Ryozo Watanabe*: Notes on some Manchurian species of Thuidiaceae (2)

渡辺良象*: 激川産シノブゴケ科小記（2）

3) Haplocladium strictulum (Card.) Reim., Hedwigia 78: 199 (1937) (Fig. 3).


Hab. On wet rocks covered with thin layer of sand, rarely on soil.

On the genus Thuidiopsis Brotherus (1925) mentioned as follows; "Diozisch. .......; Paraphyllien kurz, in Mehrzahl fadenforming und einfach, einzeln lanzettlich oder lanzettlich-priemenformig. .......Inner Perichaetialbl. meist gewimpert etc." However, Thuidiopsis strictula (Card.) Broth. is monocious, and antheridia are often found on the top of stem. Paraphyllia are like to Haplocladium microphyllum and H. capillatum, i.e. paraphyllia simple, triangular-lanceo-
Fig. 3. *Haplocladium strictulum* (Card.) Reim.

1, 2. Branch leaves, ×75. 3, 4. Branchlet leaver, ×75. 5, 6. Stem leaves, ×75. 7. Cells from apical part of branch leaf, ×300. 8. Cells from median part of branch leaf, ×300. 9. Cells from apical part of stem leaf, ×300. 10. Cells from shoulder part of stem leaf, ×700. 11. Capsule, ×15. 12. Outer and inner peristome teeth, ×75. 13. Spore, ×700. 14. Exothecial cells of capsule, ×140. 17. Perichaetial leaf, ×35. All figures were drawn from the isotype specimen of *Thuidium substrictulum*. 
late, denticulate, apical cells of paraphyllia with a single terminal papilla. The papilla of cell of leaf-blade is usually found on upper part of cell; this feature is like to *Haplocladium cowillatum* group. Perichaetial leaves do not ciliate, and costa long projecting from the apex of leaves; these features agree with these of *Haplocladium*. Reimers (1937) transferred *Thuidopsis strictula* (Card.) Broth. to the genus *Haplocladium*. As mentioned above, I agree with Reimers' opinion. *Haplocladium strictulum* is a very variable species, and it has been known under various names. This species was first reported as *Thuidium strictulum* named by Cardot (1904) from Korea, and afterward Brotherus newly described *Thuidium Tsunodae* from Japan. I examined the type materials of *Thuidium strictulum* and *Thuidium Tsunodae*, but both species are agreeable concerning the emphatic characteristic such as form of stem- and branch-leaves, form and size of leaf-cells, and of paraphyllia. However, form of paraphyllia, and papilla (on the upper corner of lumen) of leaf-cell of this species are more similar to *Haplocladium* than those of *Thuidium*.

The stem leaves are almost always broadly ovate or triangular ovate with a subulate acumen. The leaf size is as follows: 0.6-1.1 mm. long and 0.35-0.7 mm. wide; costa usually reaching 7/8 the length of leaf, rarely projecting. The branch leaves are cordate ovate to triangular ovate and gradually toper to a lanceolate acumen. Costa is stout and extends near the leaf apex. Leaves are ovate or elliptical, having a papilla on the upper corner or lumen, and rather pellucid. The cells are variable in size, measuring 9-15×7-10μ at the middle of leaf. The sporophytes of this species are less variable. Dixon (1934) emphasized the cell-form, papilla on the cell-lumen, size-of leaves, form of perichaetial leaves, size of seta, and form and size of capsule of *Thuidium substrictulum*. But these features are similar to those of *Haplocladium strictulum* (Card.) Reim. In 1929 Ishiba reported a new species *Thuidium Tsunodae* Broth. from Mt. Akagi, Gumma Pref., central Japan. Through the courtesy of Dr. Roivainen I have examined the specimen named as *Thuidium Tsunodae* Broth. (preserved in Herb. Helsinkitype?) from Mt. Komochi (a vicinity of Mt. Akagi), Gumma Pref. I could not find any difference between the both original specimens of *Haplocladium strictulum* (Card.) Reim. and *Thuidium Tsunodae* Broth. concerning the form of stem and branch leaves, the form and size of leaf-cells, and the form of papillae. Dixon (1936) published also a new species *Thuidium angustifolium* from Mt. Odaigahara, Mie Pref. in Japan. I examined the isotype specimen and found that it agrees
quite well with that of *Haplocladium strictulum* (Card.) Reim. Reimers (1937) reported a new species *Haplocladium Tsunoda* (Broth.) Reim. from Mt. Higane, Shizuoka Pref. in central Japan. Recently, I examined the isotype specimen of *Haplocladium Tsunoda* (Broth.) Reim. and found that it agrees quite well with that of *Haplocladium strictulum* (Card.) Reim. Sakurai (1947) listed *Thuidium minutulum* (Hedw.) B. S. G. from Fujiwara-machi, Tochigi Pref. in central Japan, but his plant may be referred to *Haplocladium strictulum* (Card.) Reim. Thus, four species, *Thuidium strictulum*, *Th. angustifolium*, *Th. Tsunoda* and *Thuidiopsis Tsunoda* are synonyms of *Haplocladium strictulum* (Card.) Reim.

4) **Haplothymenium triste** (Ces.) Lindb. (acc. Broth., Musci 986, 1907)


Range. Europe, Shiberia, China, Manchuria, Korea, Japan, Formosa, Hawaii and North America.

Habd. On tree trunk and rocks.

Having examined the specimens of *Haplothymenium Nakajii* Okam. from Manchuria cited by Dixon (1934), I came to the conclusion that they are identical with *Haplothymenium triste* (Ces.) Lindb. According to Kobayashi (1938), this species grows on wet rocks in Manchuria, contrary to the fact that the Japanese plants are found on tree trunks and dry rocks.