

Hiroshi INOUE*: *Haplomitrium hookeri* (Smith) Nees in Japan井上 浩*: 日本新産の苔類 *Haplomitrium hookeri*

In 1970, Mr. S. Ogasawara collected three shoots of *Haplomitrium* at Midagahara, Mt. Tateyama, Toyama Pref., middle Japan. The plants of this collection are all sterile, but they have the leaves very much like *Haplomitrium hookeri*. Ogasawara (1971) reported the occurrence of a peculiar *Haplomitrium* at high elevation of Mt. Tateyama, saying that the plants "seem to be identical with *H. hookeri*." In 1971, he visited the same station of Mt. Tateyama to get more materials and was able to collect some 60 shoots with well developed androecia. These plants were sent to me for the study.

The plants from Mt. Tateyama are usually 1.5–2.5 cm long and 1.8–2.5 mm wide, and pale to somewhat deep green; stems are 0.45–0.55 mm thick, with the cortical cells $20\text{--}25 \times 75\text{--}100\mu$, with copious leafless flagella at lower portion of shoots; leaves are transversely inserted, variable in size and shape, but usually they are broadly ovate or ovate-oblong and 1.5–2.3 mm wide \times 1.2–2.0 mm long, with obtuse angulations on margins; leaves on dorsal side of shoot are usually a little smaller than the lateral leaves, being more frequently oblong in shape, and they have some obtuse angulations on margins; the leaves are commonly unistratose except for small area of basal portion where they are bistratose. The apex of male shoot has nearly always subsequent innovation, forming more or less swollen node; antheridia are usually in the axils of bracts which are similar to leaves in size and shape, 2–5 per bract, globose and usually ca. 240μ wide and $230\text{--}270\mu$ long, with the stalk of $50\text{--}60\mu$ wide (with four vertical cell-rows). No archegonia were observed.

The above observations of the Japanese plants support the identity of these plants with *Haplomitrium hookeri* (Smith) Nees. In Japan, *Haplomitrium hookeri* were collected on moist bank along a depression, at ca. 1950 m. alt., Midagahara, Mt. Tateyama (ca. $137^{\circ}30' E$, $36^{\circ}35' N$). The forest vegetation

* Division of Cryptogams, National Science Museum, Tokyo. 国立科学博物館.

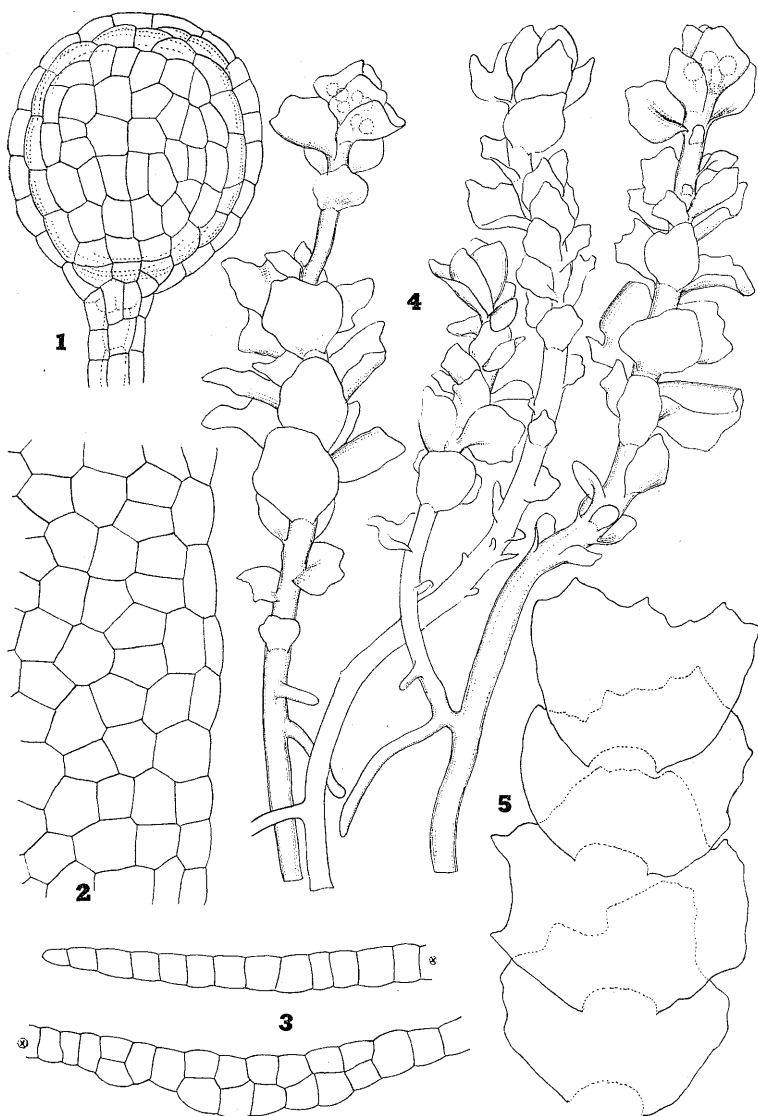


Fig. 1. *Haplomitrium hookeri* (Smith) Nees. 1. Antheridium, $\times 150$. 2. Cells from leaf-margin, $\times 200$. 3. Parts of cross section of basal portion of leaf, $\times 105$. 4. Habits, $\times 6$. 5. Leaves, $\times 17$. All figs. based on Ogasawara's collection (TNS no. 19390).

around the locality was composed of *Betula ermanii*, *Abies mariesii*, *Sorbus commixta*, with *Plagiogyria matsumureana*, *Paris tetraphylla*, *Fauria cristagallia*, *Trillium tschonoshkii*, etc. as the under-growth. *Haplomitrium hookeri* seems to be locally abundant and, in the same patch with *Haplomitrium*, *Pellia neesiana* and *Riccardia* sp. were also found.

Until Schofield (1966) reported *Haplomitrium hookeri* from British Columbia, Canada, this species was known only from Europe, western Greenland, and northeastern North America, and it "has a predominantly boreal to subarctic-subalpine (more rarely alpine and arctic) distribution" (Schuster, 1966). This species is exceedingly rare in Europe and North America and is found often in very small quantity. But in coastal western North America, this species is locally abundant in the alpine heather meadows or upon exposed mountain ridges, and sporophytes are frequent (Worley, 1969).

The occurrence of *Haplomitrium hookeri* on Mt. Tateyama in middle Japan and on western North America is of much interest for the following reasons. Both area of the north Pacific coast have some phytogeographically interesting species, such as *Takakia lepidozoioides* Hatt. et Inoue, *Gymnomitrium pacificum* Grolle, etc. Furthermore, we have several species which show the pattern of distribution similar to that of *Haplomitrium hookeri*. The following is a list of some examples of the distributional pattern similar to that of *H. hookeri*.

1. *Mastigophora woodsii* (Hook.) Nees—Known from northwest Europe,

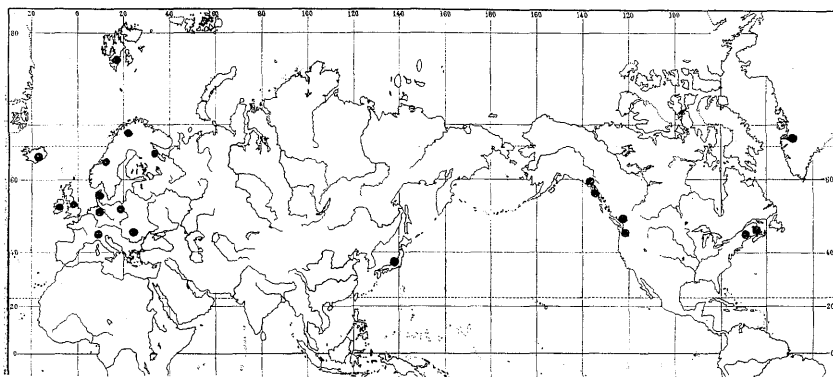


Fig. 2. Distribution map of *Haplomitrium hookeri* (Smith) Nees.

Himalaya, and British Columbia; this species is not yet found in Japan and northeastern North America.

2. *Bazzania pearsonii* Steph.—Known from northwest Europe (only in Scotland and Ireland), Himalaya, Japan, and Alaska~British Columbia.

3. *Nardia compressa* (Hook.) Gray—Known from Europe, Greenland, northeastern North America, Alaska~British Columbia, Aleutian, Kamtchatka, and Japan; this species is not yet found in the Himalayas.

4. *Anastrophyllum donianum* (Hook.) Spr.—Known from Europe, Himalaya, and Alaska~British Columbia; this species is not yet found in Japan.

5. *Scapania ornithopodioides* (With.) Pears.—Known from northwest Europe, Himalaya~China, northern Philippines, Formosa, Japan, and Alaska.

6. *Pleurozia purpurea* (Lightf.) Lindb.—Known from northwest Europe, Himalaya~China, Formosa, Japan, and Alaska-British Columbia.

All of these species are considered to be the relicts of old flora of the Tertiary period; their distribution is much isolated and restricted to rather cool or cold boreal regions of the Northern Hemisphere.

In the Himalayan region *Haplomitrium indicum* (Udar et Chandra) Schust. is known; this species is a rather ambiguous taxon known only from single collection at Ghoom (Ghum), ca. 6500 ft., Darjeeling area. Although *H. indicum* was compared with the antipodal species, *H. gibbsiae* (Steph.) Schust., by the original authors (Udar and Chandra, 1964-5), it seems to be more appropriate to consider that *H. indicum* has the direct affinity with *H. hookeri*. Especially, broadly orbicular to rhomboidal leaves with obscurely subdentate to repand-dentate margins (judging from the original figures by Udar and Chandra, 1964-5) recall *H. hookeri*. The above assumption is partially supported by the fact that many species with similar distributional pattern as in *H. hookeri* also occur in the Himalayan region and their vertical distribution in the Himalayas is from ca. 2300 m. alt. to 3500 m. alt. or more.

Although *Haplomitrium hookeri* is not yet found in the Aleutian Islands and Alaska, or Kamtchatka, it is strongly possible to get this species in these cold northern Pacific areas. Because of fleshy, soft-textured nature of *H. hookeri* and lacking toleration to desiccation, it is greatly shrunk when dry; thus, it may be easily overlooked in dry conditions.

I am indebted to Mr. S. Ogasawara for his kindness in providing me the specimens in fresh conditions.

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昨夏、愛知県の小笠原昇一氏が富山県立山でコマチゴケ (*Haplomitrium*) の一種を採集され、従来日本から知られていた *H. rotundifolium* と異なり、*H. hookeri* らしきとして報告された。今夏、同氏は再び立山に登られて、生品を多量に採集し筆者に研究するように送付された。立山のもはヨーロッパや北アメリカで知られていたものと多少形態的な変異がみられるが、*H. hookeri* (Smith) Nees と同定できる。立山産のものすべてで、胞子体はみられなかったが、ヨーロッパやアラスカ〜ブリチッシュ・コロンビアの高山帯のものによく胞子体をつけるそうである。

立山や黒部溪谷をはさんだ白馬一帯は今回の *Haplomitrium hookeri* はじめ、*Takakia*, *Pseudolepieolea andoi* など、隔離分布のいちじるしいものがいくつか知られていて、植物地理学上重要な地域である。

□カザンデマリ ヒマラヤ山麓の荒地によくみかける *Pyracantha crenulata* (D. Don) Roemer は、昭和の初期から日本に入っていたがあまり広がらなかった。しかし、生垣でよくみかけるホソバトキワサンザシより丈夫で美しいので、最近再認識されて、あちこちでみかけるようになった。私の家の生垣も今紅い実が盛りである。広まるにつれヒマラヤピラカンサ (新花卉, 1957) とか、インドトキワサンザシ (日本の花木, 1971) とか、色々名がつけられるのは困ったことである。ヒマラヤ地方をインドと呼ぶわけにいかないから、後者の名は不適當である。華山手毬で、中国、陝西省の華山から輸入したというのでこの名があるが、華山にも分布するかどうかは検討の余地がある。

(山崎 敬)