

of *Leptalis Theonoë*, namely *L. Lysinoë*, mimicking an Ega, not an *Ithomia*, but a flourishing species of another quite distinct family (*Stalachtis Duvalii*), shows that the object of the mimetic tendencies of the species is simply disguise, and that, the simple individual differences in that locality being originally in the direction, not of an *Ithomia*, but of another object equally well answering the purpose, selection operated in the direction of that other object." "When the persecution of a variable local form of our *Leptalis* is close or long continued, the indeterminate variations naturally become extinct; nothing then remains in that locality but the one exact counterfeit, whose exactness, it must be added, is henceforth kept up to the mark by the insect pairing necessarily with its exact counterpart, or breeding in and in. This is the condition of *L. Theonoë*, &c. When (as happens at St. Paulo, where a greater number of individuals and species, both of *Ithomia* and *Leptalis*, exists) many species have been in the course of formation out of the varieties of one only, occasional intercrossing may have taken place; this would retard the process of segregation of the species, and, in fact, aid in producing the state of things (varieties and half-formed species) which I have already described as there existing." "Such, I conceive, is the only way in which the origin of mimetic species can be explained. I believe the case offers a most beautiful proof of the truth of the theory of natural selection. It also shows that a new adaptation, or the formation of a new species, is not effected by great and sudden change, but by numerous small steps of variation and selection."

At a time like the present, when the notion that species are derivative, somehow or other, is received as the most probable opinion by such an increasing number of competent observers and thinkers—including, it may be added, the names of Lyell and of Owen,—and when it appears to the thoroughly conservative and well-informed President of the Linnæan Society¹ "that the tide of opinion among philosophical naturalists is setting fast in favor of Mr. Darwin's hypothesis," such illustrations of the latter as Mr. Bates has presented are worthy of attentive consideration. But we need not agree with Mr. Bates in his conclusion that the impression produced "of there being some innate principle in species which causes an advance in organization in a special direction," so that the result is "a predestined goal," is untenable, and the appearances which suggest such idea, illusory. Because variations are picked out, preserved, and led to useful ends by natural selection, it does not follow, nor has it ever been shown, that they occur lawlessly and at random.

A. G.

3. *Flora Australiensis: a Description of the Plants of the Australian Territory*; by GEORGE BENTHAM, F.R.S., P.L.S., assisted by FERDINAND MÜLLER, M.D., F.R.S. & L.S., Government Botanist, Melbourne, Victoria, vol. I. (*Ranunculaceæ* to *Anacardiaceæ*.) London: Reeve & Co.

¹ Address of George Bentham, Esq., President, read at the Anniversary Meeting of the Linnæan Society, May 25, 1863. Published at the request of the Fellows. It is mainly a critical review of the recent progress of biological (i. e. in its properest sense, physiological) science, and is in almost every respect well-considered and forcible. In referring to Professor Wyman's paper, in this Journal, on the production of Infusoria, Mr. Bentham, probably relying upon others, has failed to appreciate the thorough care, appositeness, and simplicity of his experiments,—which, as we judge, stand at an advantage over Pasteur's,—especially in the very point remarked on, viz: the degree of heat applied. This was not only considerably higher in some of Wyman's experiments than in Pasteur's, but must have been far more efficient, as it was not exposure to dry heat, but boiling.

1863, pp. 508, 8vo.—This is the first volume of another of those Floras of British Colonies, published under the authority of the Home Government, and in the present instance, we believe, mainly at the expense of the colonies concerned, upon a plan arranged by Sir Wm. Hooker, in connexion with Mr. Bentham and Dr. Hooker. The Flora of Hongkong, by Mr. Bentham, was the first of the series. This related to a very small district. The present embraces vast regions and a preëminently interesting and peculiar vegetation. So immense is this undertaking that, with all his vast resources and preparation, and all his courage and aptitude, we can hardly suppose that Mr. Bentham would have taken it in hand, were it not for the coöperation of his colleague in this work, Dr. Ferdinand Müller, who has already done so much for the Australian Flora. While we with pleasure see Dr. Müller's name upon the title-page of this work, it is satisfactory to find that his important aid is offered and secured without the drawbacks which are inseparable from joint authorship, except where the parties can literally work side by side. Mr. Bentham is here undividedly responsible for the execution of the present volume. He has assumed the task with alacrity, prosecuted it thus far with his wonted vigor, and, from his wonderful knack of carrying through to completion whatever he undertakes, we may confidently hope that the botanists of each and every Australian colony may within a few years have furnished to his hands a Flora as perfect for its purpose as is the Handbook of the British Flora itself.

The excellent Outlines of Botany with special reference to Local Floras, which was prepared originally for the Handbook of the British Flora, is prefixed to the present as well as to the Hongkong Flora, having undergone studied revision. We notice that the radicle, which in the first instance was spoken of as "the future root," is now called "the base of the future root,"—expressing no opinion as to its morphological nature. In the next Colonial Flora, however, we confidently expect that it will be called the primordial internode, upon the node, i. e. the summit, of which the cotyledons are inserted,—a view which obviously suggests itself to the morphologist, and which, as we suppose, may be demonstrated by its position, its growth, and its structure. We know of nothing which is true of the internode next above the cotyledons which is not also true of that below them. In the first edition of these Outlines, "all the pistils of a flower" are spoken of, and the word is used as Linnæus used it. But in the revision, the author falls back to the Tournefortian use. This is a question of terminology, upon which opinions may fairly be divided: but we side with Linnæus.

A. G.

4. *Notes on the Loranthaceæ, with a Synopsis of the Genera*; by DANIEL OLIVER, F.L.S., Professor of Botany, University College, London.—An important paper, read to the Linnæan Society in January last and recently printed in its *Journal*, No. 26. Prof. Oliver repudiates Mr. Miers' attempt to establish *Viscum* and its near allies as a separate order, wishes to unite *Santalaceæ* with the *Loranthaceæ*, and would even follow Baillon in adding the *Olacineæ*,—all of these clearly belonging to one natural group, the great divisions of which are kept apart mainly, it would seem, because of their wide separation in the Candolleian sequence of orders. Some genuine species of *Phoradendron* are found to have the