

On the identity of *Cyathea multiflora*, type of the genus
Hemitelia R. Br.*

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(WITH PLATE 35)

The genus *Hemitelia* was established by Robert Brown in 1810 for a group of tree ferns, of which the following previously described species were known to him and were stated as representatives of his new genus: (1) *Cyathea multiflora* Sm., (2) *C. horrida* Sm., and (3) *C. capensis* Sm. Fortunately these are now regarded, as they have been generally in the past, as congeneric. If, then, the genus *Hemitelia* is to be recognized as valid, there can be no objection to a selection of the first-named species, *Cyathea multiflora*, as its type. This course has been followed in recent years by both L. M. Underwood† and C. Christensen,‡ and has been tacitly accepted, although quite a different typification of the genus was long ago proposed by G. Gardner.§

Concerning the identity of *Cyathea multiflora*, however, there has been little but confusion, almost from the time of its publication. Following a brief description (quoted from Willdenow) Hooker commented upon this species in the *Species Filicum*|| as follows:

“Hab. Jamaica; ex Herb. Banks. (*Smith*).—With this I am unacquainted, and Mr. Brown is the authority for its being referred to *Hemitelia*. Sir Jas. Smith, with whom the species originated, has merely said of it (under *Cyathea*) ‘Caudice —, fronde bipinnata pinnatifida, laciniis obtusis serratis, rachi alata, floribus sparsis, calyce lacero.’ Willdenow, who seems to have been acquainted with the species, and whose character I have given above, further remarks upon it, ‘Rachis margined on each side with a narrow decurrent line. Partial pinnae 2 feet long. Pinnules 4 inches long, an inch broad at

* Published by permission of the Secretary of the Smithsonian Institution.

† Mem. Torrey Club 6: 268. 1899.

‡ Index Fil. xvii. 1906.

§ London Journ. Bot. 1: 438-442. 1842.

|| Sp. Fil. 5: 32. 1846.

the base, lanceolate, acuminate, pinnatifid. Segments 5 lines long, oblong, rather acute, obtusely serrated.' Unfortunately neither Smith nor Willdenow alludes to the venation, nor, except the brief notice of the former, to the involucre. Mr. Smith, who, as well as Mr. Gardner, has examined the original specimens, says that, as far as can be judged from the imperfect specimens, it differs from the preceding (*H.? Parkeri*) only in wanting the coarse hairs on the rachis. Mr. Gardner considers it allied to *Alsophila capensis*."

It may here be noted that Willdenow in all probability had not seen the original specimens of the species. His description,* which very greatly modifies and extends Smith's original diagnosis, is thus one of the earliest misapplications of the species-name and is apparently the principal false basis from which so great an amount of misunderstanding has since arisen.

Smith's comment upon the source of his specimens, "Habitat in Jamaica; ex herb. Banks," led Dr. Underwood to look up the actual type of the species in the collection of Sir J. E. Smith at the rooms of the Linnean Society of London, a few years ago. He examined also the original specimens in the Banksian Herbarium (now preserved in the British Museum, Natural History), from which the three pinnæ of Sir J. E. Smith's herbarium had been derived. His conclusion was that the specimens of the two collections, which are identical, represent a species otherwise unknown. Concerning the original source of the material he has written (in MS.), "Jamaica, *R. Shakespeare*. Known only from plants collected in Jamaica in the last of the 18th century."

More recently the writer has received through the kindness of A. B. Rendle, F.L.S., Keeper of the Herbarium of the British Museum, a photograph of Banks's original specimens in the British Museum, here shown in PLATE 35, and with this two pinnules of the plant itself. A transcript of the data attached to the specimen, as shown by the photograph, is as follows:

"Shakespeare, Robert, (fl. 1780-82). Collected in Jamaica (Hb. Banks).—10. 7. 1903. Prof. L. M. Underwood called to see this type (?); hence the difficulties.— ? Can this specimen be the *type* of *Hemitelia multiflora* R. Br. Fl. Nov. Holl. p. 158.

* Sp. Pl. 5: 496. 1810.

= *Cyathea multiflora* Sir J. E. Smith in Act. Taur. 5. p. 416.

= *Amphicosmia multiflora* G. Gardner in London

Journ. of Bot. 1. 1842, p. 441. Cf. this last reference, pp. 438-442. Our plant agrees with Gardner's description, p. 439.—

But Sir J. E. Smith says 'Jamaica, ex herb. Banks' (fide Hook. Sp. Fil. 1. 32), while *our specimen* bears 'America merid. R. Shakespeare.' And no other specimen appears to have come from Jamaica. Shakespeare did collect in Jamaica about 1780. If this is the type, the locality 'Jamaica' may be at fault."

From a careful comparison of the two pinnules sent, and of the photograph, with the large series of specimens in the U. S. National Herbarium, the following statements may safely be made:

1. The original specimens in the Banks Collection, British Museum, from which the three type pinnæ of *Cyathea multiflora* J. E. Smith were taken, are from a rather small frond of a species described later upon Central American material as *Hemitelia nigricans* Presl.

2. Smith's statement of the type locality of *C. multiflora* as "Jamaica" is without much doubt erroneous, since: (a) The original Banks specimens are marked as from "America merid."; (b) in all the botanical exploration carried on subsequently in Jamaica the species has not been there collected; (c) *Hemitelia nigricans* is a widespread though not very common species of the Atlantic coast of the mainland, extending from Guatemala, through Nicaragua to Costa Rica and Panama (and in all probability farther, along the northern coast of South America), and may reasonably be supposed to include specimens gathered by chance at almost any point along the Atlantic coast mentioned. Even if there were no confusion as to the locality for the original specimens of *C. multiflora*, their identity with *H. nigricans* can not be questioned, as the following notes are intended to make clear.

Hemitelia nigricans was described in 1849* by Presl from specimens said to have been collected by Friedrichsthal "upon the banks of the river San Juan, in Guatemala." Fournier, however,

* Presl, Epim. Bot. 31. 1849.

has stated* that the locality is in Nicaragua. There is at hand a pinnule from Presl's type at Prag, and also a pinnule of Levy's 468 from Nicaragua, mentioned by Fournier. A close comparison of these with the pinnules of *C. multiflora* from the Banks herbarium shows all three collections to be of the same species and, curiously enough, to give no indication of the variation in size and venation which exists in the more ample material of later collections. In all three the veins are almost without exception simple, and the pinnules only from 3 to 4 cm. long. Recent specimens show pinnules up to 7 cm. long and many of the veins to be once forked at or beyond the middle. From minute characters, nevertheless, it is apparent that all are referable to a single species, which naturally must bear the name *Hemitelia multiflora*. The species has since been described from Costa Rican specimens as *Alsophila decussata* Christ. It is doubtful also if *Hemitelia Hartii* Baker,† from Panama, can be maintained as a distinct species. *Hemitelia obscura* Mett.‡ is a related species described from Colombia, very similar in form, but differing conspicuously in having the lower surface of the costae strongly hispid.

From the whole series at hand, but especially from specimens collected recently by the writer in Panama, the following description has been drawn:

HEMITELIA MULTIFLORA (J. E. Smith) R. Br.; Spreng. Syst. Veg. 4: 126. 1827

Cyathea multiflora J. E. Smith, Mem. Acad. Tur. 5: 416. 1793.

Amphicosmia multiflora Gardner, London Journ. Bot. 1: 441. 1842.

Hemitelia nigricans Presl, Epim. Bot. 31. 1849.

Alsophila decussata Christ in Pittier, Prim. Fl. Costar. 3: 41. 1901.

Caudex erect, 1 to 5 meters high, very slender (about 3.5 cm. in diameter), usually sheathed by the closely ascending or semiadnate fibrous bases of old fronds, or these slowly deciduous, the scars spaced, oblong-elliptic, 4 to 5 cm. long, less than 1.5 cm.

* Bull. Soc. Bot. France 19: 261. 1872.

† Journ. Bot. 24: 243. 1886.

‡ *Hemitelia obscura* Mett. Ann. Sci. Nat. V. 2: 264. 1864. Subsequently figured by Karsten, Fl. Colomb. 2: pl. 107. f. 2. 1869.

broad; fronds spreading, 1.3 to 2.1 meters long; stipe up to 45 cm. long, curved, light brown, sulcate ventrally, noticeably brownish-pubescent, freely armed with straight or slightly curved spreading spines 3 to 5 mm. long, and clothed toward the base with deciduous ovate-lanceolate attenuate glossy bright-brown scales 1.5 to 2 cm. long with narrowly erose paler margins, similar scales rather densely clothing the crown and upper part of the caudex; lamina 1 to 1.7 meters long, 60 to 100 cm. broad at the middle, ovate, deeply tripinnatifid, abruptly acuminate, the primary rachis scantily aculeate near the base, upward sparsely muricate or smooth, stramineous-brownish, antrorsely brownish-strigose upon the upper side, below closely beset with stiffish mainly retrorse subsistent yellowish hairs; pinnae articulate, 14 to 17 pairs, approximate, the basal ones horizontal or usually deflexed, opposite and relatively short (25 to 32 cm. long, 8 to 11 cm. broad), elliptic-oblong, petiolate (1.5 to 3 cm.); middle pinnae larger, alternate, widely spreading, exactly linear-oblong, not narrowed at the base, 30 to 50 cm. long, 7 to 14 cm. broad, sessile or subsessile, abruptly acuminate-caudate, the secondary rachis like the primary, in the outer part delicately foliaceo-marginate; pinnules 20 to 24 pairs, articulate, deciduous, mostly spreading at right angles, slightly separated or half their width apart, all but the lowermost strictly sessile, linear-oblong, 3 to 7 cm. long, 9 to 18 mm. broad, acutish or rarely acuminate, regularly pinnatifid two thirds to four fifths the distance toward the slender elevated costa; costae yellowish-strigose above, below bearing a few minute deciduous yellowish brown subbullate attenuate scales, glabrous or minutely setulose; segments 9 to 12 pairs, slightly oblique, straight or slightly falcate, oblong, close, the margins plane or lightly revolute, crenate-dentate, strongly so at the very obtuse or sometimes muticous apex, the sides nearly parallel; costules bearing 2 to 4 stiff spinelike hairs above, below glabrous or obscurely and minutely setulose; veins wide-spreading, 4 to 8 pairs, simple or once forked at or beyond the middle, dark, more or less concealed, extending to the margin; sori 1 to 4 pairs, mostly medial, the lower ones supramedial, borne at or just below the fork; indusium proximal, brown, membranous, cucullate-dimidiolate, finally somewhat reflexed and cleft into 2 or 3 shallow lobes, often nearly disappearing with age; receptacle globose, the numerous flaccid paraphyses equaling the sporangia; leaf tissue papyraceo-herbaceous, translucent, very dark green above, much paler below, glabrous.

TYPE LOCALITY: "America meridionalis," *R. Shakespeare*.

DISTRIBUTION: Guatemala, Nicaragua, Costa Rica, and

Panama, ascending to 1,100 meters altitude; also reported from Peru.

Besides the fragment of the Shakespeare type above mentioned the following specimens are in the U. S. National Herbarium:

NICARAGUA: Banks of the Rio San Juan, *Friedrichsthal*. Chontales, in forest, *Levy* 465.

GUATEMALA: Forest near Livingston, at sea-level, June, 1906, *H. von Türckheim* II. 1221. Same locality, February 18, 1905, *C. C. Deam* 483 (determined as *Cyathea arborea*). Same locality, January 18, 1905, *Kellerman* 5080.

COSTA RICA: Forêt à Général, altitude 600 meters, *Pittier* 3344. Fougères du Général, vallée du Diquís, altitude 700 meters, *Pittier* 12027 (type collection of *Alsophila decussata* Christ). Ciénegas de Cañas Gordas, *Pittier* 10978. Cañas Gordas, altitude 1,100 meters, *Pittier* 10980.

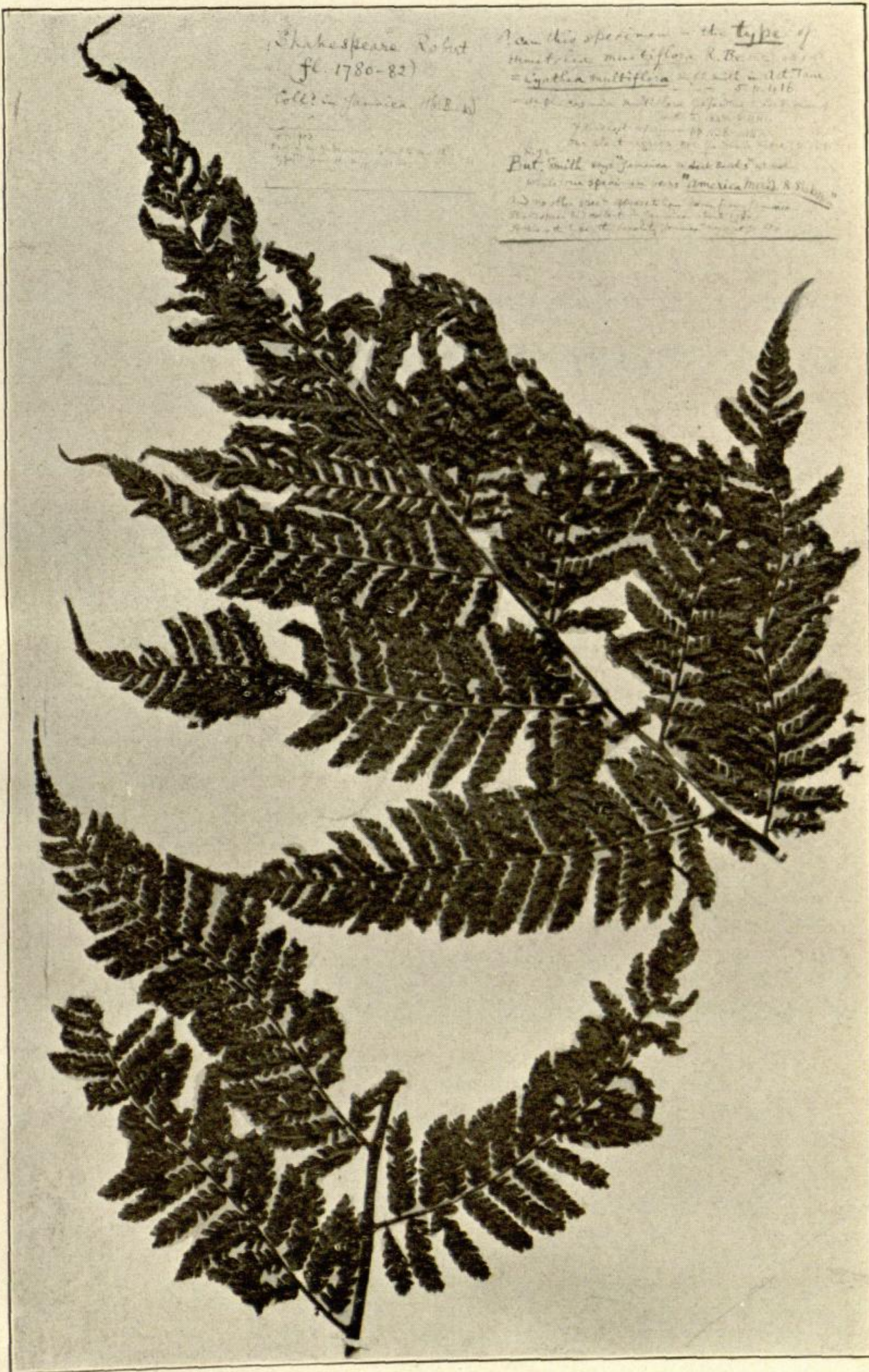
PANAMA: Laguna de Chiriqui and its neighborhood, *J. Hart* 12, 29. Humid forest near Porto Bello, province of Colon, at sea-level, April 7, 1911, *Maxon* 5776.

Finally, it may be pointed out that the small size of the original specimens of *H. multiflora*, and perhaps also of Presl's type of *H. nigricans*, is further due to their having come from the upper part of a small frond. The type fragments of both are exactly matched by pinnules from the apical pinnae of the writer's specimens from Panama (the only apical portions at hand), in which also two other perfectly diagnostic features are evident, namely, the conspicuously winged secondary rachises, and the peculiar long-acuminate apices of the pinnae. Both may be readily observed in the illustration herewith published.

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Explanation of plate 35

From a photograph of the original specimens in the Banksian Herbarium, British Museum (Natural History), from which the type of *Cyathea multiflora* was derived. Collected in "America meridionalis" by R. Shakespeare. About one third natural size.



CYATHEA MULTIFLORA J. E. SMITH