



Systematic revision of the *Calmoniidae* (*Phacopida*, *Trilobita*) from the Devonian Ponta Grossa Formation, Paraná Basin, Brazil

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Seventeen nominal species have been recorded among the Calmoniidae (Phacopida, Trilobita) of the Ponta Grossa Formation, Paraná Basin, Brazil. An analysis of 409 specimens from this unit revealed an overestimation of taxonomic diversity, as some of the nominal taxa previously described were based on characters derived from taphonomic processes. Some of the individuals used in the diagnosis of these nominal taxa show extensive exfoliation and effacement of the main diagnostic characters, calling for discussion of the status of several species. Thus, *Calmonia signifier* Clarke differs from *C. subseciva* Clarke only because it shows a single terminal spine, while in *C. subseciva* the margin is normally entire. However, in well preserved specimens, minute spines that are similar in shape and position to those of *C. signifier* can also be observed on the latter. The degree of inflation of the glabellar lobe has been the only character used to distinguish *Paracalmonia paranaensis* Popp et al. from *P. cuspidata* (Clarke), but the fact is that *P. cuspidata* is only known from compressed specimens. *P. salamunii* (Popp) was based on a sole poorly preserved individual. A character analysis indicates that this specimen fits in *C. signifier*. The holotype of *Parabainella brasiliensis* Popp is an exfoliated specimen, hampering thus observation of diagnostic characters. The monospecific genus *Parabainella* Popp is distinguished from *Bainella* Rennie only by the absence of thoracic spines, a character liable of modification by breakage or weathering. *Metacryphaeus granulata* Popp is characterized only by the presence of glabellar granules. However, smaller granules in trilobites can also be quartz crystals, and therefore probably taphonomic in origin. Thus, following a systematic revision of the Calmoniidae, it appears that at least five nominal species from the Ponta Grossa Formation are invalid. This has important paleoecological and biostratigraphical implications.

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