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Upper Triassic of the central part of Kotel,nyi Island, Russia, Arctic (stratigraphy, paleontology, paleobiogeography)

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Triassic deposits of Kotel'nyi Island are characterized by distinctive lithological (fine-grained clastics) and paleontological characteristics (nektonic and planktonic organisms, Boreal assemblages with Tethyan elements). We represent here new data from the most complete section of central part of island at River Tikhaya.
Lower Carnian is represented by clays with rare limestone lenses, siderite and phosphate concretions with ammonoids Arctophyllites sp. cf. A. taimyrensis (Popow), coleoids Atractites sp., and radiolarians Poulpus costatus (Kozur et Mostler), Eonapora robusta Kozur & Mostler, Annulotriassocampe baldii (Kozur) and others. This unit can be assigned to ammonoid zone Protrachyceras omkutchanicum. Thickness is 33 m.
Lower part of Upper Carnian is represented by clays with rare limestone concretions with ammonoids Yakutosirenites pentastichus (Vozin), Proarcestes winnemae Smith, Clionites (Stantonites) evolutus Smith, nautiloids Proclydonautilus triadicus (Mojsisovics), P. sp. ex gr. P. pseudoseimkanensis Sob., orthoceratids Trematoceras sp., coleoids Belemnococeras darkense Popow. This unit belongs to ammonoid zone Yakutosirenites pentastichus that can be interpreted as equivalent of Tropites dilleri and Tropites welleri ammonoid zones according to paleontological data. Thickness is 15 m.
Upper part of Upper Carnian is composed by clays with rare limestone and abundant phosphatic concretions with ammonoids Sirenites yakutensis Kiparisova, S. sp. aff. S. yakutensis Kiparisova, and diverse radiolarian assemblage with Pseudostylosphaera gracilis Kozur & Mock, Kahlerosphaera aspinosa Kozur & Mock, Capnuchosphaera triassica De Wever, and others (43 species). These strata were not observed before in this section. Thickness is 5 m.
Lower Norian is represented by clays with layers of limestones and siderites, with common sideritic and rare phosphatic concretions, with ammonoids "Striatosirenites" kinasovi Bytschkov, Arctophyllites sp. ex gr. A. popovi (Archipov), Cladiscites tolli Diener, Arcestes sp. ex gr. A. colonus Mojsisovics, Norosirenites obruchevi (Bajarunas), nautiloids Germanonautilus sp. cf. G. popowi Sobolev, Proclydonautilus sp. cf. P. spirolobus (Dittmar), and radiolarians Capnuchosphaera deweveri Kozur & Mostler, Palaeosaturnalis mocki Kozur & Mostler, Syringocapsa turgida Blome and others. Thickness is 135 m.
Middle Norian is composed by clays with common sideritic and rare phosphatic concretions, with ammonoids Cyrtopleurites sp. ex gr. C. altissimus Mojs., Megaphyllites insectus (Mojs.), Placites polydactylus (Mojs.), Arcestes sp. ex gr. A. subdistinctus Mojs., Cladiscites beyrichi Welter, Rhacophyllites debilis (Hauer), nautiloids Proclydonautilus sp. cf. P. natosini McLearn, coleoids Proclydonautilus sp. cf. P. natosini McLearn, and rare radiolarians Syringocapsa turgida Blome. Observed thickness is 70 m.
Upper Norian is represented by clays with limestone beds and concretions of siderite and phosphorite. It is characterized by bivalves Monotis ochotica (Keyserling), M. zabaikalica (Kipar.), M. jacutica (Teller), ammonoids Paracladiscites ex. gr. P. juvavicus (Mojs.), Rhacophyllites sp., nautiloids Proclydonautilus sp. cf. P. natosini McLearn, and coleoids Atractites sp. ex gr. A. alveolaris (Quenstedt). Total thickness is 250 m.
Analysis of new data allow us to validate following conclusions:
1. Upper Carnian ammonoid Zone Sirenites yakutensis was found in this section.
2. Ammonoid taxa from Upper Carnian Yakutosirenites pentastichus Zone allow to correlate these strata with Tropites dilleri and Tropites welleri zones of California and British Columbia and with Tropites dilleri and Tropites subbullatus zones of Alpine region.
3. Radiolarian assemblages include numerous taxa known in the Tethyan regions and representing interest for

Boreal-Tethyan correlation.

4. Late Triassic fauna of Kotel'nyi Island is characterized by mixed composition of Boreal and Tethyan elements. Such composition is indicated for all Carnian and Norian, and can be interpreted by attribution of this region to paleobiogeographic province. This province had intermediate position between Siberian and North American regions.