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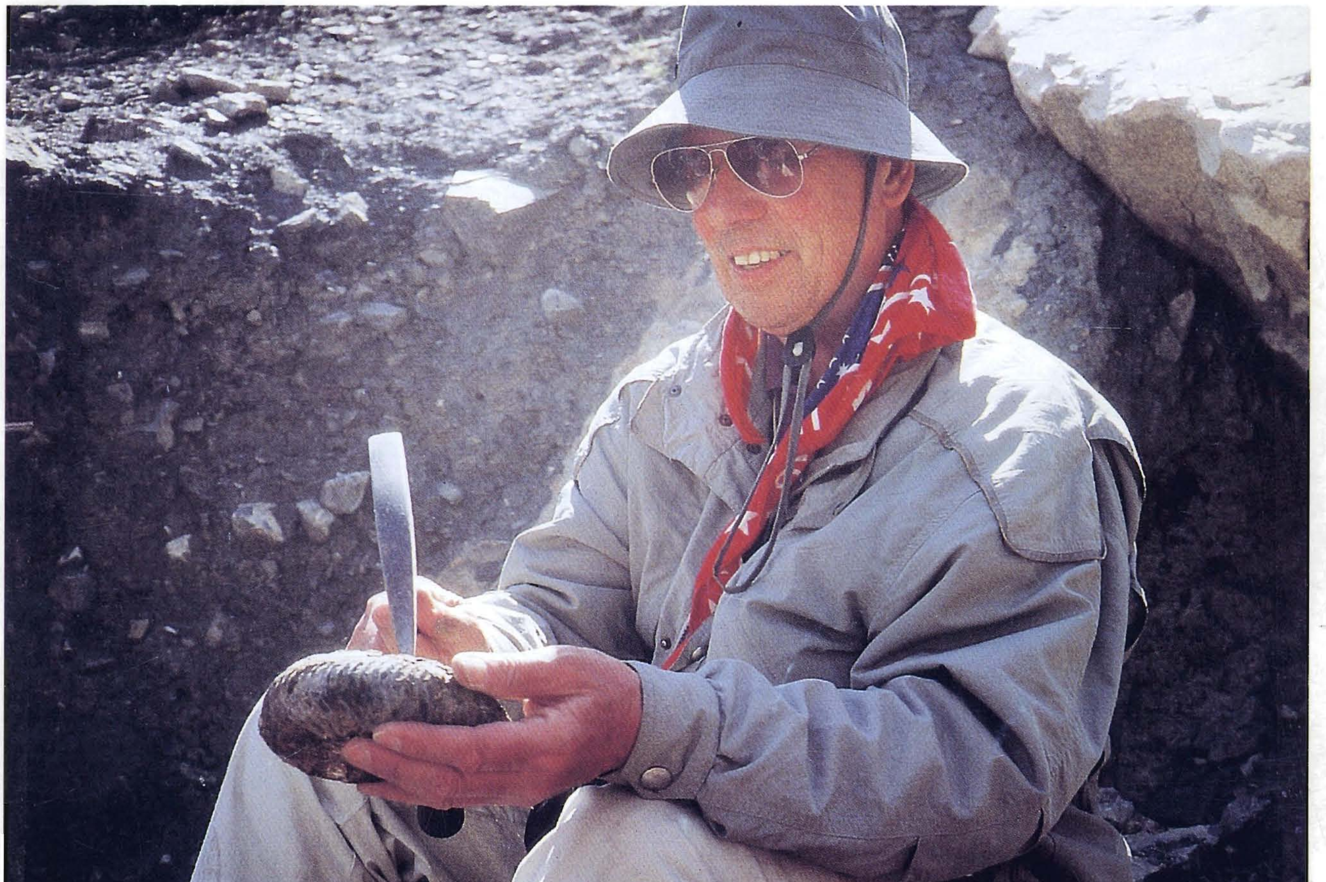

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ABSTRACTS

AN UNIQUE PRESERVATION OF INNER STRUCTURES OF ALBIAN AMMONITES OF MOSCOW REGION

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INTRODUCTION

An unique ammonite collection (about 200 samples) with preserved inner structures was collected by E.J.Baraboshkin in 1979 - 1990 northward Moscow (Dmitrov district, near Paramonovo and Gavrilkovo villages, text-fig.1). Samples were found from Lower - Middle Albian (BARABOSHKIN, MIKHAILOVA, 1987 - 1988; BARABOSHKIN, 1992 and in press) and belongs to following genera: *Arcthoplites, Cymahoplites, Hoplites, Dimorphoplites* (Fam.Hoplitidae) and *Beudanticeras* (Fam.Desmoceratidae). Preliminary results were published by E.J. BARABOSHKIN (1989). Some investigations were made by J.Wiedmann together with I.A.Mikhailova in Institute of Geology and Paleontology of Tübingen University in 1992. Photographing of samples were made by Herrn Hüttemann on a Stereoscan-250 at Tübingen University.

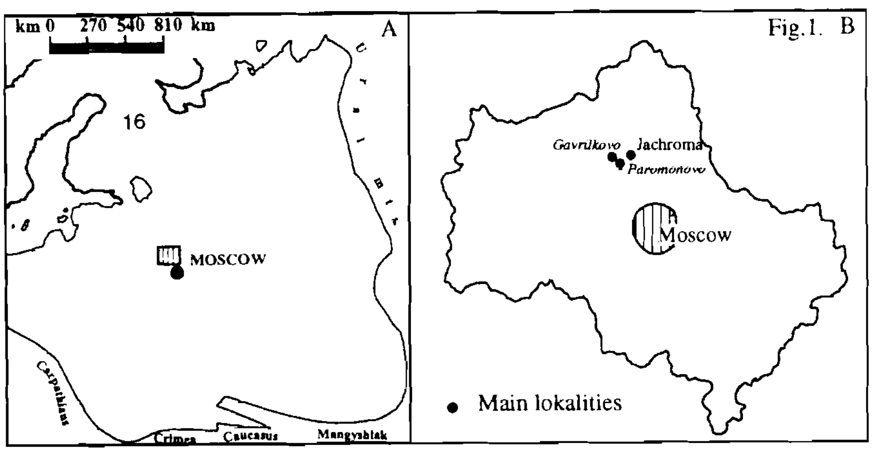

Fig.1. Position of samples locality: A - in Russian Platform; B - in Moscow region.

In the autumn 1993 an additional series of samples (those samples probably were lost) and some new results were sent by E.J.Baraboshkin and I.A.Michailova to J.Wiedmann. Unfortunately, earlier death of J.Wiedmann interrupted those investigations.

TYPE OF PRESERVATION AND BURIAL CONDITIONS

The preservation of the material is very similar to that one of some Volgian ammonites (DRUSHCHITS, MESEZHNIKOV, ALEKSEEV, 1982; BARSKOV, 1990; ERBEN, REID, 1971), Albian ammonites (DAUPHIN, 1975) and Triassic ammonites (WEITSCHAT, 1986; WEITSCHAT & BANDEL, 1991) and some others.

Interpretation of burial conditions and phosphatic generations shows possible stages of inner structure conservation: (1) Burying of shells and filling of body chamber and siphuncle by rock grains; (2) Phosphatization in sediment, the process finished by replacing of aragonite by apatite; (3) Filling of chambers by calcite; (4) Reworking of phosphorites and appearance of new generation of phosphorite (repeating process); (5) Dissolving of calcite in inner part of the shell; (6) Partial recrystallization of inner structures (pl.1, fig.1a-c; pl.3, fig.3; pl.4, fig.2a,b). Possibly phases (4-6) were coincident. Final recrystallization lead to partial or complete destruction of inner structure.

INNER STRUCTURES

There were found the following inner structures in ammonite sells: the shell and its walls (w); septa (spt), including primaseptum (prm) and proseptum (prs) and dividing whorls into chambers (ch); septal necks (sn) and prochoanitic necks (pn, pl.4, fig.3-4); protoconch (p); caecum (ca); prosiphon (ps); membranes (m) of several types; siphuncle tube (s); intrasiphonal structures: artery (a); mantle line (ml); traces of moving (tm) of soft body and some morphological elements that can't be interpreted at the moment. One of the difficulties of investigation is complexity of differentiation between original and secondary (recrystallized) structures. There is shortest overview of the most interesting structures.

Protoconch variates in shape and size in different genuses (BARABOSHKIN, 1989). The smallest protoconch has *Arcthoplites* and *Beudanticeras* (0,325 - 0,434mm.), the largest one has *Hoplites* (0,525 - 0,725mm.)

Caecum also variates in size (it depends from the protoconch size) and shape (usually it is elliptic in shape).

Prosiphon variates in size, shape and symmetry. In *Arcthoplites* it is conic or ribbon - like, long; in *Beudanticeras* it is very long, conic or ribbon - like with right- or left-asymmetry. Interesting, that usually conic prosiphon has right asymmetry, and ribbon - like prosiphon has left asymmetry. Hoplites has very different prosiphon (pl.3, fig.1-4).

Typically it is also conic (pl.3, fig.1, 2) or ribbon - like (pl.3, fig.4), or another in shape when recrystallized (pl.3, fig.3).

Membranes are of several types (text-fig.2, pl.2). We differ intraprotoconch or caecum membranes (m9, pl.3, fig.1-2), which were found firstly; dorsal siphuncle membranes (m2, m2a; m6, pl.2, fig.1,2); lateral siphuncle membranes (m1, m1a, m1b, pl.2, fig.2); ventral siphuncle membranes (m5, m5a, pl.2, fig. 1); septal-siphuncle membranes (m4, m8, pl.2, fig.2); chamber membranes (m3, m7) and septal membranes (m10). Different types of membranes carry out different functions. Generally, siphuncle membranes controlled liquid moving and fixation of siphuncle; caecum membranes fixed caecum in protoconch; septal - siphuncle membranes fixed place of septum - siphuncle connection and isolated inner part of chambers.

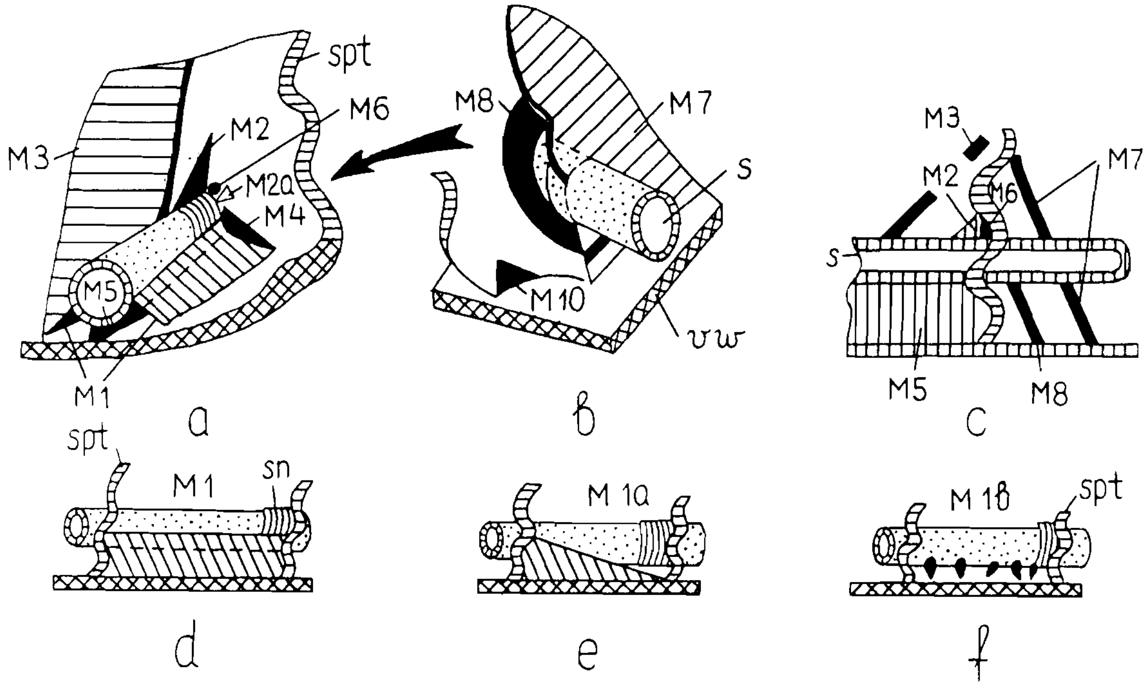

Fig. 2. Typization of membranes. **a** - View from the body chamber side; **b** - view from the opposite side of the chamber; **c** - cross-section through membranes in the place of siphuncle - septum connection.; **d-f** - stages of reduction of membrane m1. Explanation of membrane numbering see in the text.

Arteries were found in a few samples (pl.4, fig.1,2). Usually they take central or slightly excentral position in siphuncle (pl.4, fig.1b) and fastened to inner part of siphuncle with short ribbons. When they are recrystallized, they fall on the ventral (or dorsal, depends of position of the sample during recrystallization) part of the siphuncle (pl.4, fig.2). Typically, the only artery being preserved, but in one sample we occurred 3 and 4 tubes in siphuncle. It is similar to that was described by V.V.DRUSHCHITS et al. (1982) and then by I.S.BARSKOV (1990).

Traces of body moving are occurred usually in investigated samples (pl.1, fig.2). They were found in big whorls (only after 35-36 chamber) and looks like traces parallel to the whorls, or like rare suture - like traces, crossing chambers.

It is a preliminar article, shows variability of investigated material. We hope that more detailed data we'll published in nearest future.

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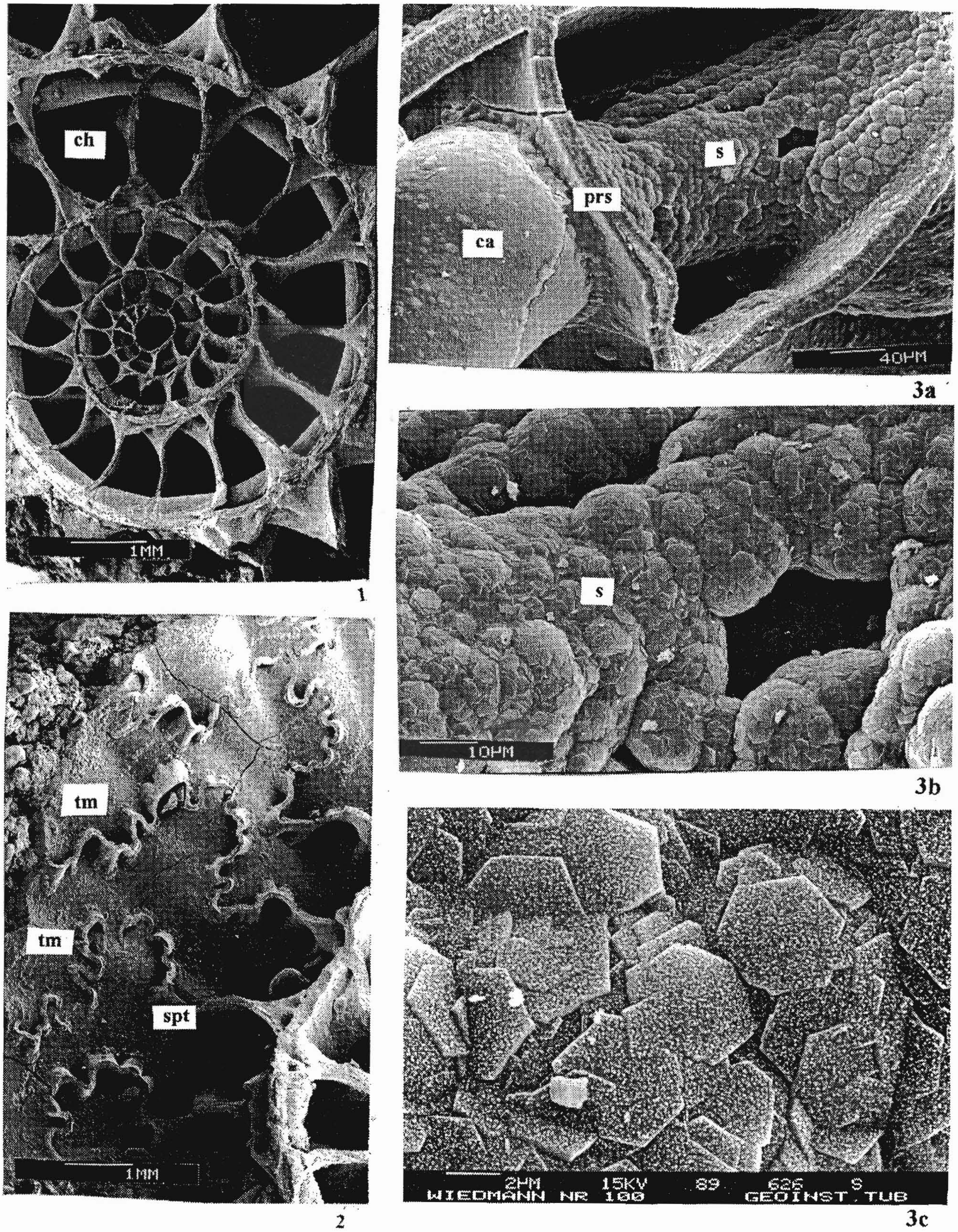

PLATE 1 **1.** *Hoplites* sp. General view. Sample 152. **2.** *Hoplites* sp., sample 86. Traces of body moving. **3.** *Hoplites* sp., sample 100. **a** - Recrysallized siphuncle and beginning of siphuncle; **b, c** - character of recrystallization.

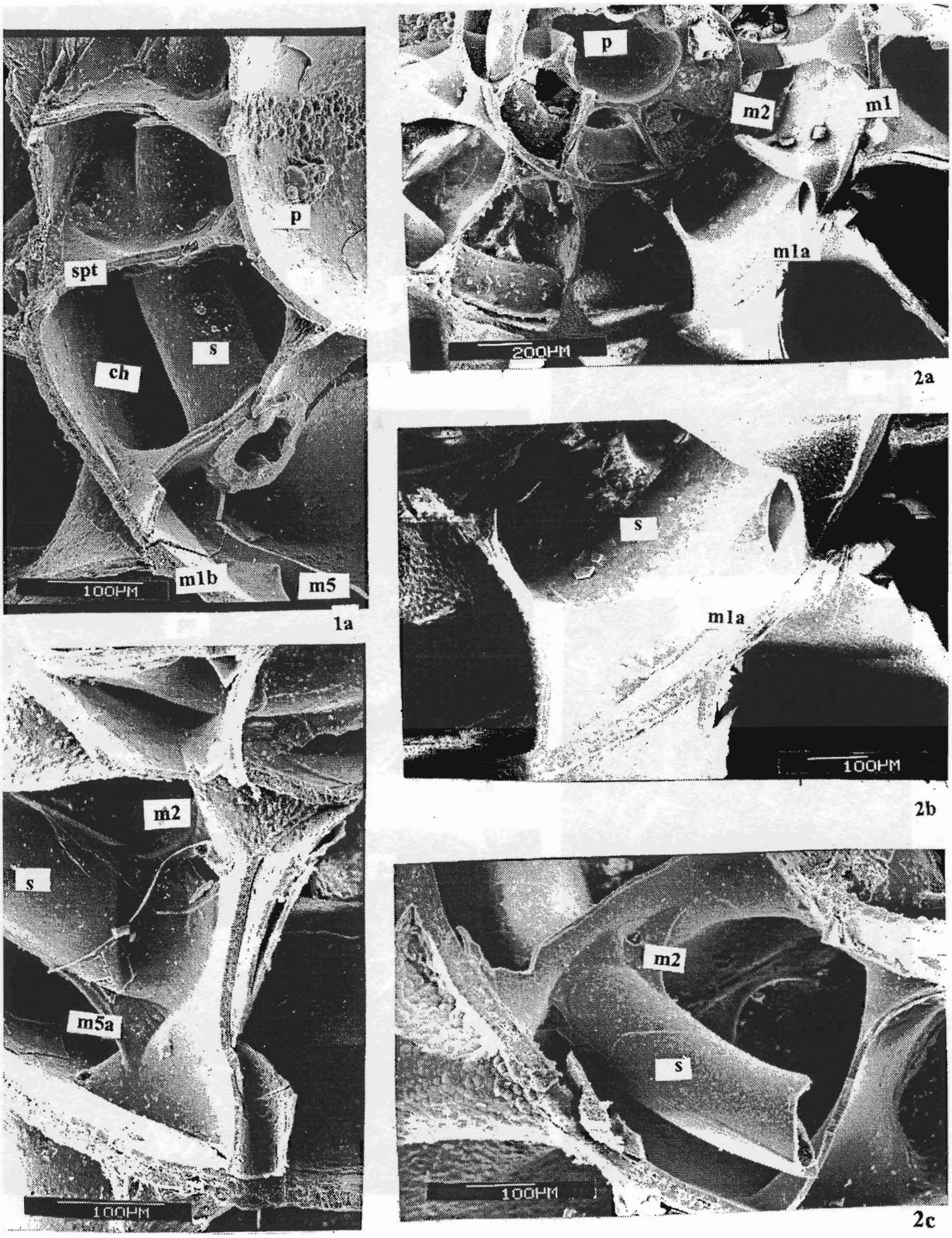

PLATE 2 . **1.** *Hoplites* sp., sample 59. a - Siphuncle; b - siphuncle and membranes.
2. *Arcthoplites* cf. *bogoslowskyi* Sav., sample 85. a - General view; b, c - different membranes.

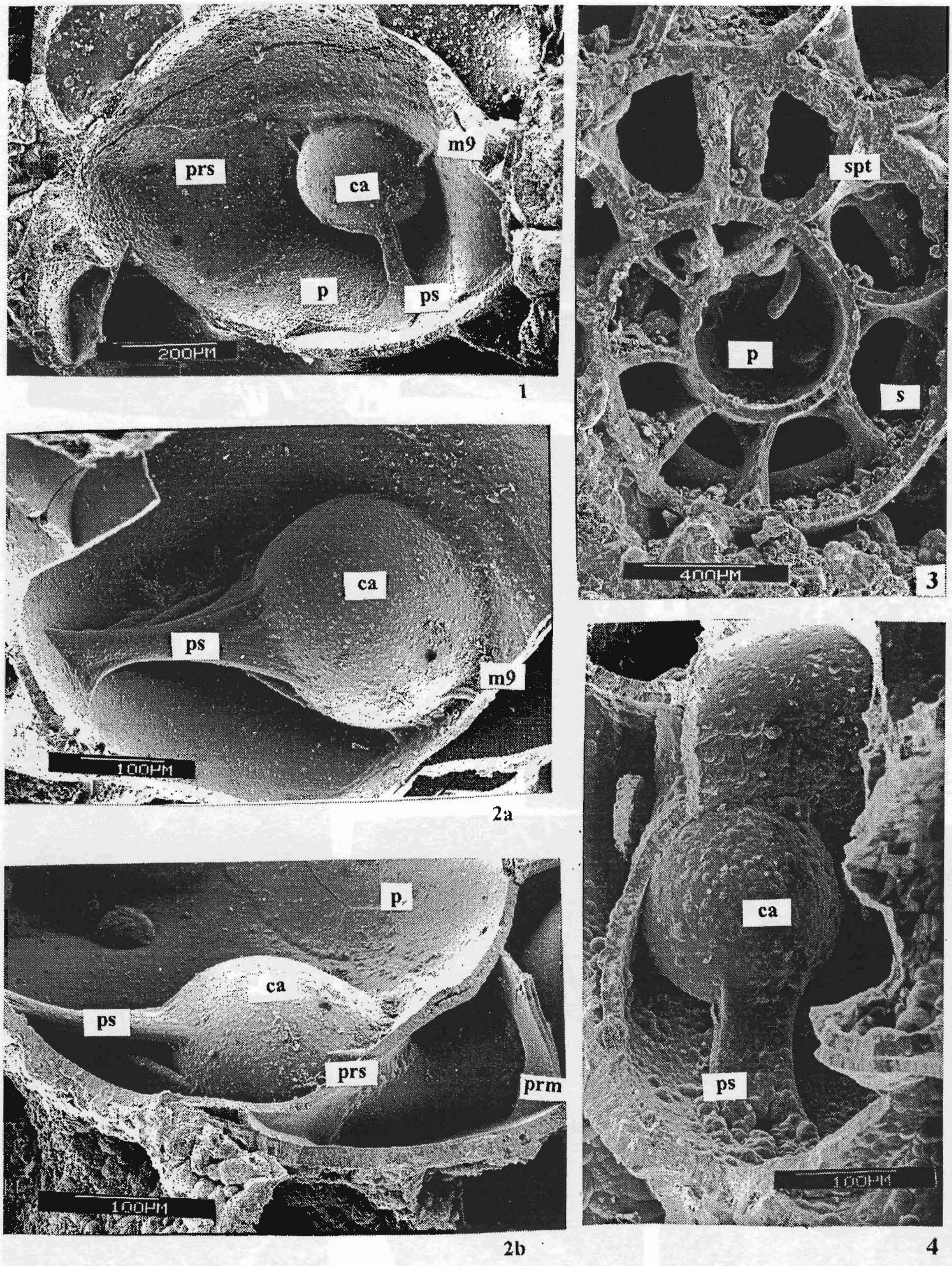

PLATE 3 1. *Hoplites* sp., sample 16. Prosiphon, caecum and membranes. 2. *Hoplites* sp., sample 15. Prosiphon, caecum, membranes and dissolved lower part of prosiphon. a - dorsal view; b - lateral view. 3. *Hoplites* sp., sample 4. Recrysallized prosiphon and caecum. 4. *Hoplites* sp., sample 56. Caecum and short prosiphon.

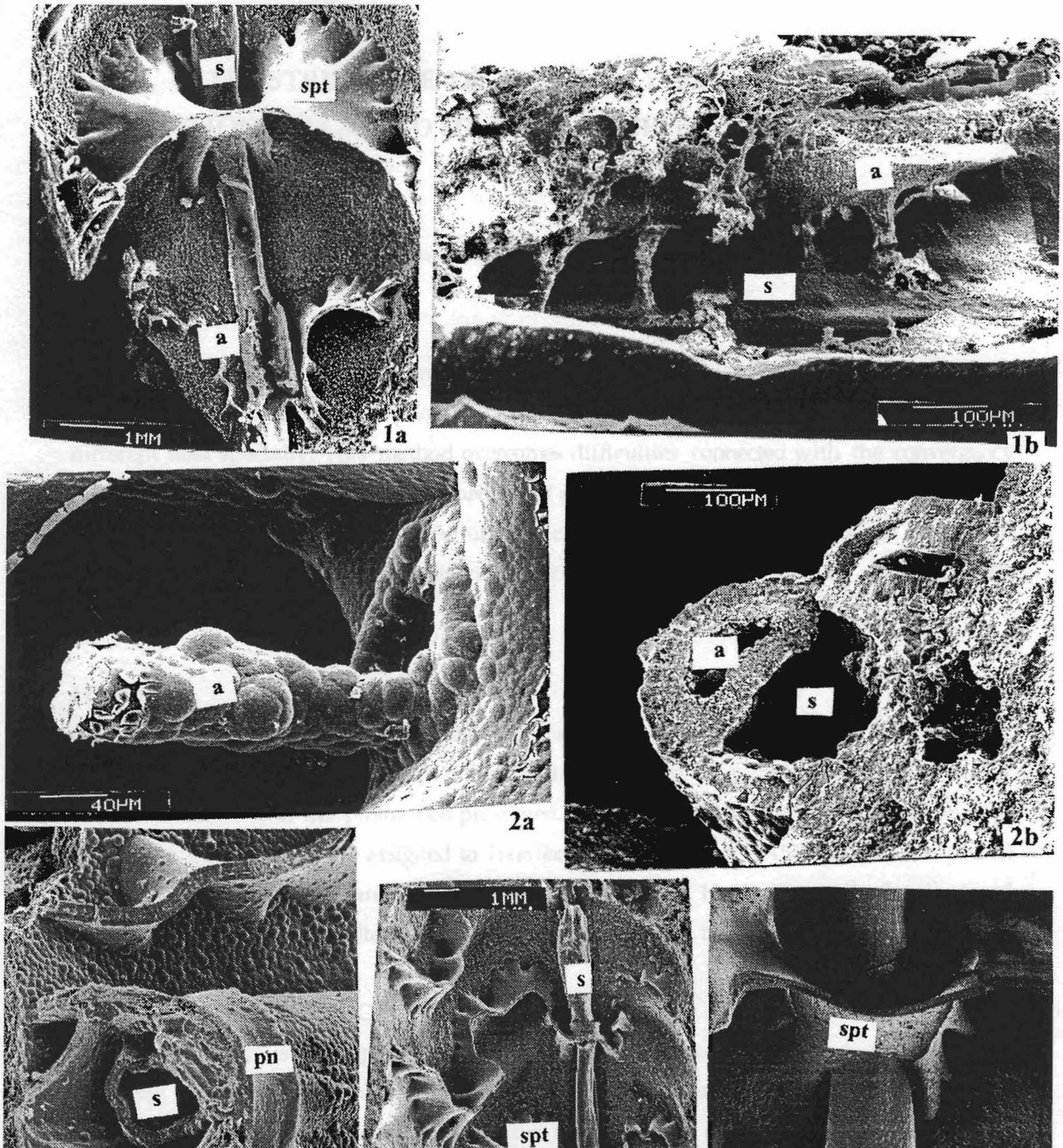

PLATE 4 **1.** *Hoplites* sp., sample 150. a - Siphuncle and artery; b - artery. **2.** *Hoplites* sp., sample 153. a - Recrystallized siphuncle and artery; b - artery in siphuncle. **3.** *Hoplites* sp., sample 66. a - deformed siphuncle and septal necks; b - septal neck. **4.** *Hoplites* sp., sample 41. Siphuncle and septal neck.