

These conclusions are founded upon imperfect and erroneous data that might have been avoided by consulting the papers on Scottish Nudibranchiata in the first volume of this Journal. Dr. Johnston there institutes the genus *Triopa* for the *Doris clavigera* of Müller, but while taking this species for his type he acknowledges that he has characterized the genus rather loosely on purpose to include in it another animal not very perfectly understood, which I have since suggested may be the young of a *Polycera*. Now from this circumstance it does not necessarily follow that *Triopa clavigera* is also a *Polycera*. In calling the latter species an *Euplocamus*, Professor Forbes followed the opinion of Dr. Philippi himself, who in describing the genus (Enum. Moll. Siciliæ, vol. i. p. 104) says, "Altera hujus generis species est *Doris clavigera*, O. Fr. Müller, Zool. Danica," thus referring to his genus a species without lateral branchiæ; and he has since united this genus with *Idalia*, Leuck., in which lateral branchiæ are also wanting.

If, as Dr. Philippi states, and I am inclined to believe, the typical *Euplocami* have lateral branchiæ, it is an interesting circumstance, as it will be the only genus in which the two kinds of branchiæ are known to exist in the same animal.

On this view of the subject, I should propose that the genus *Euplocamus* be retained for *E. croceus* and *E. ramosus*, and that *Doris clavigera*, Müll., be considered the type of the genus *Triopa*, to which may perhaps be added *Doris fimbriata* and *D. lacera* of the same author.

Idalia cerrhigera and *I. laciniosa* are very properly placed in the genus of Leuckart.

XXXVIII.—On the Occurrence of *Phytozoa in Phanerogamous Plants*. By Dr. A. GRISEBACH*.

THE observation recently published by Nägeli, that the tailed globules which occur in the antheridia of mosses are likewise found in organs possessing a similar structure on the germ-leaf of ferns, excited my interest, the more so as in this case it is requisite to abstract these globules entirely from any connexion with the production of spores or with any process analogous to impregnation in animals. I examined these organs first on a germinating *Adiantum concinnum*, Kth., and had occasion to confirm Nägeli's discovery in every essential point. I will here mention the remarkable phænomenon, that in *Adiantum* these organs, which, to prevent any comparison with the anthers, I have called *Corynidia*,

* From the Botanische Zeitung, Sept. 20, 1844. Translated by W. Francis, F.L.S.

are not situated on the surface of the germinating leaf, but sunk into its margin. Its position therefore as regards other ferns is exactly in the same relation as the development of the spores on the frond, which in general are situated on the surface, but in *Adiantum* are on the margin. Now although in this case the corynidia by no means project freely from the cellular tissue of the germ-leaf, there will be seen, just as in all other cases, an outer layer of cells, differing in the present instance by the absence of chlorophylle globules from the other adjacent cells, and leaving the inner sac in which the minute free cells occur, every one of which encloses a phytozoon. The structure therefore is perfectly similar to the antheridia of mosses, and I have found it precisely as described by Nägeli: the same with respect to the form of the phytozoa, but not the motions, which I am not able to distinguish from inorganic molecular motions.

The occurrence of phytozoa in decidedly vegetative parts of plants increased my hope of detecting them in Phanerogamia. I had frequently observed, in the investigation of leaf-buds, masses of black particles in the drop of water on the glass stage, which exhibited on being magnified 200 times a very lively molecular motion. Their origin was unknown to me, but on recently observing them again in the buds of *Rhamnus infectoria* and *pumila*, I immediately observed most distinctly with a magnifying power of 410 that they were phytozoa accurately agreeing with those in ferns. Like them they consist of long-tailed globules which are individually inclosed in a very minute spherical cell, or swim freely about in the water, oscillate in a lively manner, and sometimes move the tail. Since there was no doubt of the identity of this phænomenon, it now only remained to see whence these globules were derived. The place where the corynidia are situated was soon found, and it now became evident that exactly the same apparatus occurs here as in the ferns and mosses. In the *Rhamneæ* the stipules are formed very early, and we consequently find, even in the youngest parts of the leaf-bud, each leaf inclosed between two membranous stipules projecting beyond it and arising from a common basilar membrane: this, it may be observed *en passant*, is an argument in favour of Robert Brown's view that the *Rhamneæ* should be placed near the *Malvaceæ*, which exhibit the same development of stipules, while the *Celastrineæ*, as I find at least in *Euonymus*, form their teguments from leaves and only obtain stipules very late. At the basis of the two stipules in *Rhamnus*, on the upper surface, is situated a group of clavate bodies, which agree perfectly in their structure with the corynidia of ferns and mosses, and like these, the phytozotic cells discharge their contents by endosmosis. This phænomenon is *quite common* in leaf-buds with dormant vegetation. Where no stipules exist,

they may sometimes be situated on the leaves themselves. Guettard's clavate glands appear to belong here. The object of the corynidia with their phytozoa seems to be rendered only more mysterious by their frequent occurrence in Phanerogamia.

XXXIX.—*On the Rats, Mice, and Shrews of the Central Region of Nepal.* By B. H. HODGSON, Esq., late British Resident at Nepal.

THE Rats and Mice of the mountains of Nepal are as numerous and troublesome both in house and field as they are in Europe. Their forms are, in general, typical of the genus as now restricted, and the most common species are closely related to those most frequently met with in Europe; nor are there in the mountains any of the Jumping Rats (*Gerbillus*) or other types more especially characteristic of the plains of India, though we have the singular Bamboo Rats of China, Indo-China and the islands, being one instance of many in which our fauna inclines rather to China than India. With these few words of introduction I proceed to a summary description of the several species, which are eighteen in number, viz. eleven rats and seven mice, to which we will add the shrews, four in number.

RATS.

1. *Mus nemorivagus*, mihi.—A very large species, closely affined to the bandicoot, if not identical with it. It is much rarer in the mountains than in the plains, and is a house-, not wood-rat, as I had supposed. General structure typical, but distinguished by a præputial gland furnished with two pores, one placed on either side, the penis close to its point, and whence is emitted a quantity of thick yellow pus-like secretion of very offensive odour. I have not noticed this organ in the other rats. General colour very dark, brown-black above, hoary blue below; the limbs dark; the fingers only pale. Long piles very abundant and lengthened, but not rigid. Tail shorter than the body and head, nude and annularly scaled as usual. Snout to rump 12 inches; tail $9\frac{1}{2}$; head $2\frac{3}{4}$; ears $1\frac{1}{4}$; palma with nail 1; planta $1\frac{7}{8}$; weight 17 to 20 oz.

2. *Mus brunneus*, mihi? Common House-Rat of Nepal.—As nearly allied to *decumanus* as the last to the bandicoot. Above rusty brown; below rusty, more or less albescent. Extremities pale; fleshy white nearly. Tail barely longer than the head and body. Long piles sufficiently numerous, but not rigid. Snout to vent $9\frac{1}{4}$ inches; tail $9\frac{1}{2}$; head $2\frac{1}{4}$; ear 1; palma $\frac{7}{8}$; planta $1\frac{5}{8}$; weight 12 to 15 oz.



Grisebach, A. 1845. "XXXVIII.—On the occurrence of phytozoa in phanerogamous plants." *The Annals and magazine of natural history; zoology, botany, and geology* 15, 264–266. <https://doi.org/10.1080/037454809495314>.

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