each sporophyte appeared to be entirely independent of that of its twin except in the loose tissue forming the base of the haustra, where the line of separation was not clearly recognizable in all sections. In the region of contact, the epidermis, while quite distinct, was less strongly developed than on the free faces. Since the sporophytes were nearly mature at the time of collection, it was impossible to determine the conditions which led to the production of twins. It is probable that two functional oospheres were produced in the venter of each archegonium, although it is not impossible that twinning took place through an early branching of the young protocorm.—HAROLD L. LYON, *University of Minnesota*.

ADENODERRIS, A VALID GENUS OF FERNS.

(WITH TWO FIGURES)

THE genus Polystichum,[1] typified by the well-known *P. Lonchitis* constitutes a natural and well-defined group of ferns and has commonly had general recognition, recently even by American writers.[2] Its species are characterized, briefly, by their rigidity and erect habit, smooth firm dryish texture, mainly auriculate and spinulose or mucronate divisions, abundant chaff, free venation, and ordinarily by the orbicular centrally peltate indusia. The genus was divided by JOHN SMITH into two sections: the one, typified by *P. aculeatum* and *P. Lonchitis*, with fasciculate generally erect acaulose vernation; the other, typified by *P. coriaceum*, with uniserial sarmentose vernation. In view of that writer's natural bent for generic segregation along the very lines on which the species of this genus were placed in two sections, it would not have been surprising if he had accorded to each section generic rank. That such a disposition—in view of the two radically different types of vernation—was not made is significant, for it emphasizes SMITH's belief that in other respects the species are in too close agreement to warrant their division into two genera. There is, however, variation in one other particular; in certain species of both groups the indusium is caducous, or, as in *P. tenue*,[3] apparently quite wanting; but even in these cases the appearance of the plants is so unmistakably that of Polystichum and their agreement in the main particulars so essential that a rational course seems to necessitate their recognition as true members of the genus. We have thus a group of species which, though offering

[1] ROTH, Teut. Fl. Germ. **3**:69. 1800.

[2] GILBERT, in papers presented at the Boston Meeting (1898), 22. 1899. UNDERWOOD, Our native ferns, ed. 6, 115. 1900. DAVENPORT, Rhodora **4**:9. 1902, etc.

[3] GILBERT, Fern Bull. **8**:63. 1900.

variation in two lines, is nevertheless, in the characters enumerated at the beginning of this paper, one of the most unified to be found among the ferns. Indeed, as GILBERT has remarked, the general characters of the genus are so distinctive and obvious that the descriptive term *polystichoid* has come into rather common use.

The historic treatment of Polystichum, although of much interest, need not be here discussed at length. The genus has been made often to include diverse groups not properly associable with its typical members; and in several cases it has been an author readiest to admit numerous small genera who has failed to realize the essential unity of the group and to refuse to admit unlike forms. Thus MOORE retained *Cyclopeltis* J. Sm. under Polystichum, though it constitutes a most distinct natural genus. And more recently, DIELS,[4] while properly removing Cyclopeltis, nevertheless allows Phanerophlebia, Cyrtomium, and Adenoderris to remain within the genus. Cyrtomium and Phanerophlebia have recently been held distinct from each other and from Polystichum by UNDERWOOD,[5] and it now appears certain that Adenoderris, long ago founded by JOHN SMITH upon the anomalous *Aspidium glandulosum* of Hooker and Greville, represents a perfectly valid genus. The discovery of a second species of Adenoderris with very different venation, from Guatemala, is of interest and has seemed to render desirable the present notice of the genus and its relationship.

ADENODERRIS J. Sm. Hist. Ferns 222. 1875.[6]—Small plants of lax habit, distinct from Polystichum by their herbaceous texture, aspinulose margins, and dense glandular-pilose covering.—Type, *Aspidium glandulosum* Hook. and Grev. from Jamaica. Species two.

Adenoderris viscidula (Mett.).—*Aspidium glandulosum* Hook. and Grev. Icon. Fil. **2**: *pl. 140.* 1831; not *Aspidium glandulosum* Blume, Enum. Pl. Javae **2**: 144. 1828. *Adenoderris glandulosa* J. Sm. Hist. Ferns 223. 1875. *Aspidium viscidulum* Mett. Abhand. Senck. Nat. Gesells. **2**: 322. 1858.—The species was very fully characterized upon specimens received from several collectors in Jamaica and is the subject of an excellent illustration by HOOKER and GREVILLE. Lately it has been well described by JENMAN.[7] SMITH, basing his genus upon the single species, published the

[4] DIELS, in Engler and Prantl, Die natürlichen Pflanzenfamilien **14**: 183–189. 1899.

[5] UNDERWOOD, Bull. Torr. Bot. Club **29**: 121–136. 1902. See also UNDERWOOD in Bull. Torr. Bot. Club **26**: 205–216. *pls. 359–360.* 1899.

[6] The genus seems to be published here for the first time, although the author cites the date 1852.

[7] Bull. Bot. Dept. Jamaica **2**: 197–198. 1895.

following characters: "Vernation fasciculate, erect, acaulose. Fronds 6 to 8 inches in length, oblong, lanceolate, pinnatifid, densely covered with pilose glands, decurrently attenuated to a short stipe. Veins pinnately forked. Receptacles punctiform, medial. Sori round. Indusium orbicular, occasionally reniform."[8] In habit the plant was said to be "totally at variance" with any species of Polystichum, and this opinion was formed entirely from herbarium specimens. An examination of material in the field indicates even more plainly how inappropriate has been the usual systematic association of this peculiar plant with true members of Polystichum. The fresh plants are spongy, very lax, and intensely viscid, and except for the peltate indusia have nothing to suggest a close relationship with the stiff smooth spinulose Polystichums. The venation of *A. viscidula*, which was not indicated by HOOKER and GREVILLE, is shown in *fig. 1*, which represents the middle portion of a Jamaican specimen (*Clute* no. 333; U. S. National Herbarium, no. 349588). This feature and the position of the sori are discussed under the next species.

FIG. 1.—*Adenoderris viscidula* (Mett.) Maxon; natural size.

A. viscidula is known only from Jamaica and Cuba. JENMAN states that in Jamaica it occurs upon "rocky banks and skirts of forests 1500–3000 ft altitude; plentiful in one place at least between Gordontown and Guava Ridge. There is, however, but one sheet in the Jenman Herbarium at New York. Other Jamaican specimens are: *Clute* no. 333, collected above Gordontown, March 12, 1900, at an altitude of 450m; *Underwood* no. 2498, collected near the Green River (below Cinchona), April 22, 1903, at an altitude of 750m; and specimens collected by *D. E. Watt* at or near the last locality in May 1903. The Cuban record[9] is based upon *C. Wright* no. 1052. Specimens of this number in the D. C. Eaton herbarium are identical with the Jamaican plant; to them is attached Wright's original label stating that they were collected in rocky ravines on mountain sides near Josephine, October 25 (1859).

Adenoderris sororia, sp. nov.—A delicate plant of small size, the fronds glandular throughout. Rhizome slight, erect, having long fibrous rootlets rather thickly clothed with delicate bright brown chaff: fronds 8cm long, short-stipitate, spreading, oblong-lanceolate, deeply pinnatifid, with about

[8] Only orbicular indusia have been observed by the writer.

[9] Hooker, Sp. Fil. **4**:6. 1842.

ten pairs of usually subopposite to alternate pinnae; pinnae ovate to deltoid, the middle ones 10–13^{mm} long, the lowermost scarcely reduced, all deeply divided into about three blunt lobes upon both upper and lower margins, each lobe usually once soriferous near the outer side at the base, the sorus being borne at the *extremity* of a spur given off from the otherwise usually simple single veinlet; venation terminating well within the lobe; indusium minutely glandular, orbicular, centrally peltate.

Founded upon no. 868 of *John Donnell Smith's* Guatemalan plants; said to have been collected by *von Türckheim* at Sesisp, Department of Alta Vera Paz, altitude 1200^{m}, March 1886, and distributed as *Aspidium glandulosum*. The most perfect material of this number the writer has seen is that preserved in the D. C. Eaton herbarium at Yale University, and this, having served for the accompanying illustration (*fig. 2*), may stand as the type, though the specimens in the United States National Herbarium and the herbarium of the New York Botanical Garden are of the same collection. Captain SMITH has stated (in litt.) that duplicates were presented also to the W. M. Canby, Philadelphia Academy, Kew, Berlin, Paris, and DeCandolle herbaria.

FIG. 2.—*Adenoderris sororia* Maxon, n. sp.; natural size.

Adenoderris sororia is distinct in all states from *A. viscidula*, though in its lax habit, slight texture, aspinulose margins, and glandular covering it shows an undoubted generic alliance with that species. It differs specifically in its less size, bipinnatifid condition throughout (*A. viscidula* though larger is only deeply once-pinnatifid), more sparse glandular covering, and in its spreading simpler *included* venation, the sori being borne terminally at the apices of the veinlets. In *A. viscidula* the veinlets are pinnately forked and excurrent to the suberose margins, the sori being borne *dorsally, i. e.*, upon the veinlets and at some distance from the margin. These differences, while very marked, appear to be no more than specific, and SMITH's original generic diagnosis quoted above must therefore be amended as regards venation.

Both drawings, which are by Mr. H. D. HOUSE, are natural size. That of *A. sororia* represents parts of the third, fourth, fifth, sixth, and seventh pairs of pinnae of a frond of the type specimen.—WILLIAM R. MAXON.