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Field Guidebook

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New data on ammonoid jaws of the rhynchptychus type [oral presentation]

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For a long time ammonoid jaws of the rhynchptychus type (with tips containing calcareous elements - rhyncholites and conchorhynchs) were known only from Upper Cretaceous deposits of Japan and Sakhalin (TANABE et al. 1980, 2015; KANIE 1982). However, recently ammonoid lower jaws with calcareous elements in their tips (conchorhynchs) were described from the Middle Jurassic (uppermost Bajocian) of Dagestan, North Caucasus, Russia (MIRONENKO & GULYAEV 2018). These findings showed that the rhynchptychus-type jaws existed already at least in the Middle Jurassic. Along with rhynchptychi, which likely belonged to Phylloceratina, a jaw of the aptychus type (without calcareous elements) was found in the body chamber of *Lytoceras zhivagoi*. Both Upper Cretaceous Lytoceratina and Phylloceratina had rhynchptychi and the finding of anaptychus in the Middle Jurassic *Lytoceras* indicate that calcareous elements of jaws appeared in different phylogenetic lineages of ammonoids at different times (MIRONENKO & GULYAEV 2018).

The authors examined a new finding – a very large three-dimensionally preserved ammonoid lower jaw with a prominent calcareous tip, recently found in the Middle Aptian of Dagestan (Fig.1 A, B). A well-preserved conchorhynch of this jaw does not have denticles in its anterior part, which are present in nautilid conchorhynchs, but have wavy longitudinal ridges and furrows. This lower jaw occurs from a carbonate concretion from the Parahoplites melchioris Zone. Phylloceratins in such concretions are rare and relatively small, whereas lytoceratins are also rare, but large-sized. Therefore, it is most likely that this jaw belonged to a large lytoceratin ammonoid.

Lower jaws of the rhynchptychus type were also discovered by the authors in Upper Cretaceous (Lower Cenomanian) of Crimea (Fig.1 C-E). They were found separately from ammonoid conchs, but lytoceratins and phylloceratins are present in Lower Cenomanian of the rhynchptychi-bearing locality (ALEKSEEV 1989) and most likely rhynchptychi are jaws of these ammonoids. The belonging of these jaws to ammonoids is confirmed by a total absence of nautilids in the locality where the specimens were found and by the similarity of the shape of calcareous jaw tips to conchorhynchs of previously described ammonoid jaws (TANABE et al. 1980; KANIE 1982). Conchorhynchs of the Cenomanian lower mandibles varies in shape and size relative to the size of the organic part of the jaws. These differences indicate various food specializations of Cenomanian ammonoids with a rhynchptychus-type jaw apparatus.

From Lower Cretaceous deposits of Crimea, the findings of isolated conchorhynchs which belong to the formal genus *Tillicheilus* are known (KOMAROV 2005). Several researchers, however, considered *Tillicheilus* not as conchorhynchs, but rhyncholites (upper jaw elements) (e.g. TEICHERT et al. 1964). A comparison of *Tillicheilus* specimens, both recently found and stored in a collection from the Paleontological institute (PIN RAS) in Moscow with conchorhynchs of the Cenomanian and Aptian ammonoid jaws showed, that isolated *Tillicheilus* specimens are identical to conchorhynchs from ammonoid lower jaws. Therefore, *Tillicheilus* should be considered as conchorhynchs belonging to ammonoids, as was earlier assumed (RIEGRAF & LUTERBACHER 1989) and its findings indicate the presence of ammonoids with rhynchptychus-type jaws in the Early Cretaceous in Crimea.

New findings of ammonoid lower jaws from the Middle Jurassic and Cretaceous of Crimea and North Caucasus expand the stratigraphical and geographical distribution of the rhynchptychus-type ammonoid jaw apparatus.

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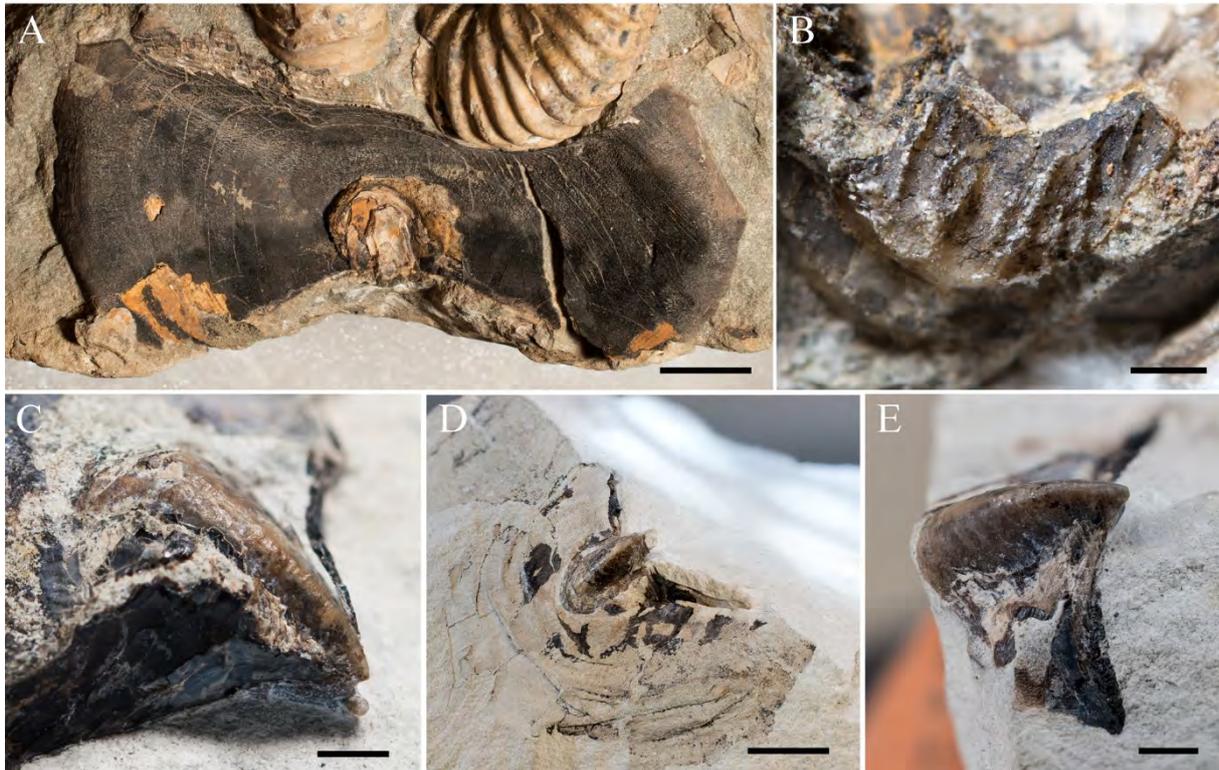


Fig. 1: **A, B:** Middle Aptian lower jaw from Dagestan. **A.** General dorsal view, scale bar = 1 cm. **B.** Anterior view of the conchorhynch, scale bar = 1 mm. **C, D, E.** Three Lower Cenomanian jaws from Crimea, scale bars for C and E = 1 mm, for D = 3 mm.

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