

Sibthorp and Smith's "Prodromus florae graecae," and other works on the subject have been issued; but the conspectus now in course of publication will be the first attempt to give anything like a complete account of the flora of Greece, inclusive of Epirus, Crete and neighbouring islands. The work will be entirely in Latin, and will be completed in from eight to ten parts, each of about 160 pages. It is estimated that about five years will elapse before the last part has appeared.

A FIFTH edition, rewritten and enlarged, of the "Handbook of Practical Botany," translated by Prof. W. Hillhouse from Prof. Strasburger's "Praktikum," has been published by Messrs. Swan Sonnenschein and Co., Ltd. The translation is based upon the third German edition of Prof. Strasburger's well-known work, issued in 1897. A number of new figures have been added, and the notes introduced by Prof. Hillhouse in earlier editions have now been incorporated in the text. The bibliographical notes formerly appended to the chapters have been omitted. For nearly fourteen years Prof. Hillhouse's translation of Prof. Strasburger's text-book has been in use in botanical laboratories, and has shown many students the way to become acquainted with the broad facts of scientific structural botany and the methods of microscopical work. In its revised form the book will be welcomed by all who are interested in the practical study of botany.

THE publication of a bibliography, guide and index to bacteriological literature has been commenced in *The Scientific Roll*, conducted by Mr. Alexander Ramsay. The first title included in the part of the general bibliography just issued is "Arcana nature detecta," by Leeuwenhoek (1680), and the list extends to 1875 and includes one hundred and one papers published in that year. The works are arranged alphabetically, according to authors. Though the list is not exhaustive it will provide people interested in bacteria with a ready means of finding what has been published on bacteriological subjects, and of tracing the growth of the science. Mr. Ramsay invites authors to send him copies of their papers so that he may make the bibliography as complete as possible. The publisher of the list is Mr. R. L. Sharland, 3S, Churchfield-road, Acton, London, W.

A WORK of interest to students of ethnology, containing the results of the journey to Algeria made by Messrs. D. Randall-MacIver and A. Wilkins, is about to be published by Messrs. Macmillan and Co., under the title of "Libyan Notes." The object of the expedition was to establish if possible any trace of a connection between the Berber tribes and Egypt—a trace finally discovered in the pottery of the Kabyles—but incidentally the writers undertook and recorded a general investigation of the indigenous white race of Northern Africa known to Rome as the Numidians, Gætulians or Mauri—who figure as a white race on Egyptian monuments as far back probably as 1300 B.C. Thus in addition to the special chapters on the Kabyle pottery and the evidences of a Libyo-Egyptian connection, the book will contain remarks on the Berber history, their language, their interesting political and social organisation; detailed descriptions both of the Aurès and Kabylia, their inhabitants and the local industries; observations and statistics on the physical type of the Berbers based on measurements; and finally some account of the rude stone monuments of Algeria.

THE additions to the Zoological Society's Gardens during the past week include a Bonnet Monkey (*Macacus sinicus*) from India, presented by Mrs. Henry Lazarus; a Rhesus Monkey (*Macacus rhesus*) from India, presented by Mr. H. A. Loop; an Egyptian Jerboa (*Dipus aegyptius*) from North Africa, presented by Mr. K. Riccardo; four Black-backed Jackals (*Canis mesomelas*) from South Africa, presented by Mr. J. E. Matcham; an African Civet Cat (*Viverra civetta*) from West Africa, pre-

sented by Mr. R. H. Brady; a Puffin (*Fratercula arctica*), European, presented by Mr. E. T. Norris; a Common Roe (*Capreolus caproea*, albino), European; a One-wattled Cassowary (*Casuarus uniappendiculatus*) from New Guinea, a Yellow-rumped Parrakeet (*Platycercus flaveolus*) from Queensland, an Ocellated Monitor (*Varanus ocellatus*) from East Africa, five Blue Lizards (*Gerrhonotus coeruleus*) from Western North America, three Undulated Lizards (*Sceloporus undulatus*) from South-east United States, deposited; an Axis Deer (*Cervus axis*), born in the Gardens.

OUR ASTRONOMICAL COLUMN.

ASTRONOMICAL OCCURRENCES IN DECEMBER.

- Dec. 4. 18h. 41m. to 18h. 45m. Moon occults 13 Tauri (mag. 5.4).
- 5. 6h. 11m. to 6h. 46m. Moon occults  $\omega^2$  Tauri (mag. 4.6).
- 5. 16h. 5m. to 17h. 0m. Moon occults DM + 20°, 785 (mag. 5.8).
- 7. 15h. Mercury at greatest elongation, 20° 50' W.
- 8. 13h. 32m. to 14h. 37m. Moon occults DM + 17° 1596 (mag. 5.6).
- 10. 8h. 56m. to 9h. 52m. Moon occults  $\kappa$  Cancrī (mag. 5.0).
- 10-12. Epoch of Geminid meteoric shower (Radiant 108° + 33°).
- 11. 12h. 36m. Minimum of Algol ( $\beta$  Persei).
- 12. 13h. Mars in conjunction with moon. Mars 8° 26' N.
- 13. 21h. Jupiter in conjunction with the sun.
- 14. 9h. 25m. Minimum of Algol ( $\beta$  Persei).
- 15. Venus. Illuminated portion of disc = 0.836. Mars. " " " " = 0.907.
- 16. Saturn. Outer minor axis of outer ring = 15" 40.
- 17. 6h. 14m. Minimum of Algol ( $\beta$  Persei).
- 18. 19h. Venus in conjunction with the moon. Venus 2° 19' N.
- 19. 16h. Neptune in opposition to the sun.
- 20. 0h. Mercury in conjunction with moon. Mercury 0° 2' N.
- 26. Eros makes nearest approach to the earth.
- 26. 7h. 42m. to 8h. 33m. Moon occults 5t Aquarii (mag. 5.8).
- 29. 1h. Saturn in conjunction with sun.

NEW VARIABLE STARS.—*Cygnus*.—Herr T. Köhl, writing from an observatory at Odder, Denmark, to the *Astronomische Nachrichten* (Bd. 154, No. 3673), draws attention to the variability of the star B.D. + 46° 2970, whose co-ordinates are

$$\left. \begin{aligned} \text{R.A.} &= 20\text{h. } 28\text{m. } 33.7\text{s.} \\ \text{Decl.} &= +46^\circ 4' 2 \end{aligned} \right\} (1855).$$

A note by Herr E. Hartwig suggests that the period of this variable is more than a year.

*Aquila*.—Dr. T. D. Anderson, in the same journal, announces the variability of the star B.D. + 9° 4205, having the position

$$\left. \begin{aligned} \text{R.A.} &= 19\text{h. } 33\text{m. } 48.2\text{s.} \\ \text{Decl.} &= +9^\circ 35' 4 \end{aligned} \right\} (1855).$$

Using four neighbouring stars for comparison, the following values were obtained:—

	Mag.
1900 Sept. 18 =	9.2
24 =	9.2
Oct. 1 =	9.4
25 =	10.0
Nov. 9 =	10.6

*Pegasus*.—Dr. Anderson also finds the star A.G. Leipzig I. 8381 to be variable. Its position is

$$\left. \begin{aligned} \text{R.A.} &= 21\text{h. } 6\text{m. } 15.0\text{s.} \\ \text{Decl.} &= +12^\circ 12' 26 \end{aligned} \right\} (1855).$$

The following estimations of its magnitude have been made:—

	Mag.
1900 Sept. 26 =	9.1
Oct. 27 =	9.5
Nov. 10 =	10.1

EPHEMERIS FOR OBSERVATIONS OF EROS.—The following abridged ephemeris will serve for finding the planet during the month of December:—

Ephemeris for 12h. Berlin Mean Time.		R.A.		Decl.		
1900.		h.	m.	s.		
Dec.	1	1	27	19	27	+ 50 23 49.6
	3		26	42	70	49 43 44.9
	5		26	33	12	49 1 40.7
	7		26	50	26	48 17 51.2
	9		27	33	77	47 32 28.9
	11		28	43	14	46 45 46.0
	13		30	17	82	45 57 53.5
	15		32	17	24	45 9 2.7
	17		34	40	66	44 19 24.0
	19		37	27	28	43 29 7.2
	21		40	36	30	42 38 20.6
	23		44	6	85	41 47 12.2
	25		47	57	92	40 55 49.0
	27		52	8	49	40 4 17.1
	29	1	56	37	43	39 12 40.8
	31	2	1	23	61	+ 38 21 3.0

DISTRIBUTION OF MINOR PLANETS.—M. Freycinet has a further article in the *Comptes rendus* (vol. cxxxi. pp. 815-821), in which he discusses the distribution of the zone of asteroids more critically than in his previous paper in *Comptes rendus*, cxxx. pp. 1145-1154. On the assumption that these small bodies are the product of disruption of a former ring of matter revolving round the central body, he calculated the mean eccentricities of the several rings into which it might be expected to divide. On examination of the elements of 428 of the planets, it has been possible to divide them into eight groups, the members of each group having similar eccentricity and inclination of orbit. The numbers of separate bodies in each zone vary greatly—from 1 to 170. The mean thickness of the rings is 0.278, the radius of the earth's orbit being taken as unit, the individual rings varying from 0.22 to 0.36. In each ring the mean eccentricity of the members situated in the inner or inferior half is greater than that of the members occupying the superior or outer half; and comparing two rings, it is found that the mean eccentricity of the planets in the inferior part of the outer ring is greater than that of those occupying the superior part of the inner ring. In one ring—the fifth—consisting of 69 planets, the mean eccentricities of the two halves are identical, and it will be interesting to examine the places occupied by asteroids discovered in the future as to their effect on the constants of this region of the swarm.

THE NOVEMBER METEORS.—In the *Comptes rendus* (vol. cxxxi. pp. 821-825) Dr. Janssen describes the special preparations made for observing, from balloons, the meteors expected during the past month. A few Leonids were seen, but no indication of any special fall. In the description of the ascents, mention is made of the observers having to pass through several cloud belts, suggesting that in future an altitude of some 6000 metres should be attained to ensure more certainty of a clear sky.

M. Deslandres also gives, in the same issue (pp. 826-7), the results of the observations made at the Meudon Observatory. They were both visual and photographic, the latter being made with six cameras having apertures from 6 to 2 inches. All were carried by a single equatorial mounting so as to be under the control of one observer.

On the night of November 14, from 9h. 30m. to 1h., traces of 16 meteors were secured, of which 6 were Leonids, 5 Andromedes and 2 sporadic. On the night of the 15th, after 9h. 30m. 5 traces were obtained, 3 of which were Leonids.

## HUXLEY'S LIFE AND WORK.<sup>1</sup>

### II.

ANOTHER remarkable side of Huxley's mind was his interest in and study of metaphysics. When the Metaphysical Society was started in 1869, there was some doubt among the promoters whether Huxley and Tyndall should be invited to join or not. Mr. Knowles was commissioned to come and consult me. I said at once that to draw the line at the opinions which they

<sup>1</sup> The first "Huxley Memorial Lecture" of the Anthropological Institute, delivered on November 13, by the Rt. Hon. Lord Avebury, F.R.S., D.C.L., LL.D. Continued from p. 96.

were known to hold would, as it seemed to me, limit the field of discussion, and there would always be doubts as to when the forbidden region began; that I had understood there was to be perfect freedom, and that though Huxley's and Tyndall's views might be objectionable to others of our members, I would answer for it that there could be nothing in the form of expression of which any just complaint could be made.

The society consisted of about forty members, and when we consider that they included Thompson, Archbishop of York, Ellicott, Bishop of Gloucester and Bristol, Dean Stanley and Dean Alford as representatives of the Church of England; Cardinal Manning, Father Dalgairns and W. G. Ward as Roman Catholics; among statesmen, Gladstone, the late Duke of Argyll, Lord Sherbrooke, Sir M. Grant Duff, John Morley, as well as Martineau, Tennyson, Browning, R. H. Hutton, W. Bagehot, Frederic Harrison, Leslie Stephen, Sir J. Stephen, Dr. Carpenter, Sir W. Gull, W. R. Greg, James Hinton, Shadworth Hodgson, Lord Arthur Russell, Sir Andrew Clark, Sir Alexander Grant, Mark Patteson, and W. K. Clifford, it will not be wondered that I looked forward to the meetings with the greatest interest. I experienced also one of the greatest surprises of my life. We all, I suppose, wondered who would be the first President. No doubt what happened was that Roman Catholics objected to Anglicans, Anglicans to Roman Catholics, both to Nonconformists; and the different schools of metaphysics also presented difficulties, so that finally, to my amazement, I found myself the first President! The discussions were perfectly free, but perfectly friendly; and I quite agree with Mr. H. Sidgwick, that Huxley was one of the foremost, keenest and most interesting debaters, which, in such a company, is indeed no slight praise.

We dined together, then a paper was read, which had generally been circulated beforehand, and then it was freely discussed, the author responding at the close. Huxley contributed several papers, but his main contribution to the interest of the Society was his extraordinary ability and clearness in debate.

His metaphysical studies led to his work on Hume and his memoirs on the writings of Descartes.

One of his most interesting treatises is a criticism of Descartes' theory of animal automatism. Descartes was not only a great philosopher, but also a great naturalist, and we owe to him the definite allocation of all the phenomena of consciousness to the brain. This was a great step in science, but, just because Descartes' views have been so completely incorporated with everyday thought, few of us realise how recently it was supposed that the passions were seated in the apparatuses of organic life. Even now we speak of the heart rather than the brain in describing character.

Descartes, as is known, was much puzzled as to the function of one part of the brain—a small, pear-shaped body about the size of a nut, and deeply seated. Known as the pineal gland, he suggested that it was the seat of the soul; but it is now regarded, and apparently on solid grounds, as the remains of the optic lobe of a central eye once possessed by our far-away ancestors, and still found in some animals, as, for instance, in certain lizards. Descartes was much impressed by the movements which are independent of consciousness or volition, and known as reflex actions—such, for instance, as the winking of the eye or the movement of the leg if the sole of the foot is touched. This takes place equally if, by any injury to the spinal marrow, the sensation in the legs has been destroyed.

Such movements appear to be more frequent among lower animals, and Descartes supposed that all their movements might be thus accounted for—that they were, like the movements of sensitive plants, absolutely detached from consciousness or sensation, and that, in fact, animals were mere machines or automata, devoid not only of reason, but of any kind of consciousness.

It must be admitted that Descartes' arguments are not easy to disprove, and no doubt certain cases of disease or injury—as, for instance, that of the soldier described by Dr. Mesnet, who, as the result of a wound in the head, fell from time to time into a condition of unconsciousness, during which, however, he ate, drank, smoked, dressed and undressed, and even wrote—have supplied additional evidence in support of his views. Huxley, while fully admitting this, came, and I think rightly, to the conclusion that the consciousness of which we feel certain in ourselves must have been evolved very gradually, and must therefore exist, though probably in a less degree, in other animals.