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THE NUMMULITES AND STRATIGRAPHY OF THE LOWER
EOCENE DEPOSITS IN THE VICINITY OF THE GUMBATHI
VILLAGE (SOUTHERN GEORGIA)

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Нуммулиты и стратиграфия нижнеэоценовых отложений села Гумбати
(Южная Грузия)

In Georgia the Nummulites appear for the first time in the Paleocene. In the mentioned deposits of the district Thethri-Tskaro (the southern part of the Republic) a small fauna of *Nummulites fraasi* de la Harpe and *N. solitarius* de la Harpe was found (Kacharava I., 1960; Mrevlishvili N., 1965).

Above, in the deposits of the Lower Eocene a richer and more diversified Nummulites fauna is present described by I. Kacharava (1936); M. Popkhadze (1956); N. Mrevlishvili (1960, 1965) and N. Salukvadze (1964).

The richest fauna of the Lower Eocene was found by the present writer in the vicinity of the village Gumbathi in the deposits 34 m thick. This village is situated at the foot of the southern slope of the Thrialeti range, in the basin of a small river Gumbathi-Tskali, a left tributary of the river Khrami.

The first investigator to describe this section was P. Gamkrelidze (1949). According to his data the deposits of the Bordjomi flysch are observed in both limbs of the Gumbathi anticline.

According to this author, the thin-bedded clayey marls are found above the Upper Cretaceous in the southern limb of the anticline. Above, after a small discontinuity in the outcrops, follow sandstones alternating with clayey sandstones. The latter are unconformably covered by Mio-Pliocene conglomerate.

These flysch deposits according to P. Gamkrelidze belong to Paleocene-Lower Eocene.

Later on, this section was described in detail by M. Popkhadze and M. Kacharava (1955). According to their data in the southern limb of the Gumbathi anticline from the bottom to the top are exposed:

1. light-grey clays with microforaminiferal fauna of Paleogene age: *Glomospira charoides* P. et J., *Ammodiscus incertus* d'Orb., *Dorothia retusa* C. u. s. h., *Gaudryina laevigata pyramidata* C. et J., *Bolivinooides*

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decorata J o n., *Gyroidina* aff. *globosa* H a g., *Stensiöina caucasica* S u b b., *Globigerina* aff. *frontosa* S u b b., *Anomalina velascoensis* C u s h.

2. thin-bedded yellowish, fine-grained and medium-grained sandstones alternating with thin-bedded, yellowish-grey sandy clays.

In the sandstones were found *Nummulites planulatus* L a m k. (A, B), *N. atacicus* L e y m. (A, B) and *N. globulus* L e y m. (A, B), whereas in the clays — microforaminifers of the *Globorotalia aragonensis* zone (Lower Eocene): *Gyroidina florealis* W h i t e, *Eponides trümpyi* N u t t., *Globigerinella voluta* W h i t e, *Acarinina pentacamerata* S u b b., *Globorotalia aragonensis* N u t t.

According to our data, on the bank there are exposed from the bottom to the top:

1. grey, thin-bedded marls and marly limestones with small sea-urchins of the Danian stage (specimen 316),

2. reddish marls alternating with grey limestones (sp. 315) 4 m.

3. grey, reddish, green and yellow marls (sp. 315) 7 m.

4. grey, reddish, green, and yellow marls (sp. 301—313) 6 m.

Exposures are lacking for 7 m, then follow:

5. coarse-grained, grey shaly-sandstones with rare *Nummulites* sp. (298—300)¹: *Nummulites solitarius* d e l a H a r p e, *N. aquitanicus* B e n o i s t (A, B), *N. burdigalensis* s s p. a S c h a u b (A). 1 m.

Loose fragments of sandstones with *N. globulus increscens* S c h a u b and *N. burdigalensis* s s p. a S c h a u b — were also picked up there.

6. yellowish-grey clays alternating with medium-grained thin-bedded sandstones without fauna (sp. 274—297). 23 m.

7. yellow, fine-grained sandstones, with a rich nummulitid fauna in the lower part (sp. 271—273): *Nummulites planulatus* L a m. (A), *N. aquitanicus* B e n o i s t (A, B), *N. globulus increscens* S c h a u b (A), *N. pernotus* S c h a u b (A), *N. burdigalensis* s s p. a S c h a u b (A), *N. atacicus* L e y m. (B), *Discocyclina scalaris* S c h l u m b. 1 m.

8. yellowish, light clays and clayey sandstones with rare and poorly preserved *Nummulites* and *Discocyclinae* (sp. 263—270). 8 m.

9. yellowish, small-grained, hard clayey sandstones (sp. 261—262) with charred vegetable remains and *N. aquitanicus* B e n o i s t (A, B). 1 m.

The first packet — grey marls and marly limestones with small sea-urchins — is referred to the Danian stage.

The next conformably following packets 2—4, marls of various colours and grey limestones without fauna, 17 meters thick according to the stratigraphical position correspond to the Paleocene.

The coarse-grained sandstones of the packet 5 have to be referred to the lower part of the Lower Eocene, because here together with a few typical specimens of the Paleocene *N. solitarius* d e l a H a r p e occur the Lower Eocene forms: *N. aquitanicus* and *N. burdigalensis*.

Above the sandstones and the unfossiliferous clays 23 m thick follow the nummulitic deposits (packets 7—9) with *N. planulatus*, *N. aquitanicus*, *N. globulus increscens*, *N. pernotus*, *N. burdigalensis* s s p. a, *N. atacicus*. Their total thickness is 10 m.

The last deposits are covered by the transgressive Mio-Pliocene.

¹ In this and other beds were found some new species of *Nummulites* and *Discocyclina*, described by the author in a forthcoming paper.

Thus, along the section of Gumbathi-Tskali the deposits with Nummulites, totalling in thickness of 34 m, belong to the Lower Eocene.

This is the only section in the southern part of Georgia, where the Lower Eocene is represented completely. In other districts of the southern part of the Republic Nummulites of the Lower Eocene occur only in some beds.

For example, M. Popkhadze (1956) mentions the following Lower Eocene forms from the upper part of the Bordjomi flysch of the villages Rveli, Gumbathi, Goubani and Tsinarekhi: *N. planulatus* Lam. (A, B), *N. atacicus* Leym. (A, B), *N. globulus* Leym. (A, B), *N. murchisoni* Brunn. (A), *N. subplanulatus soerenbergensis* Schaub (A) and *N. sp. n.* (A).

N. atacicus, *N. globulus* and *N. sp. ex gr. lucasi* are described by I. Kacharava (1948) from the Lower Eocene deposits of the village Goubani (southern slope of the Thrialetli range). From the Lower Eocene deposits in the vicinity of the village Tsintskaro, south of Goubani N. Mrevlishvili (1965) described *N. planulatus*, *N. globulus*, *N. burdigalensis*, *N. praelucasi*, *N. nitidus*, *N. murchisoni*, *N. distans*, *N. subdistans*, *N. buxtorfi* and other Foraminifera. According to this author, the presence of *N. distans*, *N. murchisoni*, *N. globulus* testify to the Upper Ypresian age of these deposits. N. Mrevlishvili had taken this forms from one layer with the thickness of 1—1,5 m. I. Kacharava (1948) and N. Mrevlishvili (1960) described from the Lower Eocene of Dushethi: *N. atacicus* Leym. and *N. subatacicus* Douv.

In the Novi-Afon district according to N. Salukvadze the deposits with *Discocyclina seunesi* Douv. (Paleocene) are followed by the light-grey, sometimes greenish and yellowish glauconitic limestones without noticeable discordance. In these deposits he has found *N. planulatus* (Lam.), *N. exilis* Douv., *N. praemurchisoni* Nem. et Barkh. together with some species common to the Lower and Middle Eocene. The named forms are index species of the Lower Eocene (1964). Probably, the Lower Eocene is represented there completely, in the limestone facies.

The Lower Eocene Nummulites of the Gumbathi section have a close connection with the some forms of Ypresian stage (Cuisian) of other parts of the Mediterranean area (Azerbaijan, Armenia, Crimea, Poland, Hungary, Roumania, Italy and others).

According to T. Mamedov (1967) we meet in Azerbaijan *N. planulatus*, *N. globulus*, *N. atacicus*, whereas in the equivalent deposits of Armenia according to A. Gabrielian (1964) there are *N. planulatus*, *N. globulus*, *N. atacicus*, *N. aquitanicus* and *N. lucasi*. All these species are known in Georgia.

In the southern part of the Russian platform *N. atacicus*, *N. globulus*, *N. planulatus* and *N. burdigalensis* are observed together with other forms (G. Nemkov, 1967). In the Carpathians F. Bieda (1959) notes *N. planulatus* and *N. burdigalensis* from the Ypresian stage. In Roumania (Bombita, 1963) the Lower Eocene contains *N. planulatus*, *N. globulus* and *N. aquitanicus*.

N. planulatus is observed also in the Cuisian deposits of Hungary (Dudich Ir. et N. Mészáros, 1964) and *N. burdigalensis* in the Ypresian of Jugoslavia (Pavlovic, 1963). *N. aquitanicus* is well known in the Lower Eocene of Italy (Castellarin, 1966). From the men-

tioned Nummulites of Georgia *N. planulatus* and *N. burdigalensis* are typical forms of the Cuisian stage in the Western part of the Mediterranean province (Hottinger, Schaub, 1964).

Thus, the Lower Eocene Nummulites of Georgia have had a close connection with the representatives of the Ypresian Nummulites of the other regions of the North part of the Mediterranean area.

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РЕЗЮМЕ

В статье описывается разрез палеогеновых отложений окрестностей сел. Гумбати (Южная Грузия). *Nummulites solitarius* de la Harpe, *N. planulatus* Lamk., *N. aquitanicus* Benoist, *N. globulus increscens* Schaub, *N. pernotus* Schaub, *N. burdigalensis* ssp. a Schaub и *N. atacicus* Leym., обнаруженные в этих отложениях, позволяют датировать их нижним эоценом.

Нижнеэоценовые слои Гумбатского, как и других районов Грузии, хорошо сопоставляются с ипрским ярусом (кюиз) Средиземноморского бассейна.