

Common is a remarkable spot for the botanist, and is still fortunately an untouched and unspoilt piece of country. For this and other interesting places careful lists of the more uncommon plants are given.

CAPT. T. S. MASTERSON read a paper on "The Petroleum Industry of Rumania" before the meeting of the Institution of Petroleum Technologists on January 15, in which he presented a very useful summary of the position of this industry up to the time of the entry of Rumania into the European war. He gives a brief account of the geography and geology of the Rumanian oilfields, and discusses at some length the methods of exploitation employed. He shows why the American method of drilling has proved a comparative failure, whilst the Canadian method has proved very successful, and is preferred by most Rumanian operators. The percussive water-flush method has not fared much better than the American method, but, on the other hand, the modern rotary system has been highly successful in the loose sandy marls met with in certain areas. The author concludes that no one system can be advocated for general use in Rumania, but that in each case the system best adapted to the conditions must be selected, wherever these conditions are known; in unexplored fields he recommends the use of the percussion system. He states that Rumania possessed sixty-one refineries with a total capacity of  $4\frac{1}{2}$  million tons, whereas the highest output of crude oil obtained in any year was only 1.9 millions. He further directs attention to the fact that practically the whole of the plant for these refineries was supplied from Germany, together with most of the raw materials employed in the construction of drilling rigs. In November, 1916, when the retreat of the Rumanian Army became inevitable, the wells and refineries were destroyed as completely as possible, and the paper concludes with an expression of the hope that when the times comes for reconstruction Great Britain will take steps to see that she shall be in the position to furnish the requisite materials.

A NEW type of differential dilatometer for thermal investigations on steels is described in the September-October *Revue de Métallurgie*. The author, M. Pierre Chevenard, claims that the instrument is well adapted for use in a steel works laboratory on account of trustworthiness and simplicity of design. Only small quantities of metal are necessary; the instrument is easy to set up, and the readings are unaffected by vibrations. An instrument of the type he describes has been used for some time for routine tests in a large steel works in France. It provides a useful complement to the chemical and micrographic examination of certain steels and their constituents, such as cementite, etc. Finally, it has proved of value in the qualitative examination of slight modifications in the dilatibility of metals due to thermal or mechanical influences. The author remarks, in conclusion, that the examination of these and certain other phenomena rightly comes within the scope of precise metrology.

THE following volumes are announced for early appearance in the "Collection Horizon" of Messrs. Masson et Cie., Paris:—"Les premières heures du Bessé de Guerre," P. Bertein and A. Nimier; "L'Évolution de la Plaie de Guerre," Prof. A. Policard; "Commotions et Emotions de Guerre," Prof. A. Léri and Th. Beck; "Traitements des Psychonévroses de Guerre," G. Roussy, J. Boisseau, and M. d'Élsnitz; "Blessures du Crâne," T. de Martel (revised edition); "Blessures du Cerveau," C. Chatelin (revised edition); "Prothèse fonctionnelle en Chirurgie de Guerre," Ducroquet; and "Blessures de la Moelle et de la Queue de Cheval," Prof. G. Roussy and J. Lhermitte.

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### OUR ASTRONOMICAL COLUMN.

ENCKE'S COMET.—The following continuation of the ephemeris of Encke's comet is from Mr Viljev's elements, and is for Greenwich midnight:—

		R.A.			N. Decl.
		h.	m.	s.	
Jan. 31	...	23	37	33	6 21
Feb. 4	...	23	44	6	6 55
8	...	23	51	4	7 32
12	...	23	58	27	8 10
16	...	0	6	15	8 49
20	...	0	14	30	9 30
24	...	0	23	12	10 12
28	...	0	32	21	10 48
Mar. 4	...	0	41	28	11 23

The magnitude was 15.0 on December 30, but may be expected to reach at least 9.0 by the end of February. In 1852, when perihelion was at about the same time of the year, the comet was visible in bright twilight in February, but it has probably declined in physical brightness since that date.

SOLAR OBSERVATIONS AT MADRID.—In addition to the usual convenient astronomical and meteorological tables, the "Anuario" of the Madrid Observatory for 1918 includes the detailed results derived from direct photographs of the sun, observations of solar prominences, and spectroheliograms of the sun's disc taken in calcium light. The sun-spot record is for 1916, and gives the heliographic latitude and longitude of each spot, together with its duration, area, and classification. The prominence catalogue is also for 1916, and includes position, extent of base, height, and brightness of each prominence observed. A similar catalogue of calcium flocculi covers the period from October 1, 1916, to September 30, 1917. In addition, there are valuable discussions of the distribution of each group of phenomena in regard to time and position on the sun. In the case of calcium flocculi, the discussion covers the whole period of observation at Madrid, and is of particular interest because so few data have hitherto been published. The unit of time adopted is that of the sun's rotation, and the following mean daily numbers of flocculi for approximate years have been calculated from the table given:—

Period	Rotations	Days of observation	Mean daily number
1912, Apr. 4-1912, Dec. 5	1-9	131	1.247
1912, Dec. 5-1914, Jan. 18	10-24	169	0.704
1914, Jan. 18-1914, Dec. 12	25-36	128	1.499
1914, Dec. 12-1915, Nov. 4	37-48	134	4.782
1915, Nov. 4-1916, Dec. 17	49-63	149	7.506

SPECTRA OF JUPITER AND SATURN.—A photographic investigation of the spectra of the planets Jupiter and Saturn has been made at Glasgow by Dr. L. Becker (Monthly Notices R.A.S., lxxviii., 77). The spectra extended from B in the red to K in the extreme violet, and were about 11 cm in length. Apparent absorption bands introduced by the dyes used to sensitise the plates were eliminated by the superposition of a positive photograph of the lunar spectrum. The only absorption band discernible in the spectra of the two planets is the well-known band in the red, which Dr. Becker finds to extend from  $\lambda 6174$  to  $\lambda 6214$ . The supposition that water vapour is present in the atmospheres of these planets is not supported by the photographs in question, as the water-vapour lines near D do not differ in appearance in the spectra of the moon and planets.