wards the periphery of the colony, where they are 2 millim. in long diameter (exclusive of verrucæ), being flattened at this point.

Cortex compact, from ·5 millim. thick on stem, to ·25 millim. on apical portions of branches; surface minutely ridged longitudinally; no longitudinal grooves. Verrucæ prominent, 1 to 2 millim. apart, truncate-conical, 2 millim. long by ·75 millim. in apical diameter, flexible, and apt to become flattened at their external halves; equally distributed over stem and lower parts of branches, but towards free ends becoming almost confined to the lateral surfaces. Axis hard, smooth.

Spicules of cortex of one kind, viz. (i.) double-headed forms with very narrow bare median space, the heads being covered with about three series each of small smooth rounded tubercles; size ·106 by ·062 millim. Spicules of verrucæ of two kinds, viz.:— (ii.) cylindrical, rather blunt, tuberculate, with numerous small rounded tubercles irregularly scattered all over, size ·123 by ·044 millim.; (iii.) fusiform, pointed at ends, with slight median bare space, and on each side of this about four whorls of tubercles like those of nos. i. and ii.; size ·142 by ·044 millim. Colour pure white, that of axis yellowish brown.

Hab. Mauritius, 90 fathoms (coll. Brit. Mus.).

The very fine and perfect single specimen was collected by Mr. V. de Robillard at Mauritius; it is 20 inches (500 millim.) in maximum height, 15 inches (375 millim.) in maximum lateral expansion of branches.

Obs. The very long verrucæ appear to distinguish this from all, and the peculiar mode of branching from most, *Verrucellæ*; in the latter point it resembles *V. granifera*, Kölliker (Icon. Histiol. p. 140, pl. xix. fig. 4), the spicule figured by that author being of similar character to, though more pointed than, no. ii., described above; but the verrucæ of that species are described as but slightly prominent and the cœnenchyma as yellowish brown; it is recorded as from the coast of Africa. I do not feel sure what ought to be the name of the genus; Kölliker seems to have based his genus on the later rather than the earlier species of Milne-Edwards and Haime's genus.

XXIII.—*Note on a Freshwater Macrurous Crustacean from Japan* (Atyephyra? compressa, *De Haan*?). By Edward J. Miers, F.L.S., F.Z.S.

The specimens which are the subject of this note were sent to the British Museum by my friend Dr. P. Mayer, of Naples, with the request that I should determine the species. They

were collected by an American gentleman, Dr. Whitman, who describes them as occurring very abundantly in freshwater (not brackish) ponds and ditches in the vicinity of Tokio, Japan. Their embryology and development, I am informed, is being studied by Mr. Ishikawa, of the University of Tokio.

These specimens I find upon examination to be very probably identical with the species long ago described by De Haan * as *Ephyra? compressa*, which von Martens† refers to the genus *Atyephyra*, Brito-Capello. As the specimens before me differ in some particulars from the published descriptions, I have thought it useful to place on record the few following notes, which were made while endeavouring to determine the species.

Atyephyra compressa has been hitherto a *desideratum* to the British Museum; nor have we at present in the national collection any specimens of the genera to which it is apparently most nearly allied—*Troglocaris*, Dormitzer, and *Miersia*, Kingsley (=*Ephyra*, Roux). My observations, which refer only to the external characters proper for distinguishing the genera and species, will, I trust, in no way interfere with, but merely supplement Mr. Ishikawa's work, which will, I believe, ere long be published.

Atyephyra compressa differs from the Portuguese species, *Atyephyra rosiana*, on which Brito-Capello founded the genus *Atyephyra* ‡, in that the palpiform appendages articulated with the bases of the thoracic limbs (exopodites) are wanting to the three posterior pairs in *A. rosiana*, and the palm or penultimate joint in the first and second legs is somewhat excavated at its proximal end. I have not either the time or material necessary for a comparative study of the genera of Atyidæ; but I think it probable that the presence of these palpi upon all the thoracic limbs in the Japanese species may be a character sufficient to separate it generically, when I would propose to designate it *Paratya*. There are specimens in the collection of the British Museum from a freshwater stream near Cintra, presented by the Rev. A. E. Eaton, that I refer to *Atyephyra rosiana*, which only differ from Brito-Capello's specific description in having the

* In von Siebold's 'Fauna Japonica,' Crustacea, p. 186, pl. xlvi. fig. 7 (1849).

† Archiv f. Naturgeschichte, xxxiv. p. 51, pl. i. fig. 4 (1868).

‡ "Descripção de algunas especies de Crustaceos, &c.," in Mem. Ac. Sci. Lisboa, iv. p. 61, pl. i. fig. 1 (1867).

terminal postabdominal segment not acute, but somewhat rounded at its distal extremity; the number of rostral teeth (in five specimens) varies between $\frac{26}{4}$ and $\frac{33}{7}$.

I may be allowed to point out, moreover, that the presence of these palpiform appendages (exopodites) both in *Atyephyra* and the nearly allied genus, *Troglocaris*, Dormitzer *, which inhabits caves in Carinthia, necessitates the removal of these genera from the subfamily Atyinæ to the Ephyrinæ, as characterized by Mr. Kingsley in his very useful synopsis of the genera of Crangonidæ, Atyidæ, and Palæmonidæ †.

Troglocaris differs from *Atyephyra* in its rudimentary eyes and in the more largely dilated penultimate joints of the thoracic limbs; *Miersia* (*Ephyra*) has a marine habitat, and, as von Martens has shown, is distinguished by possessing a mandibular palpus ‡, by the position of the inferior lateral spine of the carapace, the carinated postabdomen, and by other characters.

As regards specific distinctions, the specimens received from Tokio differ from De Haan's original description of *A. compressa* in having the rostrum armed with fewer teeth on the upper and lower margins, and the postabdominal appendages biramose, not simple, as stated by De Haan. In the figure in the 'Fauna Japonica,' however, they are represented as biramose; so possibly De Haan's description is after all incorrect as regards this particular. With regard to the dentition of the rostrum, De Haan says that the upper margin has twenty to twenty-four teeth, and the lower margin four teeth; the largest number of rostral teeth in any specimen I have examined is $\frac{14}{2}$ and $\frac{13}{3}$; this, however, is a very variable character, since scarcely two specimens out of fifteen examined by me were found to agree exactly in this particular; in one there were only $\frac{7}{2}$ teeth. Von Martens figures an example with $\frac{8}{2}$ teeth. There can, I think, be no doubt of the specific identity of his specimens (which were obtained at Yokohama) with ours; but it remains for naturalists working in the country and with larger material to determine whether this species be indeed the *Atyephyra? compressa* (De Haan) or a distinct but closely allied form.

* Lotos, iii. p. 85, pl. iii. (1853).

† Proc. Acad. Nat. Sci. Philad. p. 415 (1879).

‡ Mr. Kingsley's diagnosis of his family Atyidæ needs emendation as regards this character.