

A PERMIAN AMMONOID FROM NEW SOUTH WALES AND THE CORRELATION OF THE UPPER MARINE SERIES.

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(Plate xi, and Figures 1-3.)

Abstract.—References to alleged occurrences of ammonoids in the Permian of New South Wales are numerous. With the exception of the one specimen described in this paper they all seem to refer to bellerophontids identical with or related to *Warthia micromphala* (Morris). An abbreviated historical review of that species is, therefore, included. The only indubitable ammonoid from the Permian of New South Wales was found in the Branxton stage of the Upper Marine series of the Hunter River Valley. The specimen represents a new species which is described as *Adrianites (Neocrimites) meridionalis*. The evolutionary stage reached by that species indicates an Artinskian age for the Branxton beds.

A state of uncertainty has long existed regarding the occurrence of ammonoids in the Permian of New South Wales. A certain species, originally described as *Bellerophon micromphalus* by Morris in 1845, has subsequently been referred by different workers to such genera as *Goniatites*, *Agathiceras*, *Warthia*, *Prolecanites*, *Paralegoceras* and others, and it seems remarkable that no up-to-date description of any specimens to which any of these names has been attached should be available. The purpose of the present paper is to describe the only true ammonoid to which this specific name has ever been applied, and which, incidentally, is the only ammonoid ever secured from the Permian sequence in New South Wales. In order to clear the ground it will be advisable to go into the history of "*Bellerophon micromphalus*" and to demonstrate the many changes in the conception of that species.

Historical Notes on "*Bellerophon micromphalus*".

"*Bellerophon micromphalus*" was originally described by Morris (1845, p. 288, pl. 18, fig. 7) from the Upper Marine series of the Permian in the Illawarra District, New South Wales, but the specimen figured by its author is quite unlike what was later to be considered as a typical shell of that species.

In 1847, McCoy (p. 308) recorded *Bellerophon micromphalus* from Wollongong and added that it was rare in the Muree sandstone of the Hunter River Valley. In the same year, Dana described *Bellerophon undulatus* from Harper's Hill and *B. strictus* from Illawarra. Two years later, Dana (1849, pp. 707-8) recorded and figured the same two species in addition to *Bellerophon micromphalus*, but his figure of the last-mentioned species is different from the figure published by Morris.

de Koninck (1877, p. 201) placed *B. undulatus* Dana in the synonymy of *B. micromphalus* and, although he had seen no traces of septa, transferred the species to the genus *Goniatites* because of its external appearance. He apparently overlooked the fact that as early as 1850 Römer had already described a species from the Upper Devonian of Germany which he had named "*Goniatites micromphalus*". de Koninck's description of the species was repeated unchanged in the English edition of his work published in 1898.

In the meantime, Etheridge (1878, p. 89) had listed "*Goniatites micromphalus*" as doubtfully related to *Aganides* Montfort, and (1880, p. 304) recorded the species from the Bowen River coalfield in Queensland. This reference was repeated by Etheridge in