

YUSHANOGRAPTUS, A NEW GRAPTOLITE GENUS FROM THE NINGKUO SHALE (LOWER ORDOVICIAN) OF YUSHAN, NORTHEASTERN JIANGXI (KIANGSI)

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The new genus *Yushanograptus* described in the present paper is a monotypic genus with *Yushanograptus separatus* gen. et sp. nov. as the genotype which is represented by 5 specimens secured by one of the writers (Han) in the summer of 1961 from the Ningkuo Shale at the locality near Lijiapeng of the Yushan district, northeastern Jiangxi (Kiangsi) Province (Field No. F61001).

The marked features of the new genus are the two long and slender primary stipes and the Goniograptid type in branching. The young forms of this new graptolite bear a striking resemblance to the slender *Didymograpti*, such as *Didymograptus gracilis* Törnquist, *D. cognatus* Harris et Thomas etc. The same is the case in *Zygograptus*, particularly in *Zygograptus irregularis* Harris et Thomas. In the mode of branching of the stipes, our new genus may be considered as a regularly alternating dichotomous type as in *Goniograptus*. Stratigraphically, *Zygograptus* and *Goniograptus* are all the early Arenigian graptolites, but the new genus occurs in the zone of *Didymograptus hirundo*. It seems to the writers that the new genus *Yushanograptus* may be a derivative of *Zygograptus* or *Goniograptus*.

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Family Dichograptidae Lapworth, 1873

Genus *Yushanograptus* gen. nov.

Diagnosis: Rhabdosome consisting of two declined or nearly horizontal long primary stipes (funicle), and of stipes up to the sixth or perhaps higher orders. Goniograptid type in branching. Thecae are straight tubes.

Genotype: *Yushanograptus separatus* gen. et sp. nov., Ningkuo Shale, Yushan, Jiangxi (Kiangsi) Province.

***Yushanograptus separatus* gen. et sp. nov.**

(Text-fig. I, figs. A—F)

Material: Five specimens (Cat. Nos. 14514—14516, 14518—14519) preserved in the weathering brown-yellowish shale as films.

Holotype: Textfig. I, fig. A. Specimen 14514.

Diagnosis: Rhabdosome is composed of two declined or horizontal primary stipes. The primary stipe long, consists of 11—12 thecae. Branching of stipes is of Goniograptid type and the secondary stipes crowded in distal portion, up to sixth or higher orders. Sicula is a long conical tube with a simple development of the proximal end. Thecae are all simple tubes, numbering 7 in 10 mm in the primary stipes and 10 in the terminal ones.

Description: The rhabdosome consists of two declined or horizontal primary stipes (funicle). The primary stipes are slender, 18 mm in length with 11—12 thecae. The young forms consisting of only two primary stipes (Text-fig. I, figs. D—E) are difficult to be separated from some slender Didymograptids as *Didymograptus gracilis* Törnquist, *D. cognatus* Harris et Thomas etc.

The primary stipe is very slender in the proximal part, about 0.2 mm in width, and gradually increases to 0.35 mm wide in the distal. The thecae are slender tubes. The length of overlap is longer in the proximal part of the primary stipe, while a theca has just grown out the second originated also. In the distal part, the proximal point of the thecae are lower and the length of overlap is shorter. In general, the length of thecae is 1.9 mm and the width of their apertures is of 0.2 mm only. The apertural margins and ventral walls of thecae are all straight lines with lower inclined angles. In 10 mm there are 7 thecae.

The sicula is a long conical tube, measuring 1.2 mm in length and 0.25 mm in width. The first theca of the first primary stipe (th_1^1) originates from the proximal end of sicula, downward along the wall of sicula and turn out at the aperture of sicula. The first theca of the second stipe (th_1^2) originates at the turning point of th_1^1 (text-fig. I).

The branching of the stipes is of Goniograptid type. The terminal stipes are crowded in the distal portion of the rhabdosome, branching in 6 or more orders. Accompanying by the elevation of the order, the length of the terminal stipes and the angle of branching are reduced step by step. The characters of the terminal stipes fully agree with the primary stipes. The proximal part of the terminal stipes is slender, about 0.3 mm in width and increases to 0.6 mm in distal part. The distance between any two different order are equal, consisting of two thecae. The thecae of the terminal stipes are shorter than those of the primary ones, numbering 10 in 10 mm. Their ventral walls and apertural margins are slightly concave.

Remarks: The young form of the new species with primary stipes alone closely resembles *Didymograptus gracilis* Törnquist and *D. cognatus* Harris et Thomas. It differs therefrom in the mature form. By the feature of branching, it might be easily distinguished from the other known related forms as *Zygograptus irregularis* Harris et Thomas, etc.

Horizon and Locality: *Yushanograptus separatus* gen. et sp. nov. occurs in the *Didymograptus hirundo* zone of the Ningkuo shale near Lijiapeng, Yushan, north-eastern Jiangxi (Kiangsi) Province.