EXAMINATION *of* TWO SOUNDINGS *obtained in* 62 *and* 68 FATHOMS *respectively*, LATITUDE 41° 52′, LONGITUDE 9° 8′; *and the* DISCOVERY *of* BUCCAL TEETH *in the* GENUS FIROLA. By JOHN DENIS MACDONALD, M.D., F.R.S., Staff-Surgeon H.M.S. "Lord Warden." Communicated by the Director-General of the Medical Department of the Navy.

THE soundings obtained as above were first closely inspected with a pocket lens, after which they were washed in a saucer of sea water, the delicate objects being cautiously removed with a camel hair pencil, and noted as follows:

1. A minute triangular crab (Maiadæ), invested with sponge, and still living, though the carapace has been so injured as to expose the internal organs.

2. A small Madiola, with yellowish-brown epidermis, ornamented with filiform appendages, was detached with its byssus entangling numerous Foraminifera and one little spiral univalve.

3. A minute Crania (Brachiopoda) upon the dead valve of a Balanus. In this specimen, which was smaller than the head of an ordinary pin, no cilia were observable on the tentacula (the cirri of the authors), though invested with a distinct epithelium.

The puncta of the orange-coloured shell were frequently branched, and in some instances appeared to intercommunicate. It was probably the young of *Crania anomala*.

4. The shell fragments of a recent Lima-shaped Terebratula.

5. The jointed cirrus of an encrinite, evidently detached from the living animal by the contact of the lead.

6. Numerous living Foraminifera.

Considering that the whole area of the arming of the lead could scarcely have exceeded an inch and a half in diameter in the present case, if a swab had been attached to the line the result would have been proportionately more satisfactory. In the year 1852, when H.M.S. "Herald," Captain (now Rear Admiral Sir) H. M. Denham, F.R.S., was at anchor on the Victoria Bank, off Cape Frio, many objects of interest were obtained by sweeping the bottom, as it were, with ordinary swabs. This principle has been most successfully applied by Staff Captain Calver, of H.M.S. "Porcupine," by attaching "hempen tangles" to the dredging apparatus.

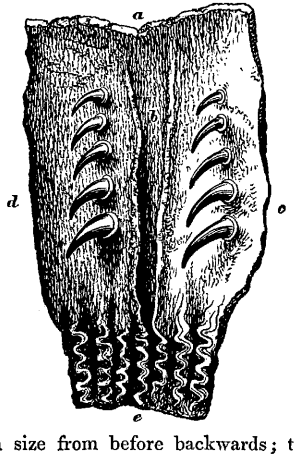
A subsequent sounding in Lat. 42° 13′, and Long. 9° 1 (67 fathoms), proved to be a dark, slate-coloured ooze, loaded

with Foraminifera of various types, but mainly consisting of finely divided matter and mineral particles. There can be little doubt, from the frequently variable success experienced in sounding and dredging over contiguous parts of the same area or district, that at the sea bottom regions of life and death may be conterminous, and are very often irregularly distributed.

Discovery of Buccal Teeth in the Genus Firola.

When favorable opportunities arise in the "Lord Warden," the towing net affords abundant material for study and intellectual enjoyment; and it is quite pleasing to see the interest evinced by officers of all classes in the discovery of new forms, or, at least, such as they have not seen before. This is, however, more especially the case when the difficulty of displaying them under the microscope is removed, and observation is so far rendered easy.

Having frequently taken Firolæ of large size in the towing net, even when other marine creatures, with the exception of Salpæ, were few and far between, I found, as a new fact, that the mouth was furnished with a longitudinal row of fine conical teeth on either side. These were also in general slightly curved, with the convexity forwards, and exhibited



an increase in size from before backwards; the first being

quite rudimentary, and the last highly developed, as shown in the accompanying figure.

Although I had previously communicated researches on the anatomy of the Heteropoda to the Royal Society of Edinburgh, I had altogether overlooked the buccal teeth of Firola; and now I am quite sure that further investigation will reveal similar organs in the other genera of the order.

References to the figure which represents the upper and lateral parts of the mouth, with the inner surface turned upwards after the removal of the tongue and buccal mass, improperly so called.

a. The upper lip. *b*. The roof of the mouth. *c*. The left row of buccal teeth. *d*. The right row of ditto. *e*. Œsophageal rugæ.

The Nature *of* Connective Tissue. By Dr. W. Krause, Professor in Göttingen.[1]

It is usual to distinguish as the fundamental types of connective tissue two modifications, the ordinary fibrous or homogeneous and the reticulated. The former is usually regarded as consisting of a distinctly or indistinctly fibrillated intercellular substance, and variously formed cells, the connective-tissue corpuscles, imbedded therein; and these are described sometimes as stellate, sometimes as spindle-shaped or roundish, sometimes angular and flat. Reticular or areolar connective tissue is composed of anastomosing stellate cells (connective-tissue corpuscles), in the interstices of which is contained fluid with suspended lymph corpuscles.

There would thus be two varieties of connective tissue, the essential difference between which would be that in the former the intercellular substance is solid or fibrous, in the latter fluid. This distinction does not, however, exhaust the molecular arrangements which are ascribed to the connective tissue. A third state of molecular aggregation, certainly not known in the other sciences, is recognised under the name of semi-solid (festweich), and a fundamental substance of this kind is ascribed to the homogeneous or gelatinous connective tissue, which is supposed to be connected by transitional forms with the solid or fibrous.

It is obvious, then, that there is only one morphological attribute common to all modifications of the so-called con-

[1] Translated from 'Deutsche Klinik,' May 20th, 1871, by J. F. Payne.