

VEGETABLE MONSTROSITIES

Vegetable Teratology: An Account of the Principal Deviations from the usual Construction of Plants. By Maxwell T. Masters, M.D., F.L.S. With numerous illustrations by E. M. Williams. (Published for the Ray Society. 1869.)

IN the volume before us we have the most complete account that has yet been given to the public of the various aberrant forms which are from time to time presented by the different organs of which plants are composed. Such investigations are no mere idle amusement for the leisure hours of naturalists, but have an important scientific bearing. Since botanists have attempted to arrange the vegetable kingdom in a classification possessing a higher

claim to the title of "natural" than that proposed by Linnaeus, it has been acknowledged that the true, though hidden, relationships of a genus may often be indicated by an abnormal or monstrous variety. A new interest has been given to these inquiries by the theory, now so generally adopted by naturalists, that affinity in structure is but an indication of consanguinity in descent; these exceptional forms or "sports" being regarded as frequently reversions to an ancestral type

of structure. Apart, however, from such modifications as are of importance in systematic botany, there are others which are noteworthy as throwing light on controverted

points in morphology, and on the relation to one another of the different organs. Among these are the exact morphological character of the carpel, viewed in the light of a metamorphosed leaf; and of the so-called "inferior" ovary, whether its covering is to be considered as a united calyx-tube, or as a modified continuation of the axis. The occasional substitution of one organ for another is carried to a far greater extent in the vegetable than ever appears, even occasionally, in the animal kingdom. As Dr. Masters remarks, the animal physiologist would regard as an incredible monstrosity the replacement of sperm-cells by germ-cells, or the converse; although these are comparable to abnormal growths, of which several are recorded, where ovules are borne by stamens, or pollen is produced inside ovules. The two wood-cuts which we give illustrate these remarkable transformations.

De Candolle was the first systematic botanist to draw attention to the importance

of *Vegetable Teratology*: he was followed by Moquin-Tandon, Morren, and others; and the great work of

Moquin-Tandon has been followed by Dr. Masters in the main in classifying the phenomena under discussion. This classification of an enormous number of isolated facts presents considerable difficulties. It might at first sight appear as if the most natural arrangement would be to arrange under one head all the known modes of malformation or aberration of each organ: but this plan would involve much repetition, from the frequency with which it happens that similar organs are abnormally affected in the same manner; as when the parts of the calyx and corolla are both unduly increased in number. The plan adopted by Dr. Masters, though very artificial, possesses the advantage of clearness and of easy reference. He divides the phenomena of Teratology into four sections: 1, Deviations from ordinary Arrangement; 2, Deviations from ordinary Form; 3, Deviations from ordinary Number; 4, Deviations from ordinary Size and Consistence; each with several subdivisions. Until we know more of the cause of these variations from ordinary structure, a more scientific classification would appear to be hopeless.

The work is essentially one of reference, a collection of facts rather than a statement of theories. An enormous number of instances, illustrative of every conceivable variation from normal structure, has been collected with unwearied assiduity from English and foreign records, and with that personal knowledge of the subject which few possess to so great a degree as the author. Where Dr. Masters so far strays from his subject as to enter into morphological questions, as when he discusses the irregular monandrous flower of Orchids, we are tempted to wish that he had permitted himself more digressions of the kind.

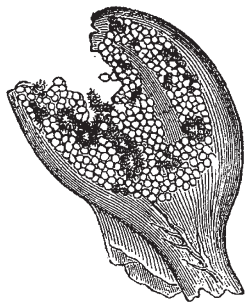
The text is illustrated by a large number of woodcuts, original and copied, which add greatly to the clearness of the descriptions; and not the least valuable portion of the work is the long list of references at the end of each section to papers and monographs bearing upon it, forming a complete bibliography of the subject. In the lists of plants which are mentioned as peculiarly subject to each description of malformation, we could wish that more care had been taken not to designate the same plant by more than one scientific name, a practice confusing to the student. We also regret that in some instances recognised botanical terminology has been departed from; as in the distinction drawn by Lindley and Oliver between "regularity" and "symmetry." These, however, are but minor defects in a work which we can cordially recommend to all students of botany, who are interested in the real structure of the various organs of plants.

A. W. BENNETT

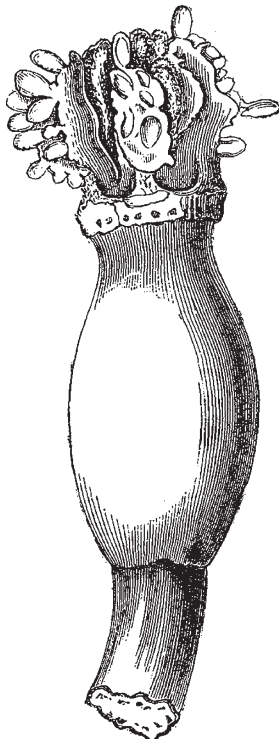
ATTFIELD'S CHEMISTRY

Chemistry: General, Medical, and Pharmaceutical, including the Chemistry of the British Pharmacopœia. By John Attfield, Ph.D., F.C.S. 1 vol. pp. 624. (London: Van Voorst.)

THIS book is mainly intended to supply the want of a manual more expressly suited to the requirements of students of medicine and of pharmacy. A work of this nature necessarily differs in many particulars from the ordinary run of chemical manuals, and it would be unjust, therefore, to judge of it altogether by the standards generally employed in determining the degree of excellence of such books. It is obviously impossible for the medical student to make himself acquainted with the multitude of organic compounds known, the greater portion of which are simply interesting to the scientific chemist on account of the theoretical opinions based on them; and hence it would manifestly be absurd to censure the author of this book for the fact that much of what constitutes modern



Pollen within Ovule of Passiflora



Ovule-bearing Anther of Cucurbita