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Quod si cui mortalium cordi et curæ sit non tantum inventis hæerere, atque iis uti, sed ad ulteriora  
petrare; atque non disputando adversarium, sed opere naturam vincere; denique non belle et probabiliter  
nari, sed certo et ostensive scire; tales, tanquam veri scientiarum filii, nobis (si videbitur) se adjungant  
*Novum Organum, Præfatio.*

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PART THE FIRST.

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SOLD ALSO AT THE APARTMENTS OF THE SOCIETY.

MDCCCLXVI.



NOTE on a NEW SPECIES of RANINA (*R. porifera*) from the TERTIARY STRATA of TRINIDAD. By HENRY WOODWARD, F.G.S., F.Z.S.

A SPECIMEN of a Crustacean placed in my hands for examination by my friend Mr. R. Lechmere Guppy, from the Tertiary formation of Trinidad, proves to be a portion of the dorsal surface of the carapace of a Brachyurous Decapod—nearly approaching the *Anomura*—belonging to the subsection *Notopoda* and the genus *Ranina*.

The species of this genus (which was established by Lamarck in 1801) are not only most singular in form, but they are of special interest to the palæontologist as occurring in the Nummulitic Limestone of Bavaria, Austria and Italy, Asia Minor, Scinde, and the West Indies (Trinidad), and also in the Oligocene of Germany and the Miocene of Turin. Nor has the genus now disappeared; for at the present day it is represented by the *Ranina dentata* of Latreille, which is found living in the Sandwich Islands, the Moluccas, the Mauritius, and Japan (De Haan, Siebold's 'Fauna Japonica,' 1833, p. 139, t. 34 & 35), whilst a nearly allied genus, the *Raninoides*, Edw., is found living in the Philippine Islands and Trinidad, having been collected in this latter locality by Mr. Guppy.

The following is the list of all the species known to the author:—

RANINA

1. *Aldrovandi*, Ranz (Mem. di Storia nat. Dec. 1, 1820, p. 73, t. 5).  
Lower Eocene Nummulitic formation. Kressenberg, Valdenega, and Madugi d'Auzago.
2. *Tchihatcheffi*, d'Arch. (Progr. de la Géol. iii. p. 303).  
Nummulitic formation. Asia Minor.
3. *Marestiana*, König (p. 20, taf. 5. fig. 1, 2).  
Nummulitic formation. Kressenberg and environs of Verona.
4. *Haszlsinskyi*, Reuss (Foss. Krabben, p. 22, t. 4. f. 4, 5).  
Upper Eocene? Eperies, Hungary.
5. *speciosa*, Münster, sp. (Münst. Beit. zur Petrefact. iii. p. 24, t. 2. f. 1-3).  
Oligocene. Bünde.
6. *oblonga*, Münster, sp. (l. c. p. 24, t. 2. f. 4).  
Oligocene. Ebenda.
7. *palmea*, Sismonda (Acad. Leop. Crost. Foss. Piemonte, t. 3. f. 1).  
Miocene. Colle di Torino.
8. sp. (Reuss, Foss. Krabben, p. 21, t. 5. f. 3, 4).  
Nummulitic. Environs of Vicenza.
9. sp. Nummulitic formation. Kurachee, Scinde. Collected by Major W. E. Baker. (In British Museum.)
10. *porifera*, H. W. Tertiary. Trinidad. R. L. Guppy, Esq.
11. *dentata*, Latr. (De Haan, 'Fauna Japonica,' 1833, p. 139, t. 34 & 35).  
Living. Japan, &c.

The *Raninæ* are all burrowing forms of Crustacea, living for the most part in deep water, buried in sand or mud, for digging in which their limbs are most admirably adapted.

Unfortunately none of the appendages are preserved in the specimen under consideration; but all the species of this genus are curiously sculptured upon the dorsal surface of their carapaces, and this ornamentation is extremely characteristic of the group. It consists of irregular transverse pectinated ridges, sometimes interspersed with small punctations, the ridges being more or less curved and intercalating with one another.



In Prof. Reuss's work (Foss. Krabben der k.-k. Akad. der Wissenschaften, Wien) these peculiarities are very well shown; but neither in these nor in the various specimens which I have been able to examine can I detect the same ornamentation as that observable in the *Ranina* from Trinidad.

Each minute point forming the pectinated border to the several ridges has a small indented pit near its extremity, which has suggested the specific name *porifera* (see Plate XXVI. fig. 18). It is to be hoped, however, that more perfect specimens will reward the zealous labours of Mr. Guppy, as the determination of species upon the evidence of a single fragment, offering such meagre characters as the one now noticed, is by no means safe, except in very peculiar and well-marked forms, such as the species of the genus *Ranina*.

With regard to the species nos. 8 and 9 in my list, I am inclined to consider that figured by Prof. Reuss from the Nummulitic formation of Vicenza and the specimens brought over by Major Baker from Scinde (and now preserved in the British Museum) to be identical.

The pectination is coarser and stronger than in *Ranina porifera*, and there are no indented pits at the extremities of the teeth forming the transverse serrations on the surface of the carapace.

I beg, therefore, to propose for these specimens the specific name of *Ranina Reussii*, in honour of the distinguished Austrian palæontologist who has figured it in his work.

NOTE on the ORBITOIDES and NUMMULINÆ of the TERTIARY ASPHALTIC BED, TRINIDAD. By Professor T. RUPERT JONES, F.G.S.

THE asphaltic rock yielding *Orbitoides* and *Nummulinæ* in abundance is described in the 'Report on the Geology of Trinidad' (1860, p. 37), by Messrs. Wall and Sawkins, as a highly inclined bed of bituminous shelly marl, protruding on the coast at San Fernando, on the west side of the island, and forming part of the "Naripima Marl," in the "Newer Parian Group," regarded as being probably Miocene, whilst the "Older Parian," on which it rests, is Neocomian in age.

In 1863 Mr. R. L. Guppy read a paper descriptive of this peculiar stratum before the "Scientific Association" in Trinidad, pointing out that its shelly contents are *Orbitoides* and *Nummulites*, the former predominating; and he suggested that in all probability they would be found to be of the same species as those referred to in my "Note on the Nummulinæ and Orbitoides of Jamaica" (Quart. Journ. Geol. Soc. vol. xix. p. 514). This opinion is confirmed by a careful examination of specimens of the asphaltic stratum, with which Mr. Guppy has favoured me.

Boiled several times in turpentine, this rock loses its bitumen, and resolves itself into loose *Orbitoides* and *Nummulinæ*, with a few other Foraminifera, and (when cleaned by acid) a small proportion of green-black sand and very few rounded grains of quartz. On the weathered surfaces of the rock, and in pieces carefully burnt, many perfect *Orbitoides* may be recognized; and probably throughout the