

# Revision of the Neogene Turritellidae (Mollusca: Gastropoda) from Kamchatka

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Systematic diversity and distribution of the Turritellidae from the Neogene of Kamchatka and the Koryak Upland are considered. Sixteen species including eleven new species and one subspecies (*Hataiella (Hataiella) halaktyrkensis*, *Neohaustator* (?) *palanensis*, *N. koryakensis*, *N. subtighilanus*, *N. gretschischkini iljnicus*, *Broderiptella ozernensis*, *B. halaktyrkensis*, *Mesalia subyessoensis*, *M.* (?) *koryakensis*, *Tachyrhynchus podkagernensis*, *Tachyrhynchella tricostata*, *T. tetracostata*) are described. Some problems of the turritellid evolution and distribution in the North Pacific during the Neogene are discussed.

## Ревизия неогеновых туррителлид (Mollusca: Gastropoda) Камчатки

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Рассмотрены систематический состав и стратиграфическое распространение представителей семейства Turritellidae в неогеновых отложениях Камчатки и Корякского нагорья. Описаны 16 видов, включая 11 новых видов и один подвид: *Hataiella (Hataiella) halaktyrkensis*, *Neohaustator* (?) *palanensis*, *N. koryakensis*, *N. subtighilanus*, *N. gretschischkini iljnicus*, *Broderiptella ozernensis*, *B. halaktyrkensis*, *Mesalia subyessoensis*, *M.* (?) *koryakensis*, *Tachyrhynchus podkagernensis*, *Tachyrhynchella tricostata*, *T. tetracostata*. Обсуждаются некоторые особенности распространения туррителлид в северной части Тихого океана в неогене.

The gastropod family Turritellidae Woodward, 1851 is rather abundant and diverse in Recent seas, especially in the tropical and subtropical regions. It is also a common group in the Upper Cretaceous and Tertiary deposits all over the world. Cenozoic turritellids from Sakhalin and Kamchatka were described by I.P. Khomenko [1933, 1938], A.P. Ilyina [1939, 1963, Sinelnikova et al., 1979] and L.V. Krishtofovich [1949, 1954]. The present paper deals with the results of the study of Neogene Turritellidae from Kamchatka and the Koryak Upland. The revision of the Paleogene turritellids from the same region has been published earlier [Titova, 1994a].

The material for the study included about 500 specimens partially collected by the author and also provided by V.N. Sinelnikova, Yu.B. Gladenkov and K.B. Barinov (Geological Institute of the Russian Academy of Science). The localities of material studied are given in Fig. 1.

In general the classification of the turritellids by J. Marwick [1957b] has been accepted with additions and modifications of Ch. Merriam [1941], T. Kotaka [1959] and A.N. Golikov [1986]. The

author's view on the taxonomic criteria for specific and supraspecific taxa of the family has been previously discussed [Titova, 1993]. The system of spiral sculpture notation (Fig. 2) was borrowed from J. Marwick [1957a] and T. Kotaka [1959].

The analysis of the material and published data has shown that the following turritellids inhabited the North Pacific during the Neogene: genera *Turritella* Lamarck, 1799, *Kurosoiia* Ida, 1952, *Hataiella* Kotaka, 1959, *Neohaustator* Ida, 1952, *Turriola* Titova, 1994, *Broderiptella* Olsson, 1964, *Bactrospira* Cossmann, 1912, stocks (in the sense of Ch. Merriam [1941]) "*Turritella*" *cooperi* Carpenter, 1864 and "*T.*" *ocoyana* Conrad, 1856 (subfamily Turritellinae); genera ?*Mesalia* Gray, 1847 (subfamily Pareorinae Finlay et Marwick, 1937), *Tachyrhynchus* Moersch, 1868, and *Tachyrhynchella* Titova, 1994 (subfamily Tachyrhynchinae Golikov, 1986).

Turritellid distribution in the North Pacific seems to have been mainly controlled by the climatic conditions [Titova, 1994b]. The most warm-water groups out of the mentioned ones, i.e. tropical genus *Turritella* s.s. and "*T.*" *ocoyana*