

XXX.—*Note on some Fossils from Seymour Island, in the Antarctic Regions, obtained by Dr Donald.* By G. SHARMAN and E. T. NEWTON. (With a Plate.)

(Read 4th June 1894.)

These fossils are especially interesting on account of their having been obtained from a more southerly point than any hitherto recorded. The number of specimens is nine; five of these are referable to the genus *Cucullæa*, one to *Cytherea*, one probably to *Natica*, and two are fragments of Coniferous Wood. With the *Cytherea* are other small shells which may indicate the presence of *Crassatella* (?) and *Donax* (?). Two of the pieces of *Cucullæa* are entirely free from matrix, while three show in their interiors a fine sandy rock which effervesces when treated with hydrochloric acid. The shells themselves have a calcedonic appearance, but, like the matrix, they effervesce strongly with acid; they are much denuded, having apparently been long exposed to the weather. The matrix within the *Cytherea* is coarser than that in the *Cucullæa*, containing, besides fragments of quartz and of a black rock, numerous fragments of shells. The *Natica* (?) is almost free from matrix, and is much denuded, but in some of the crevices sandy material may be seen very like the matrix of the other shells. All these genera have a wide distribution in time, and are now living, consequently they give but little clue to the age of the rocks in which they were found. *Cucullæa* is rare at the present day, and the few known species occur in the Mauritius, Nicobar, and China; but as a fossil it is very common and widely distributed. With regard to the species of these Antarctic shells, more will be said below; but as two of them find their nearest allies in species which occur in Lower Tertiary beds, it is probable that these also are of about the same age, and nothing more definite can be said until additional and more characteristic specimens are forthcoming. Through the courtesy of Mr R. ETHERIDGE and Mr R. B. NEWTON, these specimens have been compared with the fossils collected by DARWIN in Patagonia, as well as with others from the far south, preserved in the British Museum; while the specimens collected by Captain T. BAKER in Patagonia (*Quart. Jour. Geol. Soc.*, vol. xxiv. p. 505), and preserved in the Geological Society's Museum, have been kindly opened for our inspection by Mr W. JONES. Each of the forms will now be noticed separately.

*Cucullæa Donaldi*, sp. nov.

All the five specimens of *Cucullæa* are believed to belong to one species, although the larger fragment (fig. 2) seems to have been part of a longer shell. The ornamentation

on all of them is the same, and their margins are very much thickened. The most perfect specimen (fig. 1) has both valves preserved, and only wants the umbones; its greatest length is about 2.6 in., the height 2.2 in., and the thickness 1.6 in. Anteriorly the shell is rounded, posteriorly it falls away obliquely from the hinge line, and has but a slight tendency to angulation. The hinge line is comparatively short, and the umbones appear to have been tolerably prominent. The whole surface of the shell is marked by coarse radiating bands, crossed by lines of growth, and where the shell is denuded these are very strongly marked, but where the surface is intact they are much less clearly seen. The ligamental area has but few (three) impressed lines. This specimen does not show the hinge or the lip, but one of the others (fig. 2) has a few of the longitudinal teeth characteristic of *Cucullæa*, and another shows the inner lip to be coarsely crenulated. This shell is much like the *C. alta* of SOWERBY, from Tertiary beds of St Cruz, Port Desire, Patagonia, described in DARWIN'S *Geological Observations in South America* (p. 252), but besides being less in height, and apparently having smaller umbones, its ligamental area has fewer impressed lines. This shell also has much resemblance to the *C. decussata* of SOWERBY, from the Lower Eocene of Britain (*Min. Conch.*, pl. 206), but the Antarctic shell has a shorter hinge line, is more coarsely radiated, and shows no angulation extending from the umbo to the posterior extremity. As this shell cannot be referred to any known species, it is proposed to name it *Cucullæa Donaldi*.

*Cytherea antarctica*, sp. nov.

The one shell referred to this genus (fig. 3) does not show the hinge or the pallial line, and consequently there are these elements of uncertainty in the reference, but the form so closely resembles certain species of *Cytherea* that there is but little room for doubt. The posterior part of the shell is wanting, but the lines of growth, which are strongly marked, show that it was oval in outline, and probably measured 2.3 in. in length, its height being 1.8 in.; and its thickness, when both valves were together, must have been about 0.8 in. This shell has some resemblance to *C. orbicularis* of EDWARDS, from the Lower Eocene of Britain (*Quart. Jour. Geol. Soc.*, vol. viii. p. 265, pl. 16, fig. 5, 1852), but differs in its oval outline and less prominent umbones; it approaches more nearly the oval varieties of the species; it is even nearer to *C. Bellovacina* of DESHAYES (*Descript. Anim. sans Vert.*, vol. i. p. 474, pl. 32, figs. 15-17, 1860), from the *Sables inférieurs*; but the Antarctic shell has the umbones less prominent, and directed more forwards—possibly also the anterior margin is more pointed, and the entire shell more oval. The differences between this shell and the species just mentioned are certainly very small, but having regard to its southern origin and to these slight differences, it would not be well to refer it to either of the northern species, and it is therefore named *Cytherea antarctica*.

*Crassatella* (?).

A fragment of a lamellibranch shell (fig. 7), on the under side of the *Cytherea*, shows strong, widely separated, raised lines, in the direction of the lines of growth, with finer intermediate lines—an ornamentation resembling that of some *Crassatella*.

*Donax* (?).

A small triangular valve of a lamellibranch (fig. 6), also on the *Cytherea*, which has the umbo nearly central, and the lip crenulated, looks much like a *Donax*. Near this shell is another (fig. 5), much denuded, showing indistinct radiating lines, crossed by two or three ridges following the lines of growth; this may perhaps belong to the same genus.

*Natica* (?).

One very much denuded gasteropod shell (fig. 4) has much the character of a *Natica*, but this reference is rendered uncertain by the presence of longitudinal lines on the abraded surface, reminding one of those seen on *Purpura*—the mouth, however, shows no signs of any siphonal notch; but, on the other hand, there is a thick callus over the umbilicus. Near the outer lip the lines of growth form strong and irregular varices. There is evidence that, when complete, the newer whorls largely overlapped the preceding ones, thus completely obliterating the sutures, as is so often the case in *Natica*. The substance of the thick shell is deeply penetrated by some boring organism.

*Coniferous Wood*.

The pieces of wood are much mineralised, effervescing strongly with acid, and they tend to break up in the rings of growth. The general appearance is that of coniferous wood, and this is confirmed by an examination with the microscope. A transverse section (fig. 9) shows the rings of thickened cells marking the yearly growth, much as in fir wood. The radial section (fig. 8) exhibits the elongated cells, with their characteristic discs, which are moderately large and in single rows. It is only here and there that the discs are visible, having for the most part been obliterated. The medullary rays, as shown in both radial and tangential sections, are arranged in small bundles.

Other fossils are said to have been obtained from Seymour Island by a Swedish vessel, and it is to be hoped that some account of them will be published.

MESSRS G. SHARMAN & E. T. NEWTON ON FOSSILS FROM SEYMOUR ISLANDS.

