



FORAMS 2006

Primary type specimens of some domestic species in Japan, and their taxonomic status

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Since the first descriptive study of Paleogene species from Hokkaido by Yokoyama (1890), more than 900 species of Cenozoic foraminifera have been identified from the Japanese Islands and surrounding seas of the Northwest Pacific. Two database sets, benthics by Hasegawa (2001) and planktonics by Oda and Akimoto (2001), have been compiled as a project of the Paleontological Society of Japan, and both are uploaded on a network from the Geological Survey of Japan. Further, we are adding the image data of the primary type specimens to those database sets.

During the research of the primary types of Cenozoic foraminifera in Japan, we sometimes notice that an image based on the description and figures do not correspond to the type specimens. It may be caused by insufficient definition and ambiguous figures given in the original description. For the same reason, many subsequent researchers may have illustrated those species with images different from the type specimens. Therefore, only a small number of species has been rightly referred to by workers from outside Japan. The rest of species have not attracted notice, or erroneously identified. Such taxonomic confusion is a big problem to solve for foraminiferal biogeography. An image database is important for it.

The species from Japan are frequently given the specific (or subspecific) name derived from any domestic geographic name. For example, there are 53 species-group with the name given from "Japan" (*i.e.*, *nipponica*, *nipponensis*, *japonicus*, *-a*, *-um*), even if it is limited to Cenozoic smaller foraminifera.

These species are classified into four categories, as follows:

- 1) Type species of the genus: *Discanomalina japonica* Asano, *Discotruncana japonica* Shirai, *Dyofrondicularia nipponica*

- Asano, *Hanzawaia nipponica* Asano, *Nodobaculariella japonica* Cushman and Hanzawa, *Parafrondicularia japonica* Asano, *Pseudoeponides japonicus* Uchio, *Pseudononion japonicum* Asano.
- 2) Referred in the Northwest Pacific region: *Bulimina nipponica* Asano, *Cassidulina japonica* Asano and Nakamura, *Cruciloculina japonica* Asano, *Cyclamina japonica* Asano, *Discorbis nipponica* Husezima and Maruhasi, *Epistominella nipponica* Kuwano, *Lenticulina japonica* Asano, *Nonion japonicum* Asano, *Plectina nipponica* Asano, *Pseudoparrella japonica* Asano, *Rotalia japonica* Hada, *Rotalia nipponica* Asano, *Trochammina japonica* Ishiwada, *Valvulineria japonica* Asano.
 - 3) Known only in Japan: *Gyroidina nipponica* Ishizaki, *Sphaeroidina japonica* Asano etc.
 - 4) Seldom used in Japan: *Angulogerina japonica* Asano, *Bifarina japonica* Asano, *Biloculinella japonica* Asano etc.

Based on observation of primary type specimens, morphologic features, and their taxonomic position will be discussed for several species particularly within the categories 2, 3 and 4.