UPPER VISEAN GONIATITES FROM NORTHERN ANATOLIA

C. H. T. WAGNER - GENTIS

INTRODUCTION

Some Goniatite fragments, among which three determinable specimens, were entrusted to me for identification. The specimens belong to the «Maden Tetkik ve Arama Enstitüsü» in Ankara, Turkey. They were found, respectively, by Prof. Dr. W. J. JONGMANS and Dr. F. CHARLES. The one determinable fragment collected by JONGMANS is preserved as an impression in greyish shales from the valley of Kocareis, in the region of Karapınar, near Bartın, Zonguldak. These shales are full of Ostracod shells, fragments of Goniatite tests and some drifted plant remains. Among the latter fragments odcurs a pith - cast of a Calamitean stem which has been identified by JONGMANS (M. T. A. Report No. 954, p. 54) as *Mesocalamites* or *Asterocalamites* sp. The two identifiable specimens found by CHARLES came from the window of Karasakal (Zonguldak area). They occur in dark grey shales which are also filled up with Ostracod shells and remains of Goniatites and fossil plants. The specimens determined from both localities belong to the species described below.

It is a pleasure to thank the Mineral Research and Exploration Institute of Turkey for facilitating the study and publication of the material described in this report.

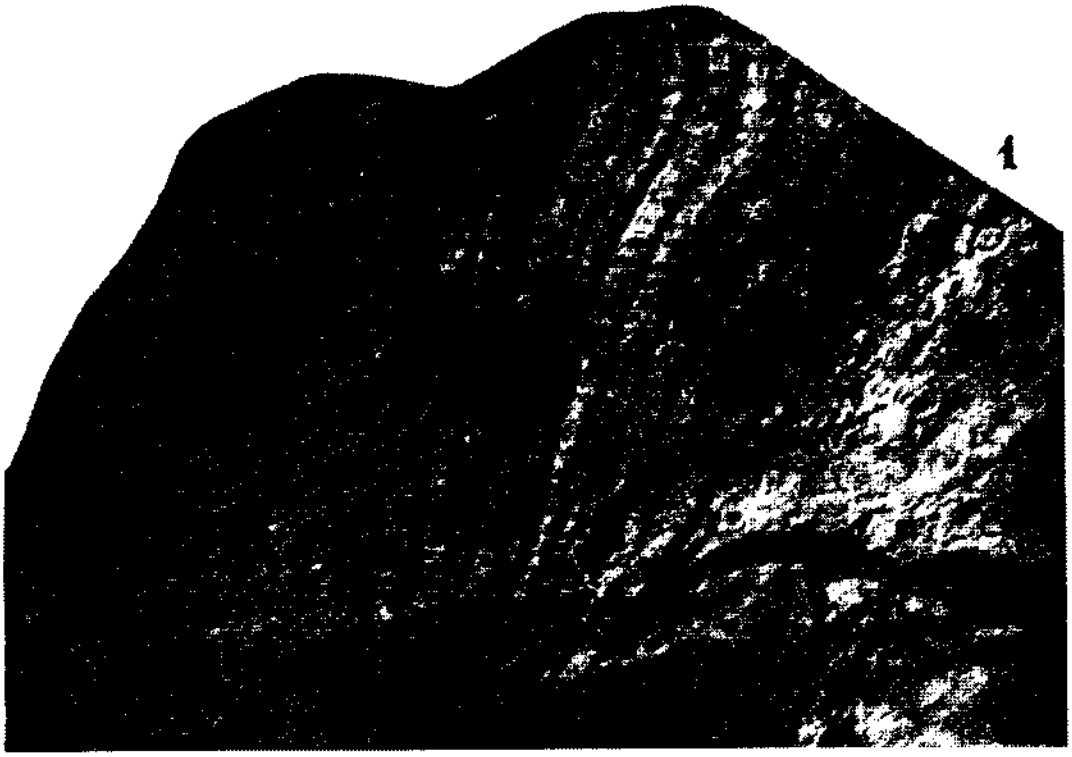
DESCRIPTION OF SPECIMENS

Goniatites falcatus ROEMER
PL I, fig. 1

The one specimen determined from JONGMANS' locality in the valley of Kocareis, near Bartın, Zonguldak, is only a piece of shell impression which does not show any suture-line.

The ornamentation consists of spiral striae and very fine, falcate transverse striae which are prominent at intervals. The prominent transverse striae give a roof-tile impression to the ornamentation.

Goniatites falcatus ROEMER is known to occur in the III b horizon of Westphalia in Germany (H. SCHMIDT, 1924, p. 499), the top of the P_{lb} horizon in England (BISAT, 1927, p. 124), the Upper Visean of Belgium (DELETINE, 1940, p. 11), and in the Upper Visean


1


2


3

of NW Spain (dct. Geological Survey London in KANIS, 1956, p. 402).

Goniatites striatus (SOWERBY)
PL I, fig. 2

The specimen from the window of Karasakal, Zonguldak, which is referred to this species, consists only of a piece of test ornament. It shows a spiral ornamentation crossed by fine and very close transverse striae. The latter are directed slightly forwards when they emerge from the umbilicus and cross the spiral striae at about right angles at the flank. Thereafter, they bend slightly backwards at the change of the flank into the venter.

The specimen described above differs from *Goniatites maximus* BISAT in having quite a regular arrangement of spiral striae in comparison with the latter species which is characterized by closer spiral striae near the umbilicus than on the flank (cf. BISAT, 1934, PL XXII, fig. 4). The Turkish specimen differs from *Goniatites wedberense* BISAT in having real spiral striae, whereas *G. wedberense* in the adult has spiral striae which are formed by the crenulate transverse striae (cf. BISAT, 1934, PL 24, fig. 3). On the other hand, our specimen has much in common with *Goniatites waddingtoni* BISAT which is also characterized by the same type of ornamentation (cf. BISAT, 1927, PL VI [a], fig. 5[a]). However, in our specimen there is not such a clear backward bending of the transverse striae at the change of the flank into the venter as visible in *G. waddingtoni*- Therefore, the Turkish specimen conforms best to the description and figuration "of *Goniatites striatus (* SOWERBY) as provided by BISAT (1934, PL XIX, fig. 1). Still, it may be that our specimen has somewhat closer transverse striae than may be observed in the examples of *G. striatus* from the Carboniferous of England.

Goniatites striatus (SOWERBY) is known to occur in England together with B zone forms (BISAT, 1934, p. 302). In Germay, it is recorded from the III p horizon (H. SCHMIDT, 1924). It is known as well from the Upper Vise-in in Belgium (DELEPINE, 1940, p. 11) and NW Spain (DELfiPINE, 1943).

Goniatites crenistria PHILLIPS
PL I, fig. 3

The second determinable specimen from the window of Karasakal shows only the test ornamentation of probably a piece of venter and flank. Clearly visible are the crenulated transverse striae, which may be compared to the border of a postage stamp. The transverse striae, form a shallow sinus on a piece of test which may be the venter.

Goniatites crenistria PHILLIPS occurs in England from the top of the B zone into the upper part of the P1b horizon (BISAT, 1927, p. 123); in Belgium in the Upper Visean (DELEPINE, 1940, p. 11); in Germany (Westphalia) in the III a horizon (H. SCHMIDT, 1924) and in the Upper Visean of NW Spain (unpublished data of the writer).

DISCUSSION

From JONGMANS' locality a fragment of *G falcatus* was described here, which indicates the Upper Visean (III (3 horizon, Germany; Pl_chorizon, England). Consequently, the shales in the valley of Kocareis should be attributed to the Upper Visean.

CHARLES' locality in the window of Karasakal yielded *G. striatus,* which is known from the Plb horizon in England and the III (b horizon in Germany, and *G. crenistria,* which occurs from the top of the B zone up into the Plb horizon in England. Both specimens indicate

the Upper Visean. Of course, there is a possibility, that they indicate more precisely the Pib horizon, but the amount of species from this locality seems to be insufficient to effect such a detailed correlation with the stratigraphical succession in England. Moreover the specimen discussed here of *G. crenistria* lacks the suture-line which would be necessary to determine whether it is an advanced form or not.

DELEPlNE (1933, p. 160-161) was the first to describe a few Goniatites from Turkey. They were *Beyrichoceras* cf. *obtusum* (PHILLIPS) and a fragment of the ornamentation of *G. crenistria* PHILLIPS. Both specimens came from the Zonguldak area. They were found by CHARLES in the fine-grained shales from Tarlaağzı, which were stated to be of Upper Dinantian age. DELEPINE remarked that *B. obtusum* as well as *G. crenistria* occur in strata of Upper Visean age and regarded them as being of great value in fixing the stratigraphical position of the fine - grained shales of Tarlaağzı. BISAT (1934, p.293) considered *B- obtusum* as a form which occurs in the Pib horizon of the Upper Visean in England. It seems that the specimen of *G. crenistria* from this locality was also an advanced form. It would go too far, however, to conclude already on the presence of two species that the strata from which they were derived represent exactly the same stratigraphical horizon as the Plb horizon known from England.

CONCLUSIONS

We may conclude that the specimens described above and mentioned in the discussion all indicate an Upper V isean age for the sediments in which they were found.

REFERENCES

BISAT, W. S. : The Carboniferous Goniatite Zones of England and their continental equivalents. *C. R.* J[er] *Congres pour Vavancement de stratigraphie carbonifere, Heerlen, Holland,* p. 117-133, PI. VI, Via, 1927.

BISAT, W. S. : The Goniatites of the «Beyrichoceras» Zone in the North of England. *Proc. Yorkshire Geol. Soc.,* Vol. XXII, P. IV, p. 280-309, PI. XVII-XXIV. 1934.

DELEPINE, G. : Une etude de quelques fossiles particulierement abondants dans le Paleozoique des environs de Bartine Zongouldak. *Mem. Soc. Geol. de Belgique,* T. 7, p. 152-161, PI.VII, f. 13, 1933.

DELfiPINE, G. : Les Goniatites du Dinantien de la Belgique. *Mem. Muse'e Royale Hist. Nat, Belgique,* 91, p. 1-91, PI. IV, 1940.

DELEPINE, G. : Les faunes marines du Carbonifere des Asturies (Espagne). *Mem. Ac. Sci. Inst. France.* 66, p. 1-122, PI. I-VI, 1943.

JONGMANS, W. J. : Verzeichniss der Floren in den Anatolischen Kohlenbecken. *M.T.A. Report* No. 954 *(Unpublished).*

KANIS, J. : Geology of the Eastern Zone of the Sierra del Brezo (Palencia - Spain). *Leidse Geologishe Med.* T. XXI, p. 377-445, 1956.

SCHMIDT, H. : Die carbonischen Goniatiten Deutschlands. *Jahrb. Preuszische Geol. Landesanst. Berlin,* T. XLV, p. 489-609, PI. 18-26.