Literature.

NEW BOOKS AND NEW EDITIONS.

To prove that the Darwinian theory (1) is a good *working hypothesis*, it is only necessary to point to the fact that every great advance made during the last years in biological science has confessedly been the result of investigations carried out more or less under its influence; nor is this to be wondered at any more than that astronomy should have received its impetus from the discovery of the telescope or the study of minute life from the application of the microscope, the theory being simply an instrument by means of which observers men are better able than any former one to explain large and exceedingly diverse groups of facts. Darwinism is applicable to all life, whether found in the trunk of a tree or in the body of an animal, and his investigations have led him as often into the vegetable as into the animal kingdom, the results obtained in the former being equally curious and suggestive, although lacking somewhat in the personal interest attaching to those known from the latter. In the different sexes in forms of flowers on plants of the same species is mainly dependent on differences in their sexual relations, these being much more complicated in plants than in animals. Thus we find in many species of plants, in both male and female, or *hermaphrodite*, as it is called; in some it is either male or female, both sexes occurring on the same plant, while in others the sexes are all on one individual of a species, and all female on another of the same species, while there is still another way known as polygamous, in which all the above forms occur; thus in the ash trees growing in the same field, Darwin found that 8 produced male flowers alone, 6 produced only female flowers, and 4 were hermaphrodites, the last having a different aspect when in flower from the others. Again, in many genera of plants the inflorescence consists of three kinds of flowers—the one showy and large and conspicuous but sterile, those immediately behind smaller but open, fairly fertile, and capable of cross-fertilisation, with the centre flowers still smaller, entirely or almost entirely fertile, and only capable of self-fertilisation. In such cases the outer flowers, according to Darwin, are evidently in order to attract insects whose visits are necessary for the fertilisation of the inner flowers. What those varieties in the forms of flowers are, the purposes they serve, and how they have been produced, are the topics chiefly discussed in the present, and these are treated with a wealth of information which reviews in the reader only a moderate acquaintance with the subject, and which is in order fully to understand them. The chapters dealing with the heterostyled forms of hermaphrodite species, which Darwin was the first to observe and describe correctly, are the most striking, full and clear, and their perusal must fill the reader with astonishment at the wonderful diversity of the contrivances provided to ensure the cross fertilisation of plants. These heterostyled forms have also supplied the author with an answer to those who maintain the fixity of species merely because the offspring of a cross between distinct species are sterile. In these flowers the sexual elements of the same species may come together in a great many ways, all of which would be quite very legitimate fertilisation in animals, but it is only in a few of these, known as legitimate unions, that the seeds are fertile. "Naturalists," says Darwin, "are so much accustomed to the high grade of sterility of structure associated with the two sexes, that they feel no surprise at almost any amount of difference; but differences in sexual nature have been thought to be the very foundation of specific distinction. We now see that such *sexual differences*—the greater or less power of fertilising and being fertilised—may characterise the co-existing individuals of the same species in the same manner as they characterise, and have kept separate, those groups of individuals produced during a long series of ages which we rank and denominate as distinct species.