Royal Society of Tasmania, 1866. p. 27-29

ON THE POSITION OF THE GORDON LIME-STONES, RELATIVELY TO OTHER PALAEOZOIC FORMATIONS, ETC.

By C. Gould, F.G.S., Government Geologist.

GOVERNMENT GEOLOGIST

Several years ago a collection of remarkable fossils was made by Dr. Milligan, and subsequently lodged in the Society's Museum. They were entirely, or in most part, obtained at the Gordon river in Macquarie Harbour.

These fossils occur in lime-stone, but a glance is sufficient to show their distinctness from those which are so abundantly contained in the ordinary lime-stones of the colony, as at Mount Wellington, Fingal, Etc. Etc.

This collection has been supplemented by one made by myself in the summer of 1862, which I had the pleasure of submitting to the Society on my return, pointing out at the time their lower silurian aspect, and enumerating a few of the principal forms.

I have now further to add that, taking the opportunity afforded by a recent visit to Melbourne, I made a selection of the most typical specimens, and submitted it to the judgment of Professor M'Coy, the most competent Palaeontologist in the colonies. He immediately identified several of the specific and most of the generic forms, and although from want of access to my notes I am unable on the present occasion to forward a list of the species so determined, it will be sufficient formy purpose to state broadly the results of his examination, which I may point out are confirmatory of my originally expressed views.

It appears that these lime-stones are contemporaneous with the beds at the very base of the lower silurian system of Europe and America anterior to the described fossiliferous beds of Victoria, as well as to the Calymene containing beds of the Eldon Valley in this country.

The fossils principally belong to the family of the Orthoceratidae, together with Corals, Murchisoniae, and species of Raphistoma. The absence of Trilobites and Graptolites is noticeable, the more especially as sand-stones beds, intimately associated with the probable equivalents of these lime-stones cropping at the Mersey, contain one, or perhaps two, species of Trilobite clearly allied to the older forms described by Barrande and American authors.

The extensive series of metamorphosed rocks forming the larger portion of Western Tasmania are inferior to this Lime-stone, and I may take this opportunity of remarking, the absence of gold in paying quantities in the districts hitherto examined may be attributable to this reason.

I have previously pointed out the existence of several main anticlinal axes, traversing the western country in the direction of its length from north to south, and forming a series of folds, which bring down the upper beds, and cause their disposition in narrow strips of country alternating with the more extensive areas occupied by the lower one.

Thus in passing from west to east we have these lime-stones appearing again and again at intervals of many miles in distance, at Point Hibbs, the Franklin river, the great bend of the Gordon, and the Florentine Valley, the axes of the anticlinal embracing the larger intervals, and developing the inferior metamorphosed beds, consisting of quartzites micaceous and chloritic schists, etc. etc., which form the prominent mountain features of the country.

The importance of the determination of the age of these beds can therefore hardly be over-rated, since it establishes a clue to the classification of nearly all the beds in Western Tasmania, and materially assists in the interpretation of those immediately associated with them occurring in more accessible parts of the colony, for in addition to the localities above mentioned this lime-stone may be traced in the West Tamar district, at the Mersey, at arms of the creek near Deloraine. and forms a prominent feature in the neighbourhood of Chudleigh. Imperfect remains of fossils, apparently corals, are

sparingly contained in the quartzose sand-stones immediately underlying the lime-stones, and although in many situations where their position protects them from exposure to denudation, it is difficult to discover fossil remains in the lime-stones themselves, yet even in these localities a careful search will, in nearly all cases, disclose their existence

I have now no hesitation in considering the Eldon beds as superior to the lime-stones, both on account of their containing fossils, and their relation as exhibited near the mouth of the Gordon river, where sections also assist us in the determination of the age of the Fingal formations, beds of a similar lithological character to the most typical of the auriferous beds of that locality cropping out on Settlement Island, and to a limited extent upon the neighbouring coast.

These appear to be above the dark colored Sand-stones in the lower part of the river, which appear to correspond with the Eldon river beds. No fossils have, however, as yet been discovered in the Fingal beds, and this question may still be considered as not perfectly determined.

I think it will be found convenient to retain permanently the terms which I have employed in referring to the leading subdivisions of the older rocks as well as consistent with the custom observed in other countries of employing as terms of classification for formations, the names of those districts in which they are either most prominently developed, or offer especial facilities for study. A series of named landmarks is thus obtained, by which the order of succession of the various divisions is secured as they are determined one by one, and to which reference may be made for the comparison of similar or equivalent beds at long distances apart. The exact collation with the defined systems of Europe will thus be facilitated, and the nomenclature itself may at any time be converted into the equivalent terms of that or neighboring countries in porportion to the advances made in our acquaintance with their fossil contents.

In the same manner it may be convenient to speak of the coal formation east of Fingal, East Coast, Etc. Etc., as the Mount Nicholas beds that being the spot where they are best developed. The spiriferous lime-stones as the Mount Wellington lime-stone, etc. etc.

As far as our information goes at present, the leading sub-divisions of the silurian formations may then be arranged as follows :-

1.	Fingal Beds	Clay, Slates, Sandstones, and Grits	No fossils have yet been discovered Abundance of quartz reefs.	
2.	Eldon Valley	Mud-stones and Clay Slates	Calmyene Orthis Cardiola, etc.	Thin quartz reefs not abundant.
3.	Gordon Beds.	Lime-stones Slates Lime-stones Conglomerated Quartzose Sand stones		

At some future period I shall enter in greater detail into the component parts of the above divisions, and their connection with each other.