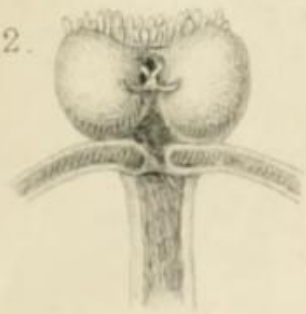

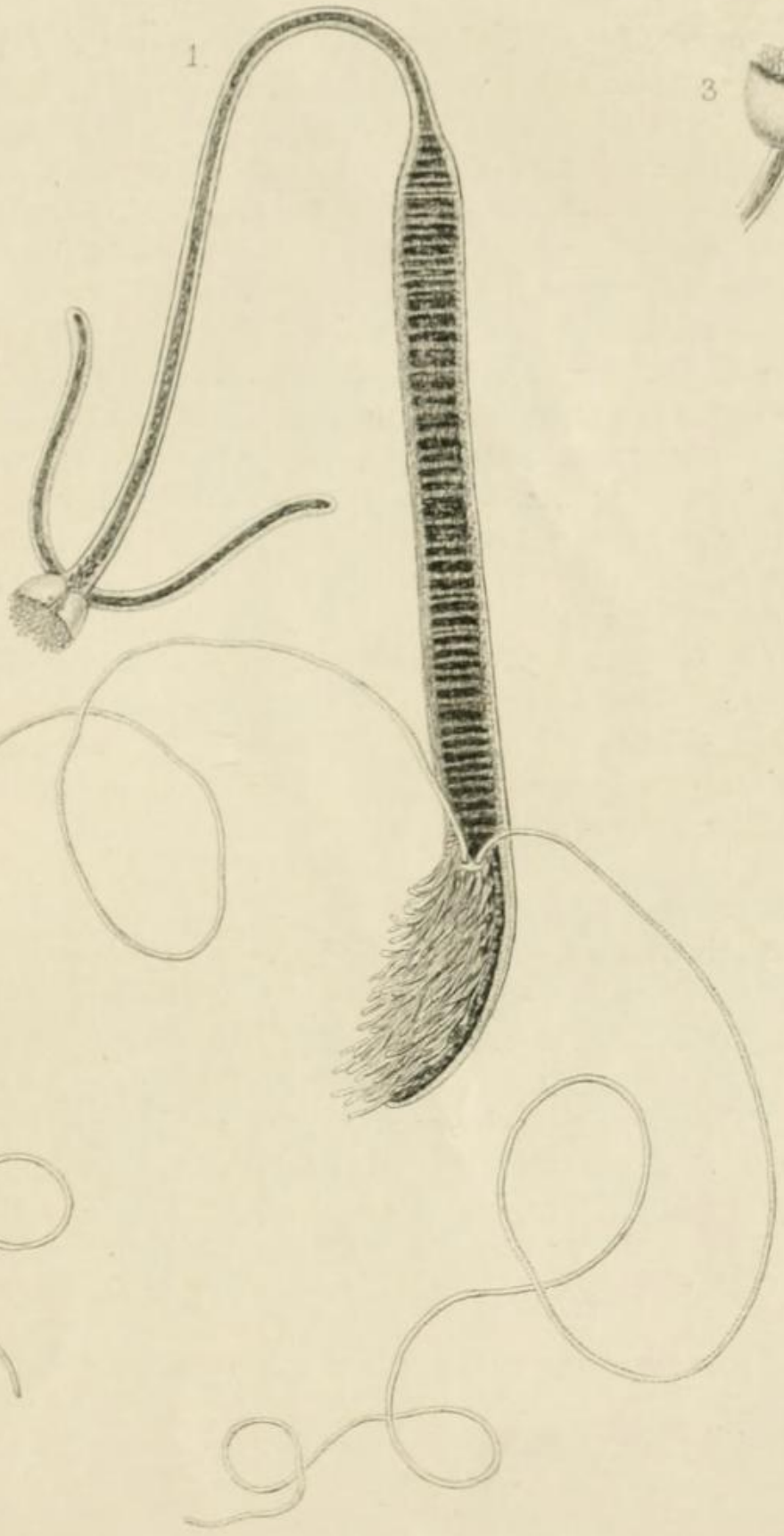

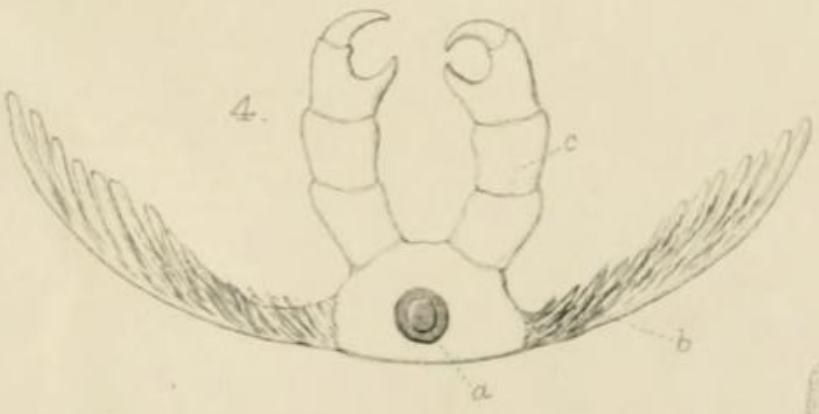

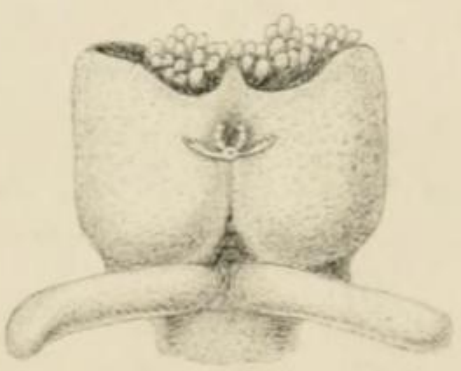

Tuffen West sc.

W.West imp.

is to be doubted if this species, the animal being unknown, is a genuine *Zonites*. If, indeed, all those species (to which, however, *Helix dictyodes*, Pfr., cannot possibly belong) ranged by Albers in his group of Rhytida really are the most nearly related to *inæqualis*, Pfr., which I examined, the whole group, under the name given by Albers, might be removed from the series of the *Helices* and placed among the Testacellidæ; however, I would caution against so summary a procedure, although convenient, and would rather encourage Australian and other malacologists not to shun the trouble of examining these animals, as, surely, through anatomical investigation the relations between the different groups of Pulmonata will be discovered more easily and sooner than by a continual accumulation of shells only. Certainly a conscientious comparison of shells will gradually lead to natural groups; but, in spite of immense collections, this conchological method will always be slow and at the same time dangerous, for the material available on this field is too easily monopolized. If, instead of the thousands of shells that annually are sent home by collecting travellers, only a few hundred species in spirits, allowing a more minute examination, were one day to reach Europe, such an event might well be hailed by malacozoology.

Würzburg, December 9, 1869.

VII.—*On a new Species of the Genus* Pennella. By Edward Perceval Wright, M.D., F.L.S., Professor of Botany in the University of Dublin.

[Plate I.]

The memoirs of Steenstrup and Lütken in the 'Transactions of the Danish Academy'*, and of Nordmann in the 'Bulletin of the Moscow Society of Naturalists'†, have added very largely to our knowledge not only of the species of the genus *Pennella*, but also of the great variation to which several of the species appear liable. The specific characters, however, are for the most part difficult to determine; this is fully recognized by Professor Claus in his memoir on the Lernæidæ ‡. This

* "Bidrag til Kundskab om det aabne Havs Snyltekrebs og Lernæer samt om nogle andre nye eller hidtil kun ufuldstændigt kjendte parasitiske Copepoder," Vidensk. Selsk. Skr. 5. R., Naturvidensk. og mathem. Afd. 5. Rd. 1861, pp. 341–432, tab. 1–15.

† "Neue Beiträge zur parasitischer Copepoden," Bull. Soc. Imp. des Naturalistes de Moscou, 1864, tom. xxxvii. pp. 461–520, Taf. 5–8.

‡ 'Beobachtungen über *Lernæocera*, *Peniculus* und *Lernæa*, ein Beitrag zur Naturgeschichte der Lernaeen,' Marburg & Leipsig, 4to, pp. 1–32, Taf. 1–4: 1868.

difficulty chiefly arises from the fact that all the organs of these strange, grotesque creatures are subject to such wondrous transformations. Such a division, for example, as that of Milne-Edwards * into those having a head with two horns and those having a head with three, disappears before such a species or variety as the *P. varians*, St. & L.† Heller, in the 'Novara-Reise'‡, divides the family Lernæidæ into two groups or subfamilies, the second of which is distinguished by the females having filiform ovisacs: this section he calls Pennellinæ, subdividing it as follows:—

I. Those with a rostriform mouth, ovisacs long and not convoluted, bodies covered with a thin integument.
II. Those with a non-rostriform mouth, ovisacs convoluted, bodies covered with a hard integument.

The genera placed in the first division are:—*Pennella*, Oken; *Peniculus*, Nordmann; *Lernæonema*, M.-Edw.; and *Peroderma*, Heller.

Pennella sultana, Nord., is placed by Heller§ in the second division, and forms a new genus, *Lernæolophus*, which, so far as regards the possession of abdominal plumose appendages, takes the place in this division that *Pennella* does in the first division.

While, therefore, fully aware of the difficulties that for the present surround this question of classification, and ready to admit that neither length of body nor size of cephalic, thoracic, or abdominal appendages can be looked on as certain indications of specific differences, I yet venture to bring forward as new the following species, in the belief that it is undescribed, and with the hope of throwing some little light on our knowledge of the genus. These parasites do not occur so very frequently as to lead me to hope that by waiting I might be able to decide the questions as to its range of variation &c. thoroughly.

Pennella orthagorisci, sp. n.

♀. *Cephalic region.* Twice as broad as long, divided into two lobes. On its dorsal surface, and situated between these lobes, an eye-spot; on either side of which, but scarcely in front, a pair of minute antennules with from thirteen to fifteen longish setæ on each; still further in front a pair of antennæ obscurely

* 'Histoire Naturelle des Crustacés,' tome iii. p. 522.
† *L. c.* p. 413.
‡ Zoologischer Theil, Bd. ii. Abth. 3. Crustaceen beschrieben von C. Heller. Wien, 1865, p. 244.
§ *L. c.* p. 251.

three-jointed, the distal joint cheliform. On the front of the head, on its ventral surface and surrounding the oral opening, are a number of small cauliflower-like excrescences, of which a few are more conspicuous than the others; sometimes these spring each from a separate base, sometimes two or more from the same twig. At the junction of the thoracic with the cephalic region there are two long horn-like appendages an inch and a half each in length; these arise from the dorsal surface, and, like the thoracic and abdominal regions, are invested by a thin, almost colourless integument, which forms a kind of tube around them.

Thoracic region. Applying this name to the region intervening between the horn-like appendages and the origin of the ovisacs, it is $5\frac{3}{4}$ inches in length: for the first three inches it is about an eighth of an inch in diameter; it then gradually expands until, where it joins the abdomen, it is fully a quarter of an inch in diameter; the integument forms a clear tube-like covering over it, and is quite smooth and glistening. Close to the head, on the ventral surface, are four pairs of minute appendages (feet), the first three pairs close together, the fourth and most anterior pair somewhat separated from the others: these very rudimentary feet, when highly magnified, appear to end in a minute claw.

Abdominal region. At the commencement of this region, and from its ventral surface, the two long ovisacs arise; these measure just 11 inches in length; they are straight, and appear obscurely jointed, joints long. The plumose filaments are lateral and numerous; they are compound; that is to say, from two to five spring from the same base; but the common basal portion is very short; towards the anal orifice they are generally given off in pairs. The terminal portion of the body is destitute of filaments; the anal orifice is oval, central, and terminal.

Colour (as seen some days after death, preserved in sea-water). Head and horns of a bright brown colour; body, seen through the glistening investing membrane, of a dark olive-brown, with circular stripes of a lighter hue; ovisacs greyish white; plumose appendages deep black, but the clear integument investing these gave the terminal points of each the appearance of being tipped with silver.

Male unknown.

Habitat. In the body of *Orthagoriscus mola*, on either side of the dorsal fin. Cork Harbour, November 1869.

Total length of the perfect specimen examined, from top of head to anal opening, 7 inches.

I am indebted for this species to my friend Dr. Harvey, of

Cork, one of the few medical men of Ireland who never, amid the exigencies of a large professional practice, forget the interests of science. He informs me that the two specimens were found projecting from a circular depression in the thick skin of a young sunfish, near to its dorsal fin; they were buried in the skin and muscle of the fish to an extent of three inches. One specimen was broken off in removing it. There were also two specimens of *Tristoma coccineum* adhering to the head of the fish.

I have compared this species with all those of which I could find an account. Some figures and descriptions, like those in the 'Voyage de la Peyrouse,' represent species which it would be impossible to determine without the aid of the original specimens. The largest species described, and the one that I think approaches nearest to *P. orthagorisci*, is the *P. pustulosa*, Baird. This species was originally published in Angas's 'Savage Life and Scenes in Australia;' but Dr. Baird's description was copied into the 'Annals,' ser. 1. vol. xix. 1847, p. 280; the woodcut is not very characteristic. The specimen was found buried in a dolphin's body, near its gills (the dolphin was captured in lat. 11° 54′ S., long. 27° W.); the length was 4 inches. The plumose appendages are described as simple, and the abdomen as being of a very dark purple colour, and studded all over with small whitish pustules. If there be no mistake in the description of the plumose appendages, the species from the dolphin is not the same as that from the sunfish. Dr. Baird informs me that he examined a specimen of *Pennella* from a sunfish captured at Megavissey, Cornwall, which he refers to *P. filosa*, Linn. This will have been, I think, the first instance of the capture of this species on the coast of Great Britain.

Professor Claus* figures the eye of a species of *Pennella*, which he found placed below the cheliform antennæ. He describes it as consisting of a collection of pigment-cells covered by three clear cornea-like portions—one central, and one on either side. I cannot find, on a close examination of two specimens of *P. orthagorisci*, any appearance of a corneal structure. In the place indicated by Professor Claus there is a collection of pigment, which certainly acts as an eye, and there are obscure traces of the pigment matter being arranged into a series of hexagonal facets. The feathered antennules (or appendages to the second cephalic somite) were distinctly to be seen on both specimens examined. I cannot find that they have been described or figured as occurring in any species of *Pennella*. Their existence is a matter of some little interest; for we thus find the

* *L. c.* p. 5, pl. 2. fig. 10.

first three and most constant segments of the head represented by their appendages, though these are diminished to a very minute size, so as not, in *P. orthagorisci*, to be visible to the unassisted vision. As we also find four out of the five pairs of thoracic appendages present, it is pretty plain that it is chiefly the ordinary oral appendages, or rather those appendages usually modified for the purpose of assisting in the prehension and mastication of food, that become altered into the strange-looking arborescent follicles met with around the mouth.

EXPLANATION OF PLATE I.

Fig. 1. *Pennella orthagorisci*, ♀, natural size. (The specimen has shrunk, from being preserved in spirits.)
Fig. 2. Head, enlarged, dorsal aspect.
Fig. 3. The same, ventral aspect.
Fig. 4. Eye-spot (*a*), antennules (*b*), antennæ (*c*).
Fig. 5. Anal orifice.
Fig. 6. Head of second specimen, showing the comparatively short horns.

VIII.—*On* Janassa bituminosa, *Schlotheim, from the Marl-Slate of Midderidge, Durham.* By Albany Hancock, F.L.S., *and* Richard Howse.

[Plates II. & III.]

Through the obliging kindness of Joseph Duff, Esq., who has been for many years actively investigating the fossil flora and fauna of the south of Durham, we have lately had an opportunity of thoroughly examining the structure of the jaw-teeth and shagreen skin of this most interesting addition to the fauna of the English Marl-slate, which is the exact equivalent of the German Kupferschiefer.

Four groups of these remarkable jaw-teeth have been obtained by Mr. Duff at Midderidge—the first group in the year 1865, and the others during the autumn of the present year, 1869. These are, we believe, the first and only specimens that have been discovered in England.

But in Germany this species has been frequently found in the Kupferschiefer, which is very much worked, on account of the valuable copper-pyrites which it contains, in numerous localities; and consequently the general appearance of these teeth must be well known to those who are familiar with the works of Schlotheim, Münster, Geinitz, and others. According to the last-named author, the beautiful specimen still