Takasi TUYAMA* & Hiroshi HARA*: Podostemaceae found in Eastern Himalaya**

津山 尚*・原 宽*: 東部ヒマラヤで見出したカワゴケソウ科**

(Pl. VI)

In the course of the Second Botanical Expedition to Eastern Himalaya in 1963 sponsored by the University of Tokyo, we unexpectedly found a species of Podostemaceae at two spots of Eastern Nepal. The plant is referable to *Hydrobryum Griffithii* Tulasne, and shows an interesting botanical relationship between Eastern Himalaya and Japan.

In this preliminary report we redescribe the plant based on data obtained from living material in situ and specimens preserved in FAA.

The plant was discovered by the first author in a very small rapid stream crossed by the path from Garhi Danra to Tuwa about 10 kilometers north of Taplejung, Taplejung District. It was growing in great abundance densely covering small stones under the direct sun-light in and above the water, and we could collect various stages of its development, young, flowering and fruiting. Later on we have paid special attention to this plant during our two months' trip, and collected it again at one more spot near Chyanthaphu, Illam District, where a few individuals of fairly large size were found. In our minds, this plant is very rare in this part of Nepal.


*Podostemon Griffithii* Wallich ex Griffith in Asiat. Research 19: 105, t. 17 (1836); Not. Pl. As. 4: 376 (1854); Icon. Pl. As. t. 541, f. II; t. 544 (1854).

Description of the plant: Thallus thickly foliaceous or somewhat coriaceous covering the surface of stones tightly, circular when congested marked with wrinkles here and there and lobulate at the margin, 10 to 20 cm rarely up to

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** 東京大学インド植物調査研究報告 No. 8. 本調査研究の大部分は文部省科学研究所 (海外学術調査) によって行われた。
Fig. 1. *Hydrobryum Griffithii* Tui.

30 cm in diameter, when young saturated green, after the flowering time olive to yellow-green and at the fruiting time exposed to the air changing to light brown and finally becoming whitish from the margin to the centre and dies away. It is clear that the individuals emerged above the water in the dry season are annual in nature.

Short floral branches are scattered densely all over the thallus except the marginal part with only few fasciculated filamentous green leaves among them at the season we have observed, leaves 2–5 tufted in one fascicle, soft, ductile up to 1 cm long and about 0.15 mm thick.

Floral branches are pressed to the surface of thallus centrifugally and with 5–7 deep green scaly leaves disposed alternatively, distichously and horizontally, overlapping one another which are cymbiform and strongly keeled with small obtuse incrassate apical undulations, the innermost and largest up to 1.7 mm long. Spathe appearing in the centre
of the scaly leaves, oblong smooth appressed and slightly recurved in the upper part, sharply edged all the side, the apex quite obtuse or truncately obtuse and irregularly denticulate, the edge is so thin that it is semitranslucent throughout. At the flowering time the spathe becomes somewhat cylindrical, slightly raised and straightened, at first splitting through the back median line and finally dehiscing irregularly exposing the growing pistil.

Ovary narrowly ellipsoid 2 mm long, a little apressed dorsiventrally with a short, thin and distinct pedicel about 1 mm long. Stamens two, filaments fused laterally up to five sixth of the total length, flattened linear, about 0.35 mm wide semitranslucently white, afterwards pale violascent, bifurcating and divaricating horizontally upwards, each branch bearing two roundish pale brownish yellow pollen sacs introrsely, the base of the fused filaments adnate to the middle part of the ovarian base on the ventral side, slightly incurving and exserting the ovary bringing up the anthers to the level of stigma. The tepals two, linear, about 0.15 mm wide gradually narrowed both to the apex and base, adnated to the top of the pedicel on both sides of and in contact with the base of the fused filaments at the same level of adnation of the latter to axis, attaining nearly to the height of the ovary.

Stigmas dark rose-violet deeply bilobed dorsiventrally, lobes equal in size and shape, suberect in the lower part, patently spreading, obdeltoid in the upper part, the apex truncate and slightly lobulated. Ripe capsules narrowly ellipsoid slightly narrowed at the base and attenuate and obtuse at the apex, about 2.5 mm long, light brown, manifestly compressed dorsiventrally, thickly 12-ribbed, bearing the stipe about 1 mm long, and sustained with remaining whitened scaly leaves at the base.


The family Podostemaceae is an addition to the flora of Nepal. Hydrobryum Griffithii has hitherto been recorded with certainty only from Khasia Hills and Ledo in N.E. Assam, as shown in the map, although it had once been reported from Sikkim, Burma, Thailand, and China.

It is noteworthy that this species is very closely allied to Hydrobryum japonicum Imamura (1929) of southern Kyushu, Japan, and they apparently
Fig. 2. Distribution map of Podostemaceae showing its northern localities in Asia.

**Hydrobryum. ▲ Other genera.**

belong to the same genus. The Himalayan plant, however, differs from the Japanese one in some respects, especially in the shape of stigmas. The detailed comparison between them will be published in a subsequent report.

**Explanation of Pl. VI.**

A. *Hydrobryum Griffithii* growing on a stone near Linkhim. Brownish plants in the upper part are bearing ripe fruits. × ca. 3/4. Photo by Kanai. B. A flowering plant. × ca. 1. Photo by Tuyama. C. A plant with young floral branches × ca. 1. Photo by Tuyama.

東京大学第2次インド植物調査隊は1963年秋約4ヶ月間東部ヒマラヤで調査研究を行なったが、その際計らずもネパール東部でカワゴケソウ科の一種を見出した。海拔約1800 m の山腹の小さな急流の岩石上に多数生育しているのを初めて発見し、若い状態から花や果実をつけたものまで完全な資料を採集することができた。後に金井弘夫博士も他の一箇所でも少量生育しているのを発見した。この植物は *Hydrobryum Griffithii* Tulasne で、東部ヒマラヤ地域では初発見であるので、今回少し詳しく記録しておくことにした。九州南部産のカワゴコモの類と非常に近縁で、柱頭の形などに差異があるが属は同一とみなされ、今後更に詳しく比較研究を行いたいと思っている。

**正 誤 (Errata)**

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