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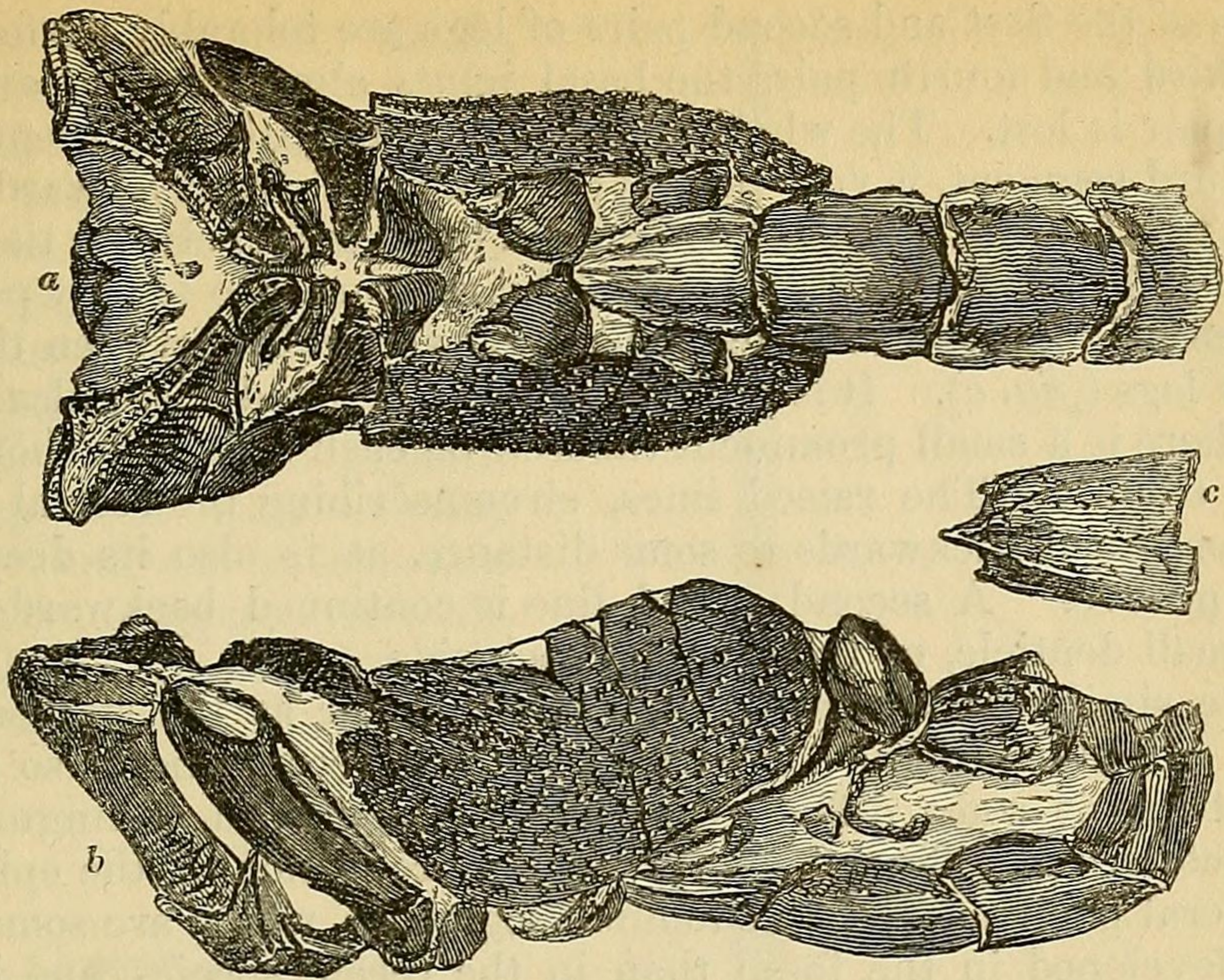
1846.

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Sternbergiæ would lead us to expect ; and a smaller specimen from another district (North Staffordshire) appears still more clearly to show this connection. I may also mention that the pith of recent wood (*Juglandaceæ*), on losing its moisture, has occasionally been found to separate, after a manner somewhat similar (*b*). It is rare, however, that specimens in the fossil state, retaining this structure, have been met with, the plates having only been preserved when mineral matter has atomically replaced the cellular tissue, the plants having previously been in a dry or partially decayed state. In general, the material has filtered into and filled up the interstices, producing the usual cross-barred or ringed appearance of these fossils. Sometimes, cylindrical casts may be found which are marked externally by sharp, longitudinal, irregular striæ, representing probably a portion of the medullary sheath. The whole of the cellular tissue, in such cases, has previously been carried away ; but a fine tree at Darlaston has afforded proof that under peculiar circumstances the mineralizing process may commence soon after the fall of the plant. Thus, in all probability, the central column of that specimen will retain the cellular structure. In conclusion, I may allude to the isolated and peculiar fragmentary state in which these cylindrical bodies occur. We find no attached branches, no roots, no leaves or leaf-scars ; indeed, there is a total want of every part of a vegetable, by which these fossils might be identified as distinct plants : for the carbonaceous covering, now and then met with, and supposed to have been the bark, being sometimes very irregular is most likely accidental, or in some cases may arise from portions of attached wood having become converted into coal. Should the discovery of further specimens more completely prove these views respecting Sternbergiæ to be correct, we may perceive from their occurrence in, I believe, all our coal fields, how frequently a small cylindrical column alone remains when every other vestige of the magnificent plant from which it originated has been lost.

4. *On the THALASSINA EMERII, a fossil Crustacean, forwarded by Mr. W. S. MACLEAY, from New Holland. By T. BELL, F.R.S., Professor of Zoology in King's College, London.*

THIS fossil, forwarded from Mr. Macleay and brought by Lieutenant Emery from Australia, belongs to the typical genus of a very remarkable family of decapod Crustacea, the *Thalassinidæ* (*Thalassiniens* of Milne Edwards), as Mr. W. S. Macleay has surmised. Of the genus in question, *Thalassina*, but a single recent species is known, and little has been ascertained respecting its habits. There is, however, reason to believe, that in this respect it agrees with the species most nearly allied to it in structure, several of which being found on our own coasts have afforded opportunities for more accurate observation. These, as far as their habits have hitherto been traced, are all of them burrowers, making their way to a considerable depth in the sand at various dis-



Thalassina Emerii Bell.

- a.* View of the under side, showing the tail turned over upon the belly.
b. Side view.
c. End view, showing the rostrum only.

tances from the shore. The species of the genus *Gebia*, which is very nearly allied to the present, are all to be obtained by digging in the mud or sand at low tide; and the *Gebia stellata*, as stated by Dr. Leach, form subterranean, horizontal, and winding passages, "often of a hundred feet or more in length." The same habit is also known to belong to *Callianassa*, another nearly allied genus.*

The recent species of the genus to which the fossil belongs, *Thalassina scorpioides*, is stated by Leach†, Desmarest‡, and others, to be a native of the Indian seas. Milne Edwards on the other hand gives the coast of Chili as its habitat. It is not impossible that it may have been found in both these localities; a specimen which I have in my possession was said to have been brought from India, but of this I have no positive evidence.

The fossil, which I propose to designate, after its discoverer, *Thalassina Emerii*, consists of the sides of the carapace, in tolerable preservation, the dorsal portion being quite lost; the first four

* The structure of these animals is adapted only for this mode of life, and is exhibited typically in the present genus. The narrow semicylindrical abdomen, the attenuated lateral lobes of the tail, and the filiform appendages of all the abdominal segments, evidently unfit them for swimming; whilst their fossorial habits are amply provided for by the strength and flatness of the two anterior pairs of thoracic limbs, which are admirably adapted for excavating the sand or hardened mud in which they reside.

† Zool. Miscell. iii. Mal. Brit.

‡ Consid. Gener. Crust. Dict. des Sc. Nat.

joints of the first and second pairs of legs are tolerably perfect; of the third and fourth pairs the basal joints alone remain, and the fifth pair is lost. The whole of the abdomen, with the exception of the third segment, is very perfect; it is abruptly bent forward upon itself, the terminal joint resting beneath the thorax, between the third and fourth pairs of legs (*fig. a*). The rostrum also is very perfect, broken off from the carapace, and lying vertically between the anterior legs (*fig. c*). It is prolonged into a grooved triangular tooth, and there is a small prominent tubercle on each side, at a short distance from it. The raised lines, circumscribing the rostral tooth, are continued backwards to some distance, as is also its deep median groove. A second raised line is continued backwards from the small denticle, or tubercle, on each side.

The similarity between this species, as far as the state of the fossil will allow of the comparison, and the recent one, is so great, that there is some difficulty in fixing upon valid distinguishing characters. It differs, however, in the proportion of the epimeral or lateral portions of the abdominal segments, which are somewhat less developed in the fossil than in the recent species, and in the form of its terminal segment, or middle lobe of the tail, the length of which is to its breadth in the fossil as 8 to 6, and in the recent species as 11 to 6. The sides of the carapace are, in the former, somewhat more uniformly covered with minute raised points, which, in both species, render the surface distinctly scabrous.

This specimen derives additional interest from its being the only fossil crustacea which has yet been found in New Holland.

MARCH 6, 1844.

THE following communications were read :—

1. *On Two Fossil Species of CRESEIS (?) collected by Professor SEDGWICK.* By E. FORBES, Esq., F. R. S., F. L. S., Professor of Botany in King's College, London.

CRESEIS is a genus of *Pteropodous Mollusca* established by M. Sander Rang to include several species of simple, more or less acicular shells. Their surface is smooth or transversely striated, rounded, and sometimes presenting a longitudinal groove. The animal resembles that of *Hyalæa*, but is not furnished with the two caudiform lateral appendages with which the *Hyalæa* is provided. All the species are small, none being more than an inch in length. They are oceanic animals, free swimmers, and their remains are found in abundance in the fine mud of great depths.