 ...	41 13	5 41 33	0.1678	
24 ...	41 51	6 3 16	0.1770	0.71
26 ...	42 34	6 23 21	0.1863	
28 ...	43 20	6 41 51	0.1956	0.63
30 ...	44 10	6 58 49	0.2049	
Nov. 1 ...	45 3	7 14 17	0.2142	0.56
3 ...	23 46 0	-7 28 20	0.2235	

The comet is situated below the Square of Pegasus, and is well placed for observation. It is, however, much fainter than might have been expected from the fact that it was discovered more than a year before perihelion passage. Between August 13 and August 22, according to observations by Quénnisset, the magnitude of the comet fell from 8 to 9.

A COLOUR SCALE FOR STARS.—An attempt to establish a scale of colours adapted to observations of stars and planets has been made by Prof. W. H. Pickering (*Popular Astronomy*, vol. xxv., p. 419). The numerical values assigned to the different colours are:—5, deep-blue; 6, sky-blue; 7, light-blue; 8, pale-blue; 9, bluish-white; 10, white; 11, yellow; 12, orange; 13, reddish-orange; 14, orange-red; 15, light-red; 16, deep-red. The typical colours are shown in circular patches on a coloured plate, which is to be viewed by one eye under carefully adjusted illumination, while the planet, or star out of focus, is viewed with the other eye at

the telescope. To secure constant conditions of comparison, the illuminating source is to be slightly modified as required, so that certain standard stars of type K always register 11. The average results for stars of different types are compared with the colour indices (differences between photographic and visual magnitudes) in the following table:—

Type	Colour scale	Colour index
Oe	7.0 ...	—
B	6.7 ...	-0.3
A	7.4 ...	0.0
F	7.6 ...	+0.3
G	9.5 ...	+0.7
K	11.5 ...	+1.2
M	12.0 ...	+1.6
N	13.7 ...	+2.5

An extensive investigation of star colours has also been made by H. E. Lau (*Astronomische Nachrichten*, No. 4900). The scale in this case is white=0, yellow=5, and red=10. The influence of atmospheric absorption and the effect of magnitude have been examined, and a catalogue showing the colours of more than 700 of the brighter stars is given.

AN AUSTRALIAN CHEMICAL INSTITUTE.

AN Australian Chemical Institute has been formed with its headquarters in Sydney, and branches in every State of the Commonwealth. The provincial committees include the professors and other teachers of chemistry in the universities and most of the professional chemists in the several States. The institute has been framed on much the same lines as the Institute of Chemistry for Great Britain and Ireland. The objects set forth are:—(1) To raise the status and advance the interests of the profession of chemistry; (2) to promote the usefulness and efficiency of persons practising the same; (3) to afford facilities for the better education and examination of persons desirous of qualifying as technical analysts and chemical advisers; (4) to obtain power to grant legally recognised certificates of competency. Persons eligible for membership must possess certain qualifications, such as the degree of a recognised British university where they have studied chemistry for not fewer than three years, or an approved diploma in some branch of chemistry granted by an approved technical college or school of mines (no mention is made of the length of study required from such), or be fellows or associates of the Institute of Chemistry of Great Britain and Ireland, or who have satisfied examiners appointed by the council that they have attained a necessary standard of chemical education; other persons may be admitted by the council without examination for special reasons on the recommendation of the committee of a branch.

The council does not intend to hold any examination for admission before January, 1918, but lecturers or teachers of chemistry at an Australian university, technical college, or school of mines, or approved secondary school, chemists who are in charge of a Government laboratory, or have been in charge of a laboratory attached to a commercial or industrial establishment for three years, chemists or analysts who have been in practice for three years, and certain others will be eligible for membership without examination before that date. Chemists who have been absent from Australia on war service may be admitted without examination after January 1, 1918, at the discretion of the council. One of the stated duties of the council is to take any steps that may appear to be advisable to improve the rate of remuneration of chemists in private practice or in the employment of