Доклады Болгарской академии наук
Comptes rendus de l'Académie bulgare des Sciences
Tome 36, N° 8, 1983

GÉOLOGIE
Stratigraphie

AMMONITE OCCURRENCE IN THE BARREMIAN-APTIAN BOUNDARY BEDS IN NORTH-EASTERN BULGARIA

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(Submitted by Corresponding Member V. Tsankov on April 18, 1983)

One of the research projects carried out by the Department of Palaeontology at the Sofia University in recent years has been the detailed study of the biostratigraphy of the Lower Cretaceous in North-Eastern Bulgaria. Part of this project was included in the graduation thesis of K. Stoykova on the Aptian stage in the lower reaches of the Yantra River, and also in the studies into the Lower Cretaseous carried out by T. Nikolov in the natural open layers and in the deep drillings between the Yantra and the Black Sea.

Very interesting data were obtained from the investigation of the uninterrupted Barremian-Aptian section at the Katselovo Village, Roussé District. This section presents a monotonous rhythmic alternation of marls, clay limestones, and sparse seams of rather pure limestones, developed mainly in the upper part. The section provides a very good opportunity for observing the stratigraphic ammonite occurence in a clay-carbonate medium.

Viewed from top to bottom, the section at Katselovo Village, Roussé District, reveals the following sequences:

Depth in metres:

5. Thin-layer beige marls exteremely rich in fossil fauna. Predominant are the species of the genus *Deshayesites* represented by tens of specimens. The following have been determined:

Deshayesites deshayesi (Leym. MS) d'Orb., *Deshayesites forbesi* Casey, *Deshayesites callidiscus* Casey, *Deshayesites grandis* Spath, *Deshayesites saxbyi* Casey, *Deshayesites involutus* Spath, *Deshayesites euglyphus* Casey, *Deshayesites terminalis* Bogdanova, *Paradeshayesites tenuicostatus* (v. Koenen), *Prodeshayesitee bodei* (v. Koenen), *Dufrenoyia* cf. *mackesoni* Casey, *Dufrenoyia* cf. *formosa* Casey, *Cheloniceras* (*Ch.*) *cornuelianum* (d'Orb.), *Cheloniceras* (*Ch.*) *crassum* Spath 10.0020.00; *Pseudohaploceras matheroni slatinensis* Dimitrova, *Costidiscus microcostatus* (Sim., Bac. & Sor.), *Abrytusites* sp., *Australiceras* cf. *gigas* (Sowerby), *Kutatissites* sp.-1, *Kutatissites* sp. indet 40.00

4. Beige to gray thick-layer limestones and clay limestones. The following species were found: *Kutatissites simionescui* (Avram), *Kutatissites* sp.-2, *Kutatissites* sp. indet., *Pseudohaploceras matheroni matheroni* (d'Orb), *Costidiscus microcostatus* (Sim., Bac. & Sorok.) — m 20.00-25.00;

*Prochelonicera*s sp. aff. *pschechense* (Luppow), *Prochelonicera*s sp. indet., *Ancyloceras matheronianum* (d'Orb.), *Ancyloceras* cf. *rochi* Dimitrova — m 0.00-15.00 . . . . . 25.00

3. Gray to light-gray marls with sparse seams of clay limestones. No fauna was found 28.00

2. Alternation of marls with purer to clay limestiones. Rich and diversified fauna was found, most frequent being the specimens from

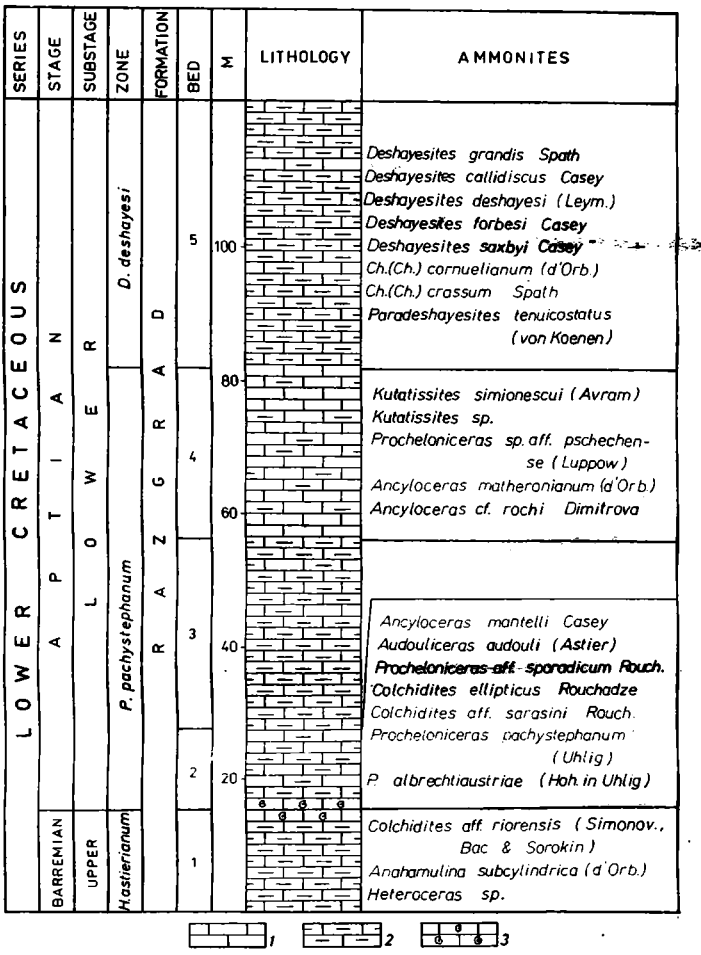

Fig. 1. Section of the Lower Cretaceous at Katselovo Village, Roussé District

1 — limestones; *2* — clay limestones and marls; *3* — beds with *Colchidites*

Procheloniceras. The following were determined: *Procheloniceras albrechtiaustriae* (Hohenegger in Uhlig), *Procheloniceras* sp. aff, *sporadicum* (Rouchadzé), *Ancyloceras mantelli* Casey, *Toxoceratoides royerianus* (d'Orb.), *Aconeceras nisoides* (Sarasin), *Pardeshayesites* sp. indet., *Pseudohaploceras matheroni matheroni* (d'Orb.), — 5.00-12.00;

Audoliceras audouli (Astier), *Audouliceras* sp. indet., *Procheloniceras pachystephanum* (Uhlig), *Prohelonicеras* cf. *albrechtiaustriae* (Hoh)., *Procheloniceras* sp.-1, *Costidiscus recticostatus* (d'Orb.) — 2.00-5.00;

Procheloniceras sp. indet., *Procheloniceras albrechtiaustriae* (Hnh.), *Colchidites ellipticus ellipticus* Rouchadzè, *Colchidites ellipticus kvad-*

aurensis Rouch. , *Colchidites* sp. aff. *sarasini* Rouch. *Hamulina* sp. - 0.00-2.00 . . . . . 12.00

1. Marls — gray, compact, in thick layers. Many specimens of *Anahamulina subcylindrica* (d'Orb.) were found in them. There are also *Hamulina aplina* (d'Orb.), *Heteroceras* sp. indet., *Colchidites* aff. *rionesis* (Sim., Bac. & Sorokin), *Colchidites* sp., indet., *Costidiscus recticostatus* — 7.00-10.00 . . . . . 15.00

Many ammonites were collected at the description of this section in the boundary beds between the Barremian and the Aptian, and among them we established specimens of a rare combination between the genera of *Colchidites* and *Procheloniceras*.

The taphonomic analysis of the ammonite finding at the Katselovo Village as well as the palaeontological investigation of the ammonites, demonstrate normal sedimentation without any symptoms of interruption or condensation.

The bed containing representatives of *Colchidites* is between 1.5 and 2.0 m thick. In the lower part of the bed specimens of *Colchidites* are found jointly with representatives of the genera *Heteroceras* and *Hamulina*, whereas at the upper part we ran across specimens in which *Colchidites* and *Procheloniceras* are together. This fact, as well as the occurrence of *Procheloniceras pachyst-*

Fig. 2. Specimen from the beds with *Colchidites*
1 — Colchidites ; 2 — Procheloniceras

ephanum (Uhl.) on the same stratigraphic level suggests that the representatives of the *Colchidites* genus continued their existence also in the beginning of the Aptian Age. This shows that the dying out of the individual genera and species has seldom taken place suddenly and entirely within a certain time limit.

Situated above the beds with *Colchidites* there are beds extremely rich in other ammonites: *Ancyloceras, Audouliceras, Procheloniceras, Prodeshayesites, Kutatissites, Deshayesites,* etc.

The boundary between the Barremian and the Aptian stages is to be traced along the large-scale and rapid disappearance of the genera *Heteroceras, Hamulina, Anahamulina,* and the appearance of *Procheloniceras, Prodeshayesites, and Kutatissites.*

The ammonite sequences in the Lower Aptian in North-Eastern Bulgaria provide for the separation of two ammonite zones: *Procheloniceras pachystephanum* and *Deshayesites deshayesi.* They are to be distinguished very clearly in a number of sections in North-Eastern Bulgaria (Kastelovo, Gorsko Albanovo, Opaka, Kovachevets, and Polski Trumbesh).

The ammonite zone *Pr. pachystephanum* is characterized by the species of *Procheloniceras, Ancyloceras, Audoliceras, Kutatissites,* and rare *Colchidites* (at the base).

The ammonite zone of *D. deshayesi* is characterized mainly by many species of *Deshayesites, Cheloniceras,* etc.

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