22. On *Lepidocyclina* (*Trybliolepidina*) *rutteni* van der Vlerk from Zone N. 17 at Mitsugane^{*)}, Izu Peninsula, Shizuoka Prefecture, Japan

By Kuniteru MATSUMARU

Geology Department, Saitama University

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This short article deals with an amendment of *Nephrolepidina japonica* (Yabe) forma III Matsumaru as *Lepidocyclina* (*Trybliolepidina*) *rutteni* van der Vlerk and discusses its range in Japan.

The present author examined the van der Vlerk's collection which is stored in the Geological Survey of Indonesia (GSI) at Bandung last year and noticed that *Nephrolepidina japonica* (Yabe) forma III Matsumaru described from Izu is nothing but synonymous with *L. (T.) rutteni* van der Vlerk. Therefore the present author, taking this opportunity, proposes *L. (T.) rutteni* for *N. japonica* forma III, with an additional description of this species on individuals from a new locality in Mitsugane, Shimoda City.

Recently, Ibaraki and Tsuchi (1978) reported that a planktonic foraminiferal assemblage is of Zone N. 19 of Blow (1969) and that Zone N. 19 of Blow contains *N. japonica* forma III. They also referred to *N. japonica* forma III which was reported by Matsumaru (1971) from Namegawa, saying that it seems younger than the same form of *N. japonica* forma III from Shimoshiraiwa from the view point of embryonic and nepionic accelerations. This is the first report of the survival of *Lepidocyclina* in Pliocene, which the present author doubts because it might have been impossible if it had not been a reworked one from older formations.

N. japonica forma III in Shimoshiraiwa was found by Saito (1963) to be contained in the planktonic foraminiferal assemblage and to be assignable to Zone N. 14 of Blow (1969). Therefore *N. japonica* forma III ranges from Zone N. 14 up to Zone N. 19.

The present author visited twice the Namegawa region to detect the *Lepidocyclina*-bearing bed reported by Ibaraki and Tsuchi (1978), but in vain, while he was able to add another *Lepidocyclina* locality, about 200 m southwest of Matsumaru's first locality (Matsumaru, 1971). Rocks from the two places are lithologically quite similar;

^{*)} The *Lepidocyclina* localities, so far reported to be in Namegawa, are exactly speaking in Mitsugane, about 2 km west of a village community of Namegawa, Shimoda City.

fine grained, pale greyish yellow, calcareous sandstone containing planktonic foraminifers as well as *L. (T.) rutteni*. Planktonic species the present author determined are as follows: From the first locality, *Orbulina universa* d'Orbigny, *Globorotalia tumida plesiotumida* Blow and Banner, *Sphaeroidinellopsis subdehiscens subdehiscens* Blow and *Globorotalia* sp.; from the new locality, *Globorotalia conomiozea* Kennet, *G. miozea conoidea* Walters, *Orbulina universa* d'Orbigny, *Sphaeroidinellopsis subdehiscens subdehiscens* Blow and *Globigerinoides* sp. Two assemblages are both assignable to Zone N. 17 of Blow (1969), according to Berggren (1977). None of the zone markers of Zone N. 19 reported by Ibaraki and Tsuchi (1978) were found from the two localities of Matsumaru. Further, no planktonic foraminifers except *L. (T.) rutteni* were found in floats from the Ibaraki and Tsuchi's locality. Accordingly, the samples dealt with by Ibaraki and Tsuchi (1978) can be inferred that they were floats coming out of another formation of Matsumaru's. This assumption can be proved by the fact that the thickness of the formation observed at the first locality of Matsumaru is only 5 m between two volcanic breccia beds. The thickness of 5 m is too thin to cover the sediments of entire stages from Zone N. 17 up to N. 19. The evidence of the provenance site of floats of Ibaraki and Tsuchi (1978) should thus strongly be required.

Family Lepidocyclinidae Scheffen, 1932

Genus *Lepidocyclina* Gumbel, 1868

Subgenus *Trybliolepidina* van der Vlerk, 1928

Lepidocyclina (Trybliolepidina) rutteni van der Vlerk

figs. 10-18

Lepidocyclina rutteni van der Vlerk, 1924, p. 17, pl. 3, figs. 1-4.

L. (Trybliolepidina) rutteni van der Vlerk, 1928, p. 186, p. 202, figs. 12a-c.

Nephrolepidina japonica (Yabe) forma III. Matsumaru, 1971, pp. 97-185, pl. 9, figs. 3, 4, 6-11; pl. 10, figs. 2, 8, 9; pl. 14, figs. 1, 2; pl. 17, figs. 7-11, 19; pl. 23, fig. 6; pl. 24, figs. 3-6.

Lepidocyclina rutteni van der Vlerk. Vessem, 1978, p. 129, pl. 9, figs. 2, 3; pl. 10, fig. 13.

Description.—Shell moderate to large in size, measuring 4.4 to 6.9 mm in diameter and 1.0 to 1.4 mm in thickness. Shell thin lenticular without peripheral flange, outline polygonal to rounded, generally without conical pillars, sometimes with slim pillars distributed on general surface of shell. Bilocular embryonic chambers of nephrolepidine to trybliolepidine, protoconch 201 to 306 microns in diameter, deuterioconch 235 to 452 microns in diameter, ratio of deuterioconch diameter to protoconch diameter ranging 1.15 to 2.22 and embryonic chamber wall measuring 23 to 77 microns in thickness.

Figs. 1-18. 1, 2: *Sphaeroidinellopsis subdehiscens subdehiscens* Blow (1, $\times 180$; 2, $\times 60$). 3-5: *Globorotalia conomiozea* Kennett ($\times 40$). 6-8: *Globorotalia miozea conoidea* Walters (6, $\times 40$; 7 and 8, $\times 60$). 9: *Globigerinoides* sp. ($\times 60$). 10-18: *Lepidocyclina (Tryblielepidina) rutteni* van der Vlerk (10-13, 15, 17 and 18, $\times 8.9$; 14 and 16, $\times 9.7$).

The mean factor A value showing the grade of embryonic acceleration is over 55 and the number of nepionic spirals is over 16. Equatorial chambers of a single layer in vertical section, arcuate in nepionic stage through ogival form to hexagonal and spatulate form in neanic stage through ontogeny in equatorial section, polygonal or often circular arrangement in equatorial section. Lateral chambers large, subcircular to subreniform in shape in vertical section and number of lateral chambers per tier over embryonic chambers ranging 9 to 14 layers.

Geologic age:—Zone N. 17 of Blow, upper Upper Miocene.

Locality:—A fossiliferous bed exposed at trail-side about 400 m west of Mrs. Kiku Tsuchiya's house, Mitsugane, Shimoda City (latitude 34°44'6" north, longitude 138°52'24" east).

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