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A Critical Review of Tasmanian Graptolite Records

By

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The discovery of fossils either Hydroids or Dendroids in the Dundas area, which is the subject of a separate paper by Mr. Q. J. Henderson and the writer, led to the re-examination of the graptolite records of Tasmania and all the available material. Three specimens of black slate which previous writers had examined and on which the graptolite record is mainly based, were available for study. One, in the Tasmanian Museum, was kindly lent by the Director, Dr. J. Pearson, and the other two are in the collections of the Mines Department, Hobart. As I was unable to substantiate the identifications of the earlier workers or state that graptolites were present, the specimens were forwarded for examination and comment to Dr. W. J. Harris. He is of the opinion that none of the specimens submitted to him are graptolites.

PREVIOUS LITERATURE

G. Thureau (1882), while describing the slates of the Lisle Goldfield, stated that 'incomplete petrefactions *(Diplograpsus nodosus)* were observed resembling, to some extent, the Victorian series of Graptolitidae.' T. S. Hall (1898) gives the result of the enquiries made by him into this occurrence and gives the additional information that Thureau had told him that he ' . . . carried (the specimen) to Strahan and there identified it from memory, no books of reference being available; nor did he at any later time compare it with the figure and description, and shortly afterwards lost it.' The above paper has for its concluding paragraph: 'In conclusion, it may be, it would seem, only reasonable to believe that a Diplograptus was found in Tasmania by Mr. Thureau, and as the range of the genus was so great, that no definite conclusions can be drawn from the occurrence.' T. S. Hall (1902) gave details of correspondence with Thureau regarding the above paper, after its publication. 'I now recollect seeing there (that is, at Lisle, T.S.H.) dark elongated imprints probably carbonaceous—in those dark-blue shales, but they were too indistinct to be classified.' Further on, T. S. Hall quotes this letter again: 'With regard to the true graptolite . . . the locality is about 10 miles from Strahan, on the old Mount Lyell-road (Tas.) close to an old roadmaker's camp and stable, near a spring of water.' Hall then comments as follows: 'This is the specimen which, from Mr. Thureau's conversation, I felt convinced was a *Diplograptus*. Of the Lisle record, I express no other opinion than my belief in its worthlessness.'

From the above, it can be seen that the identification of the Strahan specimen cannot be verified and it should not be accepted as an authentic record.

T. S. Hall (1902) gives further information regarding Tasmanian occurrences, when he states that he saw 'traces of graptolites . . . [from] the North-East

Dundas Railway . . . From the appearance of the indistinct markings present on the stone the specimen belongs to the Dendroidea, and I am inclined to think, to the genus *Callograptus* . . . '

Further on he states that he has seen two specimens of slates in which 'a fragment showing graptolite thecae can be distinguished . . . In neither instance can even a guess at the family be hazarded. We thus have undoubted evidence of the existence of graptolites in Tasmania.'

It should be emphasised here that the above remarks show that dendroids rather than graptoloids occur in Tasmania.

R. A. Keble (1928) examined the three specimens that T. S. Hall mentioned, and stated with regard to the specimen No. 10935 from the Tasmanian Museum that 'I would rather be inclined to refer it to *Retiograptus* than the Dendroidea.'

His list of identifications for the specimens in the Mines Department collection are as follows:—

Dichograptid—fragment
?Tetragraptus sp.
?Leptograptus sp.
?Syndyograptus sp. (distal fragment)—

with the following proviso: 'In this poorly preserved collection not even a generic determination is certain.

The evidence as it appears to me is, then:—

1. Dr. Hall was convinced that *Diplograptus* sp. was obtained by Mr. Thureau from Strahan.
2. The indistinct forms from the King River suggest *Retiograptus* affinity.
3. The *Tetragraptus* 12·35 miles from Zeehan is reminiscent of *T. tabidus* recently described by me from Nelson, New Zealand, where it is associated with *Leptograptus, Syndyograptus, Diplograptus, Retiograptus,* etc. . . .

Summarising the evidence, it would seem that the Tasmanian graptolites are Ordovician, either at the summit of the Lower[1] or at the base of the Upper Ordovician.'

The above determinations of genera and the consequent implications as to horizon have been incorporated in geological literature as if founded on incontrovertible fact, but the discovery of fossils which are of older age in part of the Dundas Series re-opens the question as to whether the graptolite record in Tasmania rests on a sound foundation.

After examining the specimens on which the original determinations were made, I was unable to accept the identification of any of the forms as graptolites. As this opinion is so contrary to that expressed by earlier workers, another independent opinion was sought.

The three specimens were, therefore, sent to Dr. W. J. Harris, who reports, as follows (correspondence dated 12/9/43):—'Three slabs of black mudstone were submitted to me by the Government Geologist of Tasmania for examination. I have to report as follows:—

1. *N.E. Dundas Railway—Tas. Mus.* 10935

I can see nothing that I can identify as definitely organic. The ferruginous markings appear only to outline superficial cracks on the slab, and nothing else seems sufficiently definite to warrant discussion.

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[1] According to the latest classification the horizon indicated would be now included in the Middle Ordovician of Victoria.

2. 12·35 *Miles from Zeehan-N.E. Dundas Tramway—G. A. Waller* 3/02

The two markings indicated by the numbers (1) and (2) on this slab are almost certainly organic (2 especially) but they represent no characters to enable identification as graptolites to be made.

3. 12½ *Miles from Zeehan* (561)

Similar markings as on (2) above, in greater number, but with no evidence of structure. Possibly algal in origin. This slab seems the most promising as far as indications of where further search might be profitable are concerned.

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SUMMARY

The Lisle graptolite has not been accepted by Dr. T. S. Hall, although he was prepared to accept the record from Strahan. As the specimen from the latter place has been lost, this record cannot be verified. Dr. Hall suggested that some of the specimens from the Dundas Railway had dendroid affinities and that graptolite thecae were present in others. As some dendroids have thecae outwardly similar to those of graptolites, the presence of thecae of this type does not prove that they belong to graptolites.

R. A. Keble suggested that certain generic forms were present which placed the age of the beds 'either at the summit of the Lower or base of the Upper Ordovician'.

A careful examination of the above material does not substantiate this. Dr. W. J. Harris is not prepared to admit the presence of any graptolites in the specimen he examined.

Any determination of the age of the Dundas Series based on the presence of the alleged graptolites thus rests on a very insecure foundation. While dendroids occur in Tasmania, the occurrence of true graptoloids has yet to be established.

In conclusion, I would like to tender my thanks to Dr. J. Pearson for the loan of the material from the Tasmanian Museum; to Dr. W. J. Harris for his report on the specimens which were sent to him; and to Mr. V. A. Coronel of the Public Works Department, Tasmania, for his photographs.

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