Hideaki OHBA*: **A taxonomical note on *Diplazium bonincola* Nakai (Aspidiaceae) from the Bonin and Volcano Islands****

大場秀章*: 小笠原諸島産のオオシケシダの分類学的研究**

During my taxonomical studies on Athyrioid ferns, it became necessary to publish the following note on *Diplazium bonincola* Nakai from the Bonin and Volcano Islands. This fern was determined first by Kodama (1913) as *D. sorzogonense* (Presl) Presl. Later Nakai (1929) distinguished it specifically from the latter mainly by short stout erect caudex, entire scales at the base of stipes and mostly forked venation pattern of the lateral veins. Although he characterized *D. sorzogonense* as having long creeping rhizomes and fimbriate scales, it has actually short stout erect caudex and entire scales. Therefore, by the characters pointed out by Nakai, it is very difficult to separate *D. bonincola* from *D. sorzogonense*.

In my previous note (Ohba 1969), I pointed out that the scales on the base of stipes of *D. bonincola* differ greatly from those of *D. sorzogonense*. In the former species the scales are rusty, entire, narrowly triangular or ovate and 7–22 by 2–6 mm (mostly 17 by 4 mm) in size, while in the latter the scales are dark-brown, entire, subulate or very narrowly triangular and 10–15 by 1.2–1.5 mm in size. These characters of scales were overlooked by Nakai, but I consider them as one of the most consistent differences between the two species. These species are, moreover, quite different in the structure of rachis. The rachis of both species has a single groove on the adaxial surface. In *D. bonincola* the ridges on both sides of the groove are entirely continuous without breaking at the junction of the costae of pinna, while in *D. sorzogonense* the ridges are discontinuous and interrupted at the junction of the costae of pinna. The ridges of the groove of the costa are furthermore decurrent in the latter species (Fig. 1).

Recently, as pointed out by Holttum (1958), Kurata (1961), Ching (1964) and Ohba (1965), the structure of the rachis surface is considered to be one of the most important characters for delimiting the genera belonging

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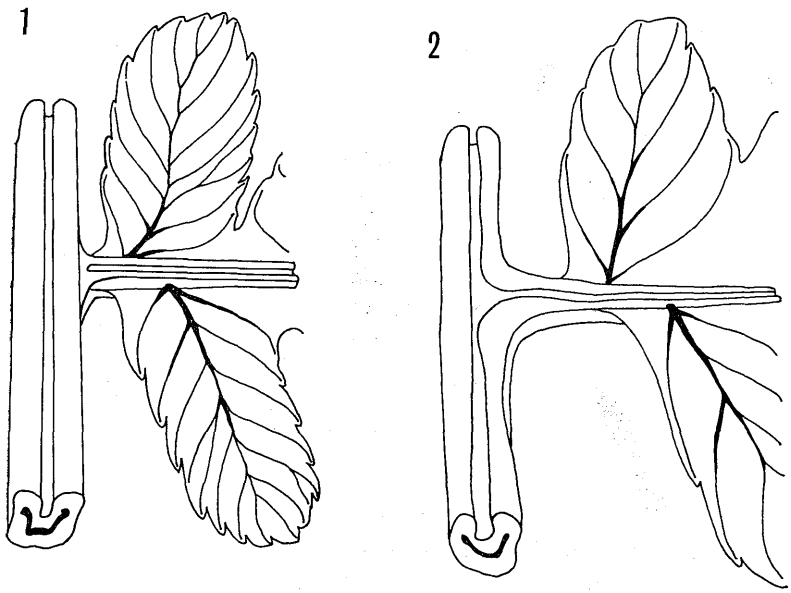

Fig. 1. A part of the adaxial surface of rachis showing the junction of the costa of pinna. 1. *Lunathyrium bonincola*. 2. *Diplazium sorzogonense*.

to the Athyrioid ferns. In the previous paper I recognized the genus *Lunathyrium* based on the characters of the structure of the rachis surface and on the chromosome number. The basic number of the chromosomes of the genus is reported as 40 (Ohba 1965). Within the genus three sections, i. e. Athyriopsis, Dryoathyrium and Lunathyrium, are distinguished based mainly on the habit of stem, the form of indusium, the presence or absence of aerophores of the basal part of stipes. The structure observed in the genus *Lunathyrium* seems to be related to that found in the genus *Athyrium* or *Diplazium*. The relationships among the types of structure are shown in Fig. 2.

The morphology of *D. bonincola* is almost the same with that of the genus *Lunathyrium*. Although no study on the chromosomes is made, the similarity of the structure of the rachis surface shows clearly the position of *D. bonincola* to the genus *Lunathyrium*. This, however, brings up the question in what section in the genus *Lunathyrium*, *L. bonincola* (=*D. bonincola*) can be placed. Except for the habit of stem *L. bonincola* seems to

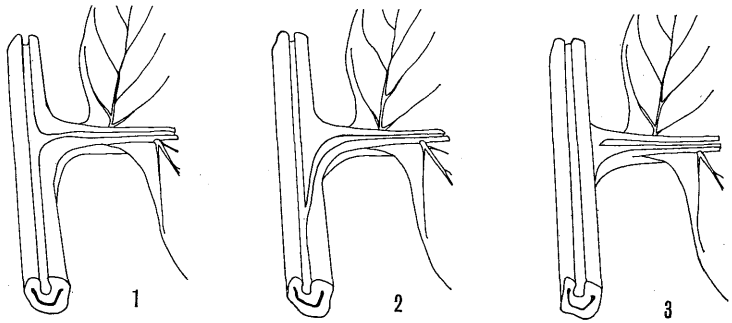

Fig. 2. The types of structure of rachis surface found in the genera *Athyrium*, *Diplazium* and *Lunathyrium*. 1. A type showing the continuous groove. 2. A type showing the continuous but markedly decurrent groove. 3. A type showing the discontinuous groove. 1 and 2 are found in *Athyrium* and *Diplazium*, and 3 is found only in *Lunathyrium*.

be most closely related to the species of the section Athyriopsis represented by *L. japonicum*. The section is distinguished from the others of the genus by long creeping rhizomes, hardly tufted bases of stipe, lacking reniform sori and indusia, and lacking aerophores of the base of stipes. Therefore, *L. bonincola* seems to occupy a somewhat isolated position in the sect. Athyriopsis, and at the same time to be a species of *Lunathyrium* nearest to the genus *Diplazium*. However, further comparative studies are apparently needed on the taxonomical status of the species based on ample materials. In the section Athyriopsis, *L. bonincola* differs from *L. japonicum* in having the larger entire rusty narrowly triangular scales, the glabrous lamina-surface and the short stout erect caudex agaist the small pale dirty brown or colourless narrowly triangular scales with rippled margin, the hirtellous lamina-surface and the long creeping rhizomes.

Lunathyrium bonincola (Nakai) H. Ohba [in Yamazaki in Nature Bonin & Volcano Isl., 107 (1970), nom. nud.] comb. nov.

Diplazium bonincola Nakai [in Rigakkai **26** (Apr. no.) : 10 (1928), nom. nud.], in Bot. Mag. Tokyo **43** : 1 (1929) ; in Bull. Biogeogr. Soc. Jap. **1** : 251 (1930) ; Makino & Nemoto, Fl. Jap. 2nd. ed., 44 (1931) ; Nemoto, Fl. Jap. Suppl., 27 (1936) ; C. Chr., Ind. Fil. Suppl. III, 72 (1934) ; Honda, Nom. Pl. Jap., 11 (1939) ; H. Ito, Fil. Jap. Ill., Fig. 153 (1944) ; in Iden (The Heredity, Tokyo) **23**(8) : 37 (1969).

Diplazium sorzogonense (non Presl) Kodama in Bot. Mag. Tokyo 27: 302 (1913); Makino & Nemoto, Fl. Jap., 1606 (1925).

Diplazium Christii (non C. Chr.) Ogata, Icon. Fil. Jap., pl. 371 (1940).

The following description of the adult sporophytes is necessary for modifying the original one:

Caudex short stout erect. Frond not dimorphic: shape, size, texture and serration varying in a wide range. Stipes hardly enlarge at the base and not markedly tufted, broadly triangular in a transverse section, 25 to 35cm long, ochre-coloured without green shade, densely scaly at the base with narrowly triangular to ovate entire scales; scales rusty, somewhat passing to chestnut-brown near the base, 7 to 22 mm long and 2 to 6 mm wide (mostly about 17 mm long and 4 mm wide), the rest of stipe very rarely to sparsely scaly with very narrow deep-brown hair-like or subulate scales of about 7 mm long. Lamina narrowly ovate to ovate or elliptic, bipinnatifid to bipinnatipartite, to about 80 cm long and 40 cm wide, acuminate at the apex, herbaceous to chartaceous, adaxial surface glabrous, abaxial glabrous to very rarely sparsely scaly with white or brown narrowly triangular or triangular scales to about 0.2 mm long especially on veins; rachis ochre-coloured, with a deep and distinct groove on adaxial surface, the ridges on both sides of the groove entirely continuous without breaking at the junction of the costa of pinnae, very rarely scaly with very narrow deep-brown hair-like or subulate scales to about 1 mm long; pinnae to about 20-jugate below the pinnatifid apex of frond, larger pinnae to 23 cm long and 5 cm wide (about 16 cm long and 2.7 cm wide in middle size), very shortly stalked in the lower pinnae and becoming sessile towards the upper ones, bases truncate, apices acuminate, margins lobed 3/5 or more to costa in middle and lower pinnae (The largest material lobed 4/5), less deeply in the upper ones; costa raised on both surfaces, deeply and distinctly grooved on the adaxial one, the ridges on both sides of the groove entirely continuous, the ridge of the basiscopic side not decurrent to the ridges of groove of rachis, not grooved on abaxial one, glabrous or very rarely sparsely scaly; lobes almost oblique, at an angle of less than 70° to the costa, oblong to ovate or rarely narrowly triangular, obtuse or subtruncate at the apex, slightly crenate, 4 to 7 mm wide above the base, sinuses between lobes closed up by a somewhat translucent membrane; lateral veins

in lobes to about 5 to 11 pairs, most simple to well forked, the lowest lateral veins mostly simple even when the upper ones forked; sori occupying the middle part of lateral veins, 1 to 5 mm long, the most asplenioid, sorus on the lowest outer lateral veins of each lobe of both acroscopic and basiscopic sides very rarely diplazioid. Indusia membranaceous to chartaceous, entire in outer side, rolled back when sori mature. Sporangia: annulus with 17 to 20 indurated cells.

Endemic in the Bonin and Volcano Islands.

Specimens examined: The Bonin Islands. Isl. Chichijima: (Jul. 1930 H. Ito, TI; Aug. 1927 T. Suzuki, KYO; Jul. 1930 K. Hisauchi, KYO), Takedabokujyo (Jul. 1920 T. Nakai, TI; Apr. 1934 T. Tuyama, TI), Asahiyama (?Dec. 1910 H. Toyoshima, TI; S. Nishimura 486, TI), Shigureyama (Nishimura 50, TI), Kobikidani (Nishimura 137, TI), Chuozan, alt. 290 m in *Schima Mertensiana*-forest (Nov. 1968 T. Yamazaki, TI), Tatsumidani (S. Masuko 27, TOFO). Isl. Hahajima: Kuwanoki-yama (Toyoshima 95, TI; Jun. 1920, Nakai-Holotype TI; Apr. 1934 Tuyama, TI).

The Volcano Islands. Isl. Kita-Iwojima: (Aug. 1930 A. Yamamoto, TI; Jul. 1933 Tuyama, TI, KYO; S. Isei 15, TI). Isl. Minami-Iwojima: (Mar. 1936 Tuyama, TI).

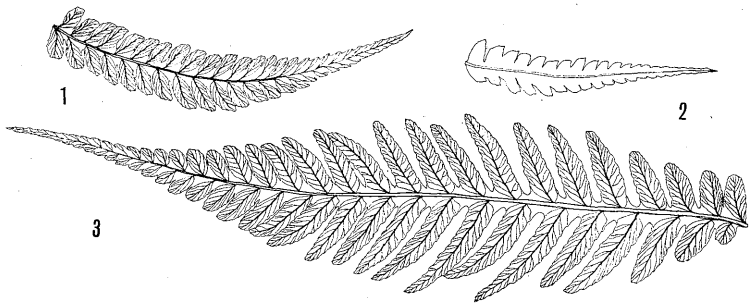

Fig. 3. Variation in pinnae of *Lunathyrium bonincola* (×1/2). 1. A lower pinna (Yamazaki, s.n. TI). 2. An upper pinna (Nakai, s.n. in July 1920, TI). 3. A lower pinna (Toyoshima 95, TI).

As compared with the stableness of the shape, size and colour of the scales described above, the range of the variation in the shape, size, texture and serration of frond is considerably wide. Among the specimens examined, the collection by Toyoshima 95 (TI) is the largest in size (Fig. 3-3, it seems

to be probably collected from a considerably shady and moist forest-floor) and is different slightly from others in the degree of dissection of pinnae.

I wish to express my sincere thanks to Prof. H. Hara, the University of Tokyo, for his guidance and encouragement throughout the course of my studies. I am deeply indebted to Dr. H. Ohashi, the University of Tokyo, who gave me continuously valuable advices and looked carefully over the manuscript. I am also grateful to the curators of the following herbaria for providing the materials examined for this study: Department of Botany, Faculty of Science, University of Tokyo, Tokyo (TI); Department of Forest Botany, Faculty of Agriculture, University of Tokyo, Tokyo (TOFO); Department of Botany, Faculty of Science, Kyoto University, Kyoto (KYO).

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小笠原諸島から中井猛之進博士によって記載された *Diplazium bonincola* オオシケシダは，最初，児玉親輔氏によって東南アジアに分布する *D. sorzogonense* に当てられていたものである。

従来取り上げられてきた性質に加えて，葉軸の向軸面側の溝の構造の違いなどによって広義のイヌワラビ属 *Athyrium* は，いくつかの小さな属に細分されてきた。Ching (1964) のシケシダ属 *Athyriopsis*, オオヒメワラビ属 *Dryoathyrium*, ミヤマシケシダ属 *Lunathyrium* は，相互に近縁な関係にあるので，私はこれらを一属 *Lunathyrium* にまとめ，それぞれを節として取り扱うことを提案した（大場 1965)。

オオシケシダと *D. sorzogonense* の葉軸の溝の構造を観察すると，前者はミヤマシ

ケシダ属に，後者は狭義のイヌワラビ属やヘラシダ属 *Diplazium* に一致する型であった。オオシケシダでは葉軸の溝の両側は羽軸の分岐点でも分断されない。したがって，羽軸の溝は葉軸のそれに延着しない（図 1-1)。*D. sorzogonense* では切断され，延着している（図 1-2)。したがって，溝の構造でオオシケシダは，ヘラシダ属に含めるよりは，ミヤマシケシダ属とすることが正しいと思われる。しかし，本種はミヤマシケシダ属のどの節に帰属するものか問題がある。英文欄で記したように，根茎の状態，りん片，葉身の毛の有無などの性質で，種としては明瞭に区別されるが，シケシダ *Lunathyrium japonicum* に最も近縁であると思われる。したがって，シケシダ節に含めるのがよいかも知れないが，この節は主に根茎がほふくする特徴で，他の二節から分けられるので，それが直立するオオシケシダを含めるには疑問が残る。

そこで，所属する節については問題が残るがオオシケシダをヘラシダ属からミヤマシケシダ属に移し，詳しい記載を発表した。

○ケンペルの記録した日本名ツバキ古品種（津山　尚）　Takasi TUYAMA: Old Japanese cultivar names of *Camellia* in Kaempfer's Amoenitatum Exoticarum.

ケンペルの Amoenitatum Exoticarum, 1712 には栽培ツバキを *Tsubakki hortensis* とし，ここに 23 種の日本名による園芸品種を記録している。これらは以後の西欧の文献にも絶えて見られず，忘れ去られていた。稀な場合として故 H. H. Hume 教授の Camellias in America, 1946 に名のみが引用されているぐらいである。これらは果してどのようなものであったのであろうか。近年，日本においてもツバキ園芸の研究が盛んになるのにつれて，古い出版本の研究や，古写本の発見が多くなされ，今はその一部を明かにすることが可能になった。おしいことに，ケンペルは花などの記載を残していないので，品種自体の同定はほとんど不可能であるが，少くとも名称の上での同定はある程度可能になった。

次に上記の品種を，ケンペルの表記のままに挙げ，（　）中にそれに当てた日本名を記した。ただし，アンダーラインのあるものは著者のあて推量であって，今の所文献の後づけのないものである。

Benke (弁慶), Borri (堀), Commakura Sasanqua (鎌倉山茶花), Dsjurin (重輪), Fidsjirimin (緋縮緬), Fino botan (緋の牡丹), Jedo dairin (江戸大輪), Jedo momidsji (江戸紅葉), Josttsjino donno (吉野殿, ? 与市殿), Itokuri (絲繰), Kaisan (開山), Kara ito (唐絲), Kikjo (桔梗), Kommatz (小町), Kosjam (小シャム), Meokin (妙喜院), Nankin (南京), Osjam (大シャム), Saifu botan (宰府牡丹——現在，宰府，才布，財布などといわれる一品種がある), Siratamma (白玉), Sjinkuri (芯縄), Sokkobin (蜀江紅，現在蜀紅という品種があるが，語源