

NOTICE OF SOME FOSSILS RECENTLY DISCOVERED NEAR RISDON, TASMANIA. BY M. ALLPORT.

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As I purpose forwarding the interesting fossils which I have now the honor to submit for the inspection of the Fellows of the Royal Society to Professor Owen by the next mail, I avail myself of this opportunity to record their discovery, and to give a brief account of the locality and formation in which they were found.

For many years past Limestone has been quarried from a bed of Travertine at Geilstown Bay, a deep inlet on the eastern bank of the River Derwent, about a mile below Risdon Ferry. The hills lying between Risdon and this quarry are of the poor white Mudstone found over so large a portion of Tasmania, and which is associated with the Carboniferous, or Mountain Limestone. The Mudstone in this locality contains vast numbers of shell casts belonging to the genera *Spirifer*, *Productus*, and other characteristic fossils of the Mount Wellington Limestone. As no trace is now left in the Mudstone of the Carbonate of Lime which must at one time have filled these casts, the probability is that the lime has been, in the course of ages, carried off by the percolation of rain water, or other water containing carbonic acid, through the Mudstone, and has gone to form the bed of Travertine referred to in a deep pool on the course of some former rivulet, or the lime may have been derived from some more distant bed of the Mountain Limestone.

The Geilstown Travertine is highly fossiliferous, containing many interesting animal and vegetable remains, which afford some clue to its geological age; of these remains those belonging to the vegetable kingdom are by far the most numerous, the impressions of many of the leaves being especially beautiful. It is a matter of great difficulty to fix the species or even genera of plants from the mere impressions of seed vessels, leaves, and stems, and it therefore behoves the observer to examine carefully a very large number of specimens before any such attempt can be made. For twelve years past I have collected specimens from this quarry, and have in that period discovered the impressions of two seed vessels which I am unable to assign to any existing Tasmanian form. Impressions of the stems and leaves of some plant closely resembling a species of *Leucopogon* (a heath-like plant, now common on the hills in the immediate neighborhood of the quarry) are very abundant. Impressions are also numerous of serrated leaves bearing a superficial resemblance

to those of the sassafras (*Atherosperma Moschata*). Others, again, resemble the dogwood (*Pomaderris Apetala*). Many specimens have occurred of a plant resembling a species of *Pimelea*, known here by the trivial name of the cotton-tree, from the toughness of its bark. The fossilized stems and roots of a rush, now growing in the neighborhood, are frequently met with, together with many other vegetable remains so badly preserved that I am as yet unable to decipher them.

Amongst the animal remains collected is one insect, unknown to me, probably the larval form of some waterbeetle, and five species of shells belonging to the genera *Helix*, *Limnea*, *Planorbis*, and *Helicarion*. Of these the commonest is a large *Helix*, now extinct in Tasmania, the others are rare and comprise a smaller *Helix*, probably *Helix Sinclari*—a *Planorbis* (unknown to me and possibly extinct) a large *Limnea* not now found in our fresh waters, and a *Helicarion*, probably *Helicarion Milligani*.

We may therefore safely speak of this Travertine as a recent tertiary formation.

Ten years ago I picked up in this quarry two small specimens, one of which, from microscopic examination of a section, I then believed to be bone, but which was so soft and mutilated as to be otherwise useless; the other is marked No. 1 amongst those now before you. Since that time the workmen at the quarry have kept a look out having promised to save anything resembling bones for me, but up to a few weeks back no definite traces of bone were found. Then, however, the specimens now on the table were discovered.

The bed in which these bones were found was exposed during the opening of a new part of the quarry, and consist of a deposit of arenaceous clay, containing coarse grit, and a few slightly rounded pebbles, just such as might be carried down any of our small rivulets by a moderate flood, and I have little doubt that the mutilated condition of most of the bones is due to the violence of the current which carried them to their present position, for in no instance have I found two bones occupying their proper relative positions, except in the case of a few of the teeth which have remained in the jaws,—as you may observe for yourselves in the specimens marked 2 and 3.

Masses of Travertine are found both above and below the clay deposit in which the bones occur, apparently marking the periods during which the deposition of lime went quietly on without the intervention of floods. The particular bed in which the bones were found is at a depth of thirty feet from the surface soil. With reference to the bones themselves, all the information I am competent to give you is, I regret to say,

summed up in a very few words. Nearly all the specimens are mutilated, and so tender as to be removed from the matrix only with the greatest care, the most perfect being of course the comparatively hard teeth. They are in great numbers, and clearly belong to many creatures. After a diligent search I have found pieces belonging to almost all parts of the skeleton, from the skull to the tail, and even the ultimate nail-bearing joints of the toes, one or two of these last being in excellent preservation.

I have not arrived at any conclusion as to the nature of the one large bone bedded in Travertine. Of the others I believe that many of the teeth found belonged to creatures closely allied to existing marsupials, such as *Hypsiprimni* and *Phalangistæ* (Kangaroo Rats and Opossums) as I have carefully compared them with specimens of these creatures' teeth from my own cabinet. Of the history of the curious teeth in the specimen marked 3, I am so far in the dark that it will be better to wait for the decisive report of Professor Owen upon them than to attempt any foolish guesses which might hereafter prove erroneous.

Before concluding, let me call your attention to an interesting geological fact connected with this Travertine, first pointed out to me by my friend the Government Geologist (C. Gould, Esq.), and which proves the recent geological age of many of the masses of trap rock in our immediate neighborhood. In opening a road from the lower part of the quarry towards the River Derwent, the workmen have exposed a section, showing the actual contact of a stream of basalt with the Travertine and clay beds, under which it dips from west to east. As the strata have been considerably upheaved and distorted at this point by the basalt, it is clear that the Travertine is the more ancient formation of the two, and it is quite possible that the pool in which the Travertine was deposited was destroyed, and the springs which supplied it were diverted by the upheaval of this very basalt.