FURTHER FOSSILE BALANIDS FROM THE USSR

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After the determination of the Russian fossile Balanids of MERKLIN (4) further material was sent to the author by Dr. L. CZABALAY in 1961. These specimens were collected in Kizil-Kum and Fergana and Suskovczi by Dr. VIALOV. Examination of the material gave the following new results for completion our knowledge about the Balanids of the Russian Neogene:

I. Kizil-Kum

Between the rivers Amu Darja and Szir Darja, northward of the town Kuldzsuk-Tau, village Kultaban. Yellow sand and sandstone with a fauna containing sea urchins, *Balanus, Cardium helmerseni* ILJINA. Upper Oligocene. In the stratigraphic scheme of Central Asia by O. S. VIALOV the lower part of the Massagetski stage.

Balanus tintinnabulum (LINNÉ)

This species was already known from the Upper Oligocene (5). The specimens from Kizil-Kum have yet a collective nature i. e. they are only slightly differenciated. The parietal valves and *radii* are tubose. The tubes are not septated. Author distinguished two constitutionale types: a conical and an infundibuliform one. Maximal heights 11 mm and 14 mm resp. The specimens were colonizated. Theirs colour yellowish-pink. There were found also two *scuta* and two *terga*. The base of the *scutum* 5,5 mm, its hight 7 mm. *Membranipora Bryozoa* was observed attached to them and the shells were bored by carnivorous snails.

Balanus concavus oligoseptatus n. ssp.

Holotyp is the best conserved specimen in the Coll. Mus. Inst. Syst. Zool. Univ. Szeged.

The species *Balanus concavus* BRONN was already known from the Upper Oligocene. The shells of the specimens from Kizil-Kum are tubose. The tubes are only on the *apex* septated. Here 3—4 series of *septa* may be observed. The colour of the shells is white. The *radii* are within and without cross-striated. Opercular valves were not to be found. The shell tubes septated on the *apex* are the distinctive characteristics from *Balanus concavus eseptatus* described by PILSBRY (7). The other specific characteristics are corresponding to it. The specimens are setteled originally on pebbles.

II. Fergana

South-Fergana, a profile in the neighbourhood of the town Isfara. The middle part of the Upper Eocene, Ristanski-stage.

Balanids are rare in the Eocene (5, 6, 8). The following species are published till now in the literature:

Europe: *Balanus concavus* BRONN, *Balanus tintinnabulum* (LINNÉ), *Balanus hantkeni* KOLOSVÁRY, *Balanus unguiformis* SOWERBY, *Balanus phineus* KOLOSVÁRY.

America: *Balanus ostrearum* CONRAD.

Asia: *Balanus sublaevis* SOWERBY.

Balanus vialovi n. sp.

Holotyp: a basis-fragment with *scutum* on *Ostrea*-shell in Coll. Mus. Inst. Syst. Zool. Univ. Szeged.

The specimens from Fergana are several fragments of bases on *Ostrea*-shell. Theirs shell is white, partly smooth, partly vertically and horizontally wrinkled-riffled. The shell-tubes are septated. The septatedness is fine and primitive. It becomes towards the base imperfect. Measure of differentiation is yet primitive. Diameter of the base 14—16 mm. In the holotype there is a *scutum*. Its internal surface adhere strongly to the ambedding rock. The release would endanger its soundness. Its external surface is only cross-striated. The apex is strongly pointed. Base 5 mm, height 6 mm.

Identification with either one of the Eocenic species mentioned above was unsuccessful. The tube-system differ considerably from that of all of them. It is interesting, that its tubesystem is more developed as that of *Balanus phineus* and so it represents an intermediate stage between the most primitive *Balanus phineus* and the recent species with differenciated tube.-system.

The new species is named with the name of the collector: Dr. VIALOV.

III. Suskovczi

Ukraine Win tortonian beds.

Balanus improvisus DARWIN on *Ostraea*-shell.

Summary

The combined list of the Russian fossile Balanids of MERKLIN and VIALOV is as follows:

Eocene

Balanus vialovi n. sp.

Oligocene

Balanus tintinnabulum (LINNÉ)

Balanus concavus oligoseptatus n. ssp.

Miocene

Balanus amphitrite communis DARWIN, *cirratus* DARWIN,
niveus DARWIN, *albicostatus* PILSBRY,
karakumiensis KOLOSVÁRY, *formosanus* HIRO,
merklini KOLOSVÁRY, *helenae* KOLOSVÁRY.

Balanus improvisus DARWIN
Balanus provisoricus KOLOSVÁRY
Balanus rostratus HOEK
Balanus polyporus PILSBRY

Till now 8 species and 9 subspecies of Balanids are demonstrated by the author from the Russian fossile fauna. In the Eocene and Oligocene phylogenetically more primitive (only slightly differenciated) forms are to be found. The Miocenic *Balanus amphitrite* — as a progressive species — burst very early into subspecies. This property is even nowadays in existence.

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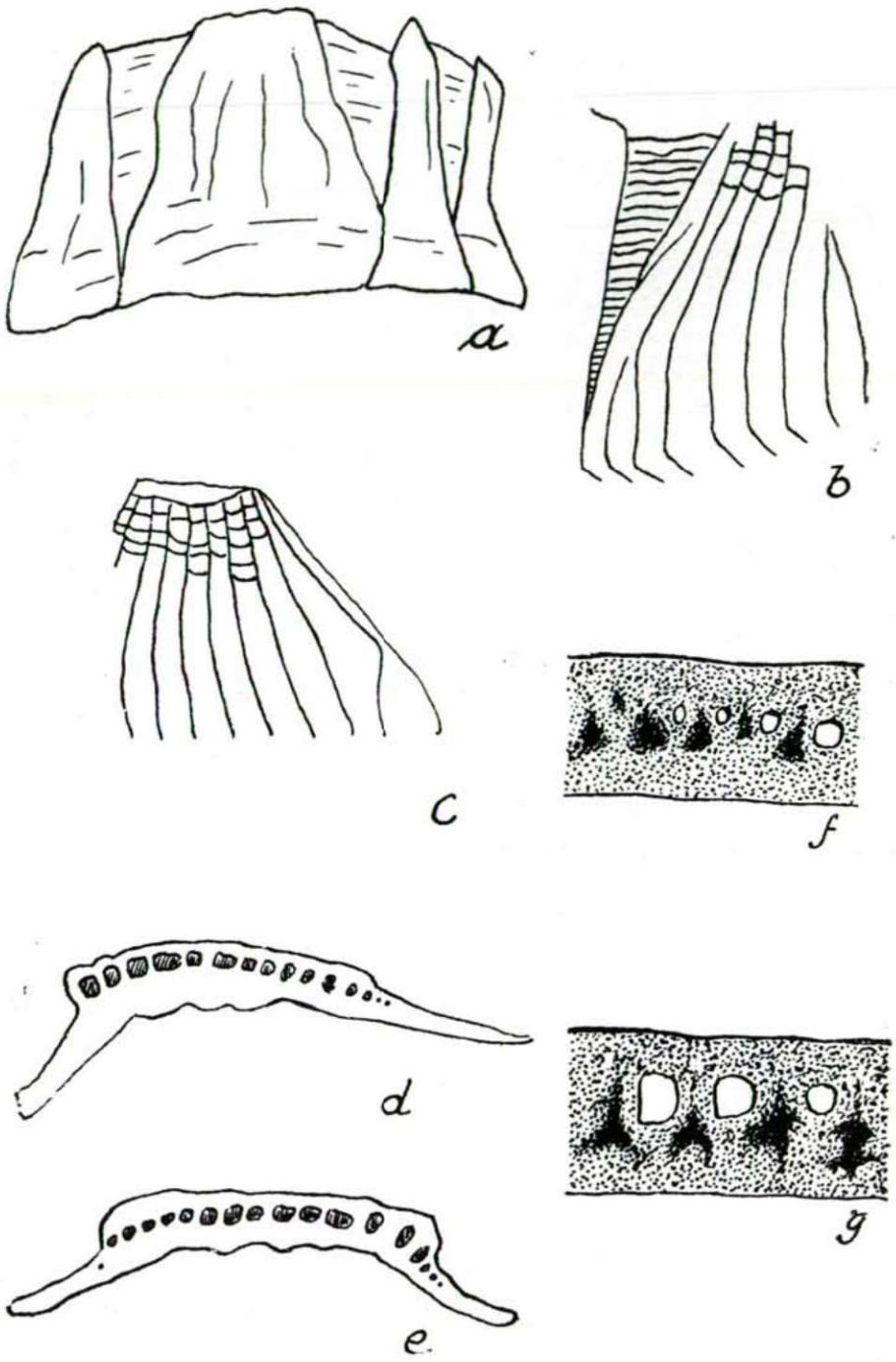

Fig. 1.

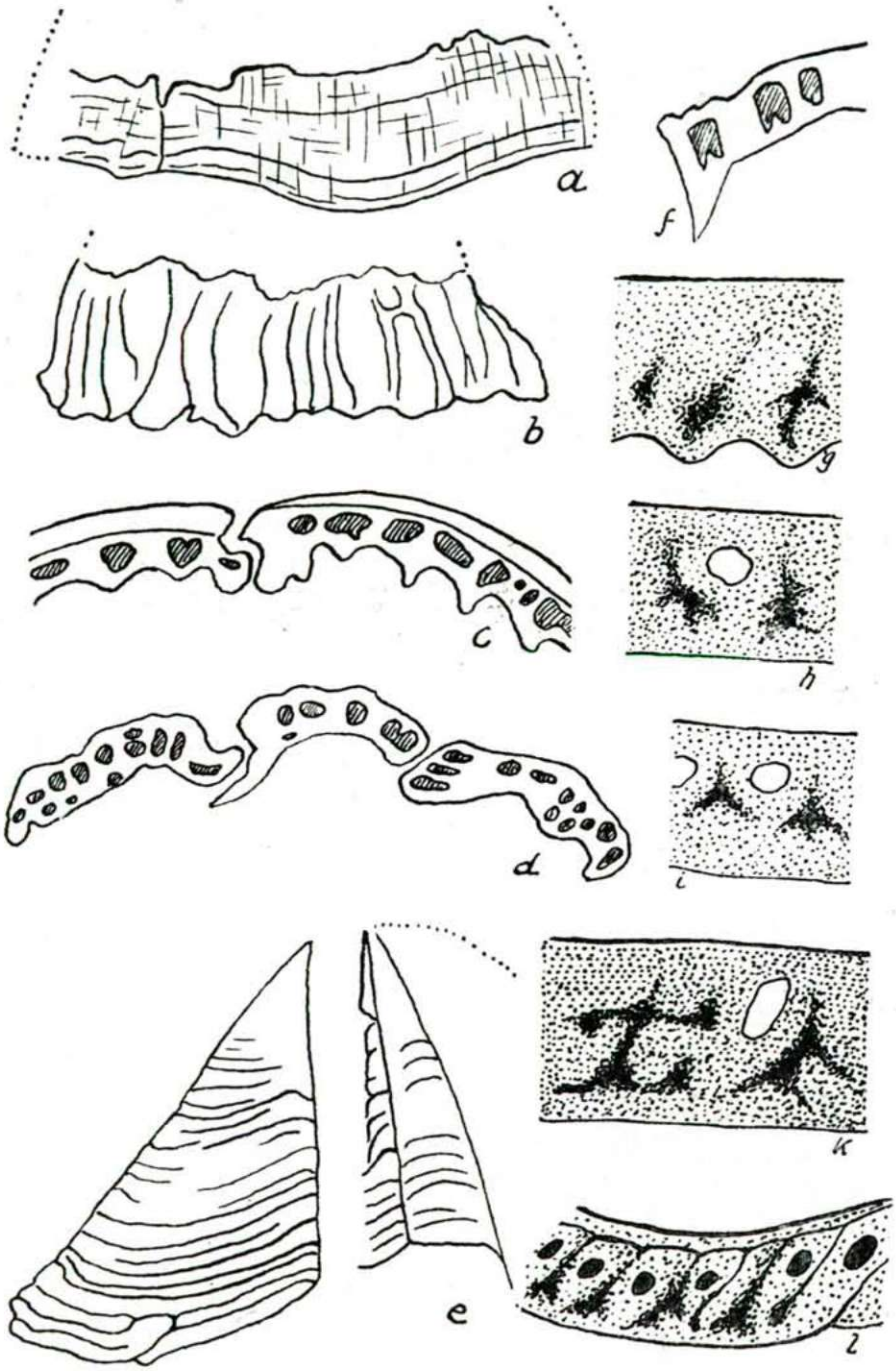

Fig. 2.

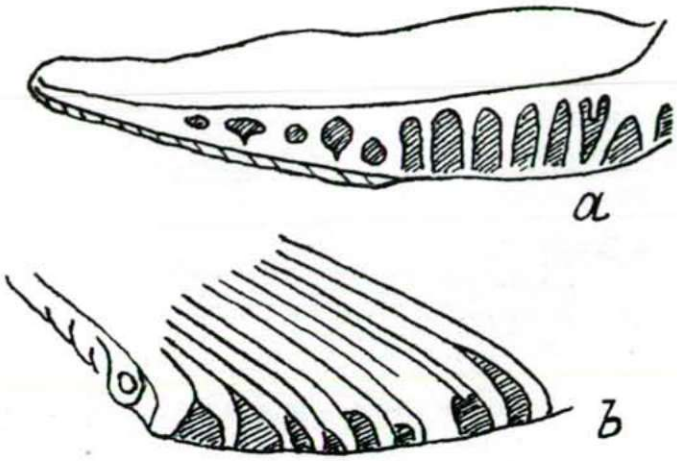

Fig. 3.

Figure 1. *Balanus concavus oligoseptatus* n. ssp.
a) in toto.
b) and c) septatedness of the *apex* of the valves.
d) cross section of a laterale valve with regular tube-sections.
e) section of a *rostrum* valve with regular tube-sections.
f) and *g)* CORNWALL's interlaminate figures. Delin. author.

Figure 2. *Balanus vialovi* n. sp.
a) external suface of a smooth valve-base.
b) external surface of a costated valve-base.
c) cross section of a valve with smooth surface with the irregular tube-sections.
d) cross section of a valve with costated surface with the irregular tube-sections.
e) external surface of the *scutum.* Besides the contact line with the *tergum.*
f) section of a valve-base (fragment).
g)—l) CORNWALL's interlaminate figures. Delin. author.

Figure 3. *Balanus* sp. *juvenilis* indet.
a) section of a valve base.
b) end of a valve-base (unpolished) Delin. author.
(Measures in the text)