

A NEW *SPIROPECTAMMINA* FROM THE MIOCENE OF TAIWAN

LI-SHO CHANG

(With 1 Plate)

A new species of *Spiropectammina* widely distributed in the upper Miocene Sankyo group is described below.

Family TEXTULARIIDAE

Subfamily SPIROPECTAMMININAE

Genus SPIROPECTAMMINA Cushman, 1927

SPIROPECTAMMINA TAIWANICA Chang, n. sp.

(Pl. I, figs. 1a, b-11)

Bolivina sp. Chang, Keng, and Chiu, 1956, Symposium on Petrol. Geol., Chinese Petrol. Corp., pl. (15)-1 (list) (in press); Upper Miocene Shihliufeng sandy shale.

Test compressed, about 1.5 times as long as broad, early portion increasing rapidly in width from the rounded initial end, adult portion with the sides nearly parallel, thickest along median line, thence thinning toward the acute periphery which is slightly carinate and serrate, top view subrhomboidal in outline; chambers numerous, in the rounded earliest portion planispiral, later biserial, 9-11 pairs in the adult, low and broad, commonly depressed, tending occasionally to contract near the apertural end; sutures indistinct in the coiled stage, later distinct, usually limbate because of depressed chambers, straight, oblique, forming an angle of about 65 degrees with the elongate axis of the test; wall finely arenaceous with a very large proportion of calcareous cement, smoothly finished; aperture a small, arched opening at the inner margin of the last-formed chamber, in a distinct reentrant.

Dimensions of the types in mm:

	Length	Breadth (max.)	Thickness (max.)
Holotype (fig. 2)	1.06	0.67	0.39
Paratype (fig. 1)	1.08	0.75	0.43
Paratype (fig. 3)	1.00	0.66	0.37
Paratype (fig. 4)	0.94	0.72	0.45
Paratype (fig. 5)	0.74	0.60	0.34
Paratype (fig. 6)	1.47	0.77	0.39*
Paratype (fig. 8)	0.56	0.58	0.39
Paratype (fig. 9)	0.86	0.58	0.30
Paratype (fig. 10)	0.86	0.63	0.37

* The last two pairs of the chambers are much compressed by deformation.

Remarks.—This species resembles *Spiroplectammina arenasuturata* LeRoy from the Miocene of Central Sumatra, but is easily distinguished by the straight sutures and broader test. It also differs from *S. kawi* Cushman and LeRoy from the lower Miocene of Ventura County, California in the thicker median portion and more oblique sutures, and from *S. arenacea* LeRoy from the Miocene of Central Sumatra in having more straight sutures, less chambers, and more parallel sides in the adult portion of the test.

The well-preserved specimens in my collections usually have a rounded initial end. There are also many specimens which have more triangular tests and seem to represent the microspheric form, but their initial portions are all broken except the specimen shown in fig. 11.

Types and occurrence.—Holotype of fig. 2, paratypes of figs. 3, 5, 7, 10, and 11 (Loc. 137 in the report of Chang, Keng, and Chiu, *l. c.*), and paratype of fig. 6 (Loc. 139) were collected by Chang and others from the equivalent of the Shihliufeng sandy shale on the banks of the Fantzuliao-chi in the northeast of Neimatoushan, Tapu, Chiayi district; paratypes of figs. 8 and 9 (Loc. 70) from the same formation on the eastern slope of Wushanling, about 2 km west of Shihkung, Tapu; paratypes of figs. 1 and 4 by C. H. Lee from the uppermost part of the Nansho coal measures between Paotzuyuan and Shechienhu in the Alishan coal field, Meishan, Chiayi district. While this species occurs rarely in the material from Shihkung, it is rather abundant in the materials from Neimatoushan and Alishan. It was also found abundantly from the uppermost part of the Kantosan sandstone on the southern bank of the Chingshuichi near the mouth of its tributary Naokengchi in the Alishan coal field, and rarely from the equivalent of Shihliufeng sandy shale in the Liuchungchi gas field, Tainan district. The single specimen recorded by myself (Chang, 1956, Mem. Nat. Taiwan Univ., p. 117, pl. 5, figs. 1a, b.) as *Bolivinella?* sp. from the latter formation of the Chiahsien oilfield in the Kaohsiung district seems to be a compressed form of this species.

Explanation of Plate I

(All figures approximately x42)

Fig. 1a, b-11. *Spiroplectammina taiwanica* Chang, n. sp. 2, Holotype; 1 and 3-11, Paratype. 2, 3, 5, 7, 10, 11, and 6, from the Shihliufeng sandy shale on the banks of Fantzuliao-chi in the northeast of Neimatoushan, Tapu, Chiayi district; 8 and 9, from the same formation on the eastern slope of Wushanling, about 2 km west of Shihkung, Tapu; 1 and 4, from the uppermost part of the Nansho coal measures between Paotzuyuan and Shechienhu, Meishan, Chiayi district.

