

Non-Amphibious Batrachians

ON calling the attention of the Rev. L. Blomefield (formerly Jenyns) to the interesting article in *NATURE* (vol. xv. p. 491) of a tree-frog which produced its young without their passing through the tadpole stage, he has been good enough to allow me to quote a MS. note to his work, "Observations on Natural History," p. 203, which may be useful to persons interested in the matter. It refers to a colony of toads which lived in a cellar of Bottisham Hall, Cambs, and without access to water. It runs as follows:—

"See some remarks by Mr. Lowe in the *Annals and Magazine of Natural History* (No. 64, April, 1853, p. 341), tending to show that under certain circumstances where the parent animals have no access to water, the reproduction of the toad and frog takes place without the intermediate stage of tadpole. He mentions instances of their depositing spawn in cellars and young toads being afterwards observed. Such was probably the case with the toads in the cellars of Bottisham Hall, though I never observed the spawn myself." "See further remarks by myself on this subject in *Annals of Natural History*, vol. xi. 2nd series, p. 482. See also *NATURE*, vol. vii. p. 401, on 'The Adaptation of Animals to External Conditions.'"

The following passage occurs in the Rev. L. Jenyns's "Manual of British Vertebrate Animals," p. 304-5, and bears upon the same phenomenon.

"*Triton punctatus*, Common Eft.

"This species is subject to considerable variation. It is also found on land, a circumstance which tends in some degree to alter its characters. In such specimens the skin loses its softness becoming opaque, and somewhat corrugated. The membranes of the back and tail entirely disappear, causing this last to appear narrower and thicker in proportion to its depth. The toes from being flattened become rounded; the colours are also everywhere more obscure. In this state it is the *Lacerta vulgaris* of Sheppard and Turton, and considered as a distinct species by these and other authors. I am, however, perfectly satisfied that it is identical with the aquatic kind, and that all its peculiarities may be traced to the change of circumstances under which it is placed. . . . I suspect that the period of time during which this species remains in the larva state is subject to much variation, and that if anything occur to oblige the young to exchange their native element for another before they would attain their perfect form, the gills are cast prematurely to enable the animal to accommodate itself to its new circumstances. The fact of such small specimens as Sheppard has noticed being found on land is indisputable, but I think I have generally observed some traces of there having been gills at no very long period before."

GEORGE HENSLOW

Morphology of "Selaginella"

IN consequence of my not having expressed myself sufficiently fully, Prof. Thiselton Dyer somewhat misapprehends my remarks respecting *Selaginella* and *Carex*, to which he is good enough to reply in *NATURE* (vol. xv. p. 489); and I shall be glad of an opportunity of explaining the nature of the comparison that I drew between the reproductive organs in these two genera.

I purposely avoided asserting that the spike of the one was the "homologue" of that of the other; and I thought that my change of expression—"instead of regarding . . . as the homologue . . . we compare it"—would sufficiently indicate that I was not raising the question of exact homology at all; but merely comparing the male and female structures of *Selaginella* (each as a whole) with those of a unisexual-flowering plant. I regret that I did not state this in explicit terms.

Notwithstanding what has been written by Sachs and others, it appeared to me that the homology between the reproductive organs of Cryptogams and Phanerogams could not be regarded as yet so completely settled as to be past doubt; and I therefore wished to exclude, as not material to the line of argument I had in view, such questions as to homology as Prof. Thiselton Dyer brings forward. He considers that the ovule, and not the ovary, is the equivalent of the macrosporangium. I did not wish, even by implication, either to assert or to deny this fact, and it does not affect my comparison in the least, for the female structure of *Carex* comprises of course an ovule. He further considers that this leaves the ovary unaccounted for; and not only so, but the perigynium and seta also. The essential part of a female flower is the ovule, which may be naked as in Gymnosperms; and the surroundings, whether consisting of an open carpellary leaf, an ovary, hypogynous scales, corolla, calyx, perigynium, or

seta are accessories, and any of them may be absent. A comparison may surely be made between the female flower of a conifer (as a whole) with the much more complex one of a diclinous polypetalous plant, without being vitiated by the fact that parts of the latter are unaccounted for; and I thought, and with due respect still venture to think, that the macrosporangium of *Selaginella* with its covering scale, and the female flower of *Carex* with its covering glume, may properly be regarded as comparable.

Prof. Thiselton Dyer had compared the sporangia of *Selaginella* with the male and female elements of a single hermaphrodite flower, reversing their relative position on the axis; and my object was to show that, as each sporangium had its own "lateral appendage," they might be equally compared with the male and female elements in the separate unisexual flowers of a diclinous plant, without reversing their position on the axis. It was quite unnecessary for me to discuss which particular parts of the phanerogamic flower were the exact homologues of the macro- or micro-sporangia of the cryptogam; and I did not intend to express any opinion on that subject.

I thank Prof. Thiselton Dyer for drawing my attention to his paper on *C. pulicaris*, which, however, I have already had the pleasure of perusing; for I read everything written by him to which I have access; and I can assure him that, as a non-professional myself, I always receive his opinions with the respect that is their due, although in the present instance I cannot adopt his view as to the hermaphroditism of the primordial flower. That subject is, I think, sufficiently important to be discussed by abler pens than mine; and it was in the hope that it would receive the attention that it deserves, that I ventured to point out the diametrically opposite views that had been expressed by high authorities.

THOMAS COMBER

Newton le Willows, April 11

The Rocks of Charnwood Forest

THE announcement by Messrs. Bonney and Hill (*NATURE*, vol. xv. p. 470), of their discovery of the intrusive character of the ridge of rock, stretching from Groby on the south-east to Bardon Hill on the north-west, is a surprise to local geologists, they having recognised its intrusive character for the last quarter of a century.

The rocks constituting the "ridge" are called by different names—sienite, sienitic greenstone, greenstone, &c., according to the greater or less degree of crystallisation of the components, and the abundance, or scarcity, of some of them. Its intrusive character is very obvious. First we have Cambrian Rocks on both sides (east and west) of the "ridge," and at places near Groby these Cambrian rocks are less than half a mile apart. Second, the effect of the intrusion in breaking up the formerly overlying beds, is well seen near Markfield, where there are several low hills called the "Alter Stones;" these consist almost entirely of broken up fragments of unaltered Cambrian rocks embedded in a grey, coarse, felspathic base, the fragments forming more than two-thirds of the mass; similar beds occur beyond Bardon Hill, but the quantity of embedded fragments is not so great, but pieces are found eight to ten inches square quite unaltered, and showing the "ribbed" structure, red, purple, and green bands, so characteristic of the Cambrian rock of this area. Over other parts of this "igneous ridge" the broken and disturbed beds have long since been removed by denudation, but the debris is found in the "drift," which stretches far and wide for miles over the surrounding country. I think both Mr. Howell of the "Survey," who plotted this district, and Prof. Hull who did the adjoining one, recognised the intrusive character of the igneous rocks on the west side of Charnwood Forest. Many other facts bearing on this subject are known, but cannot be described in this short note. Any new facts discovered by Messrs. Bonney and Hill, in illustration of this matter, will be gladly received by local geologists.

Leicester

JAMES PLANT

Patenas of Ceylon

I do not think Mr. Abbay's suggestion of a possible cause of the origin of the Ceylon patenas will be found to hold good to the extent he believes it will. On the *Dimbula* patenas rock of any kind is very scarce, even if you go several feet down, and where it does occur, it is, to the best of my recollection, almost always gneiss. On the patena on my property it is certainly so throughout. In part of the Ouvah patena district, mentioned by