mediate in character between scion and stock. The graft-hybrid is generally sterile, and therefore is usually kept going by grafting. On the rare occasions when seed is set it produces normal yellow laburnum.

In the account given by McFarlane in the Transactions of the Royal Society of Edinburgh for 1892 the suggestion was made that the distribution of characters is such that the graft-hybrid consists apparently of a core of laburnum wrapped in a skin of Cytisus. This supposition has been confirmed in the more recent production of graft-hybrids by grafting common nightshade on the stem of a tomato and *vice versa*. In all cases the stock would appear to furnish the core and the scion the epidermal tissues of the "hybrid."

This simple explanation, however, does not appear to cover fully the graft-hybrids between medlar and hawthorn obtained by Prof. Daniel, in one case of which, at any rate, tissues were present which differed from those of either parent.

In general, therefore, graft-hybrids represent shoots produced adventitiously near the point of grafting and containing representation of the tissues of both plants, in many cases, *e.g. Cytisus Adami*, so arranged that the external tissues resembled those of the scion and the internal those of the stock. There were, however, instances—*e.g.* quince and pear—in which an intimate mixture of the characters of stock and scion appeared in the graft-hybrid which *may* have been accompanied by vegetative union of the cells, but no clear case of this cytological process had yet been established.

The whole phenomenon of graft-hybrids requires further investigation, particularly in relation to cases in which the "hybrid" is said to occur on the scion far removed from the point of grafting, which may turn out to be instances of bud variation, possibly with reversion.

## Fauna of African Lakes.

DR. W. A. CUNNINGTON, leader of the third Tanganyika Expedition (1904–5), has contributed to the Proceedings of the Zoological Society of London (December, 1920), a comparative study of the fauna of the African lakes—Tanganyika, Victoria Nyanza, Nyasa, Albert Nyanza, Edward Nyanza, and Kivu, with special reference to the first-named. The results of recent investigation, admirably summarised in this memoir, lend no support to the view put forward in 1898 by Mr. J. E. S. Moore, leader of the first and second expeditions, that Tanganyika represents an old Jurassic sea, and that its fauna is of relict nature. Of the six lakes, Tanganyika has by far the most remarkable fauna—of its 402 species 293 are endemic, and 57 of its 168 genera are peculiar to its waters; of the 146 species of fishes 121 are endemic, and a notable feature is the high degree of specialisation of the Cichlidæ, the lake presenting the richest known assemblage of this family. There is a large molluscan fauna, and of the species of gastropods more than two-thirds—the halolimnic forms (Moore)—exhibit a marine-like appearance, and these are, without exception, endemic. Noteworthy is the absence of Cladocera, and the relative scarcity of rotifers, which may be correlated with the salinity of the water, and especially with the excess of magnesium salts. Dr. Cunnington points out that geological investigation indicates that the extensive beds of sandstone and conglomerate which occur in the lake regions were probably formed under fresh-water and terrestrial conditions, that the trough in which Tanganyika lies was apparently not formed until middle tertiary times, and that the lake had no outlet until recent geological times. Experts have not accepted Moore's comparison of shells from the lake with marine fossil shells of Jurassic age, or his views as to the primitive nature of the halolimnic gastropods. The endemic species in the fauna of Tanganyika are now held to be specialised rather than primitive. The conclusion reached is that Tanganyika owes its remarkable fauna to a long period of isolation, sufficiently extensive for the inhabitants of the lake to assume the characters of species and even genera distinct from those of the neighbouring parts of the continent.

## University and Educational Intelligence.

IN connection with the Conference of Educational Associations which is being held at University College, Gower Street, W.C.1, the annual general meeting of the Education Guild of Great Britain and Ireland took place on December 30. The president of the guild, Sir Wilmot Herringham, delivered the presidential address, taking university education as his topic. He commented on the lack of interest in university education shown by the majority of people, and emphasised the value of the inclusion of natural sciences in a general education as a training in inductive reasoning. There is also material gain by the training of a number of skilled practitioners in chemistry, physics, engineering, medicine, etc., but the most important function of the university is discovery. Taking examples from medical science only, gas gangrene, surgical shock, and the effects of poison gas were mentioned as specific problems arising during the war in which investigations were undertaken with success in university laboratories. Another interesting fact mentioned was that between 1838 and 1851 out of every million people born in Great Britain 500,000 died before the age of forty-five years; in 1881 that age had risen to forty-eight; and by 1891 it was fifty-two years—an increase in average life due, at any rate in part, to research and discovery accomplished by men of science working in the laboratories of our universities.

ACCORDING to the December issue of the *School Science Review*, the representatives of the Science Masters' Association met the Joint Standing Committee of the Headmasters' Conference and Association of Preparatory Schools in June last and made certain suggestions for the teaching of science in preparatory schools. As a result it was recommended that (1) in the Common Entrance Examination the scope of the geography paper be widened, that some of the questions in the mathematical paper should test a boy's knowledge of practical mathematics, and that in the composition paper candidates should have an opportunity of showing a knowledge of natural science; (2) candidates for scholarships should be given an opportunity of answering questions on natural science in a *viva voce* examination as well as in the general paper; and (3) at least one, and if possible two, periods a week should be devoted in preparatory schools to science. The council of the Association of Preparatory Schools was at first unwilling to adopt any of these proposals, but after they had been approved by the Headmasters' Conference the council of the Association of Preparatory Schools agreed to them by 12 votes to 3. When this decision is carried into effect boys in preparatory schools will have an opportunity of gaining some knowledge of science at an age when all natural phenomena are of absorbing interest to them—a privilege boys in secondary schools have enjoyed for some time.