

## A Short Survey of the American Species of the Genus *Octoblepharum*

By P. A. Florschütz, Utrecht

During my studies of the Surinam specimens belonging to this genus my attention was drawn to the often wrong interpretation of several old species. To avoid future misidentifications it seems useful to give a short review of the American species that are known up till now. It is emphasized, however, that this paper does not have the pretension to be a monograph of the American species. For the greater part my study of the species was confined to the type material and the variability therefore is not known. However, this contribution may serve as a base for a future monograph of this interesting group.

Attention is drawn to the fact that only older leaves of the plants should be studied, because the leaf apex of the younger leaves is in all species acute and the lamina may not have reached its definite form.

The investigations of Cardot (Mém. Soc. Nat. Sc. Nat. Cherbourg 32: 1. 1900—1902) on the anatomy of the *Leucobryaceae* led to a totally new division of this family and its genera. The structure of the costa as seen in cross section proved to be a very constant character, which can even be used for the identification of sterile collections. Cardot did not mean to make a taxonomic monograph of the family, and it is not known whether he saw the type material of the species mentioned by him. As according to my own investigations his interpretations are not always correct, I presume that he did not see the actual types.

With the aid of the character of the costa as seen in cross section the genus *Octoblepharum* can be divided into 3 groups:

1. Costa in cross section near the middle more or less equilaterally triangular with rounded angles.
2. Costa in cross section near the middle flattened, biconvex and showing in cross section near the apex:
  - a) two layers of leucocysts,
  - b) four layers of leucocysts.
1. Costa in cross section near the middle more or less equilaterally triangular with rounded angles.  
Three species would belong to this section.

*O. ampullaceum* MITT. Journ. Linn. Soc. Bot. 12: 109. 1869.

Type specimen: not indicated by the author.

Three specimens were listed with the original description. The specimen of Crüger, Trinidad, could not be traced. It is not present in the Mitten herbarium (NY). Dr. Rogers kindly informed me that there is a note by the late E. G. Britton saying: "Trinidad, leg. Crüger not here" (see remarks under *O. erectifolium* below). The two other specimens are: leg. Appun, Guiana, and leg. Spruce No. 75, Peru (NY). I have seen both specimens, but they appeared to be totally different! As Cardot mentions *O. ampullaceum* as having leaves the costa of which is triangular near the middle, he involuntarily chose a lectotype, because the Spruce specimen is the only one that shows such a costa. Mitten describes the capsule as oval-elliptic and borne by an 8 mm long seta. The absence of a peristome is certainly due to the age of the capsule; the teeth are in all species very fragile. For the Appun specimen see under *O. straminifolium* below.

*O. rupestre* C. M. ex BROTH. Denkschr. Akad. Wiss. Wien 83: 279. 1927.

Type specimen: Ule 1392, Brazil (H).

I have not seen the type specimen, but only the material of Ule 2362 (H) mentioned by Brotherus in Hedwigia 45: 262. 1906, when *O. rupestre* still was a nomen nudum. It shows no difference with *O. ampullaceum* MITT. Apparently Brotherus forgot his first publication, because this specimen is provided with 2 capsules; in the 1929 paper he stated after the description of the vegetative parts "Caetera ignota". The seta is about 1 cm long; the capsules are more or less ovoid-cylindric. One of them shows several peristome teeth; there may have been 16 of them. The species is to be reduced to synonymy.

*O. erectifolium* MITT. ex WILLIAMS, North Amer. Flora 15 (2): 162. 1913.  
Type specimen: Crüger s. n., Trinidad (NY).

This species was based by Williams on a specimen in the Mitten herbarium which bears this name. This, too, is very much like *O. ampullaceum*. However, the leaves are a little longer, viz. up to 20 mm long, and the cells in the upper part of the lamina are more or less irregularly rhomboid and only up to 2 times as long as wide. The lamina is not so gradually tapering to the costa as in *O. ampullaceum*, and in the latter the upper cells of the lamina are at least 5 times as long as wide. In my opinion, although it is a mere hypothesis, this specimen may well be the missing specimen of *O. ampullaceum* (see above). The specimens in the Mitten herbarium are not always annotated by himself and therefore he may have changed his mind either before or after publishing his "Musci austro-americi" (l. c.). This view finds support in the fact that his publication is otherwise very complete.

Harris 11158 from Jamaica (NY, H) shows the same characters.

According to the remarks made above *O. rupestre* is a mere synonym of *O. ampullaceum*. *O. erectifolium* might be regarded as a distinct species on account of the differences mentioned above, but I have little doubt that intermediate specimens will occur.

2a. Costa in cross section near the middle flattened, biconvex and showing near the apex two layers of leucocysts.

Five species would belong to this section.

*O. cocuiense* MITT. Journ. Linn. Soc. Bot. 12: 109. 1869.

Type specimen: Spruce s. n., Colombia (NY).

The type specimen shows an acute or slightly acuminate, undulate leaf apex. The leaves are very fragile and about 12 mm long. The cells in the centre of the lamina are rectangular and large, up to 100 $\mu$  or more in longest diameter with many conspicuous perforations in the walls.

*O. perforatum* C. M. in Broth. Hedwigia 34: 119. 1895.

Type specimen: Ule 1546, Brazil (H).

The Type specimen proves to be indistinguishable from the preceding species and the name therefore is reduced to the latter's synonymy.

*O. mittenii* JAEG. Adumbr. 1: 169. 1871—1872 (Ber. St. Gall. Naturw. Ges. 1871—1872: 321).

Syn.: *O. longifolium* MITT. Journ. Linn. Soc. Bot. 12: 110. 1869, not *O. longifolium* LINDB. Ofvers. Kongl. Vetensk.-Akad. Förh. 21: 608. 1865.

Type specimen: Spruce 78, Brazil (NY, BM).

Cardot (l. c.) probably did not see the type material, because he listed it with the species whose leaves are provided with 4 layers of leucocysts near the apex. The leaves of the type show only 2 layers of leucocysts. Herzog was the first who drew the attention to this character, when he cited under the synonyms of *O. pellucidum* (see below) *O. longifolium* MITT. and also *O. fragillimum?* and *O. perforatum?* (Hedwigia 71: 333. 1931). The leaves are about 15 mm long, the apex is acute and undulate, and the species therefore can be reduced to *O. cocuiense*.

*O. pellucidum* C. M. Gen. Musc. 89. 1901.

Type specimen: leg?, Brazil, Rio de Janeiro. This type was probably burnt in Berlin.

Lectotype: Mosén 196, Brazil (H, S-PA). Identified and published by Brotherus (Bih. K. Sv. Vet.-Akad. Handl. 21(3), 3: 10. 1895) as *O. mittenii*, but identified by Müller as *O. pellucidum* in the herbarium of Brotherus (H).

The only character in which this species differs from *O. cocuiense* is the obtuse or acuminate, apiculate and conspicuously denticulate apex. It is therefore doubtful, whether these species can both be maintained, but as all specimens I have seen from Surinam can easily be separated by this character into two groups, I feel not inclined to unite these species at this moment.

*O. pulvinatum* var. *angustifolium* BROTH. belongs to this species (see below).

*O. fragillimum* Aongstr. Oefv. Kongl. Vetensk.-Akad. Förh. 33 (4): 6. 1876.

Type specimen: Widgren s. n., Brazil.

The type specimen could not be traced. The description does not suggest anything else but *O. pellucidum*. I have seen several specimens identified by different bryologists as *O. fragillimum*, but they belong either to *O. pellucidum* or to *O. cocuiense*. If the type material of *O. fra-*

*gillimum* should prove to be identical with *O. pellucidum*, the first name will have to be accepted as it has priority.

2b. Costa in cross section near the middle flattened, biconvex and showing near the apex four layers of leucocysts.

Eleven species would belong to this section, including the type species of the genus:

*O. albidum* HEDW. Spec. Musc. 50. 1801.

Type specimen: Swartz s. n., Jamaica (G).

It is pantropical, and very variable in the length of the leaves and of the seta. Several forms have been described, but they all pass into each other, and several forms may occur in one and the same tuft. I see no practical reason to separate those forms. The species is easily known by its obtuse, usually denticulate leaf apex, the more or less rectangular cells in the centre of the lamina, the short (less than 10 mm long) seta, the ovoid capsule with triangular peristome teeth which do not show protruding articulations.

*O. ekmani* THÉR. Mem. Soc. Cub. Hist. Nat. 13: 220. 1939.

Type specimen: Ekman 19213, Cuba (PC).

According to Thériot this species should differ from *O. albidum* in its narrower lamina, gradually tapering to the costa, its smaller dimensions (including the spores) and the shape of the peristome teeth. The type material, however, shows several normal leaves and the other characters fall well within the range of variability of *O. albidum*. The species was already withdrawn by Thériot in a manuscript note in his herbarium, which I received from the Paris herbarium. He reduced it to a variety, but I see no reason to maintain it even in this rank.

*O. minus* HAMPE. Vidensk. Meddel. Naturh. För. Kjobenhavn 1879—1880: 83.

Type specimen: Glaziou 9277, Brazil (probably BM or C).

I did not see the type specimen, but only the material of Puiggari 28, Brazil. This specimen is cited by Hampe in *Flora* 64: 338. 1881, and a duplicate is present in L. It merely represents a small form of *O. albidum*, and the description also does not suggest anything else. I have reduced the name to the latter's synonymy.

*O. cylindricum* SCHIMP. ex MONT. Ann. Sc. Nat. ser. 2, 14: 349. 1840.

Type specimen: Leprieur 282, French Guinea (PC).

This species is always cited with Schimp. ms. or C. Müller (Syn. Musc. I: 87. 1849) as author, but Montagne had already given a description in 1840. The type is Leprieur 282, the only specimen cited by Montagne, and not Schomburgk, British Guiana (BM), the specimen cited by Müller. The latter is identical with the Leprieur specimen, and therefore Schimp. ex Mont. is cited for better understanding.

Fruiting specimens are easily known by the long seta (more than 10 mm and up to 20 mm) and by the narrowly cylindric capsule with lanceolate peristome teeth provided with protruding articulations. The leaf apex is mostly acute or slightly acuminate, and entire or, very rarely, denticulate. The cells in the centre of the lamina are more or less quadrate. When the specimens are sterile, the latter character proves helpful in distinguishing certain forms of *O. cylindricum* from *O. albidum*.

Two species prove to be intermediate between *O. albidum* and *O. cylindricum*, viz.

*O. raphidostegium* c. m. in BROTH. Hedwigia 34: 119. 1895.

Type specimen: Ule 1525, Brazil (H).

The vegetative parts and the seta, too, show the characters of *O. albidum*. The capsule, however, is cylindric and the peristome teeth are lanceolate with protruding articulations. These differences with *O. albidum* were already noticed by Müller.

The same holds for

*O. luetzelburgii* HERZ. Arch. Bot. Est. S. Paulo 1 (2): 56. 1923.

Type specimen: Luetzelburg 539A, Brazil (herb. Herzog).

According to the description the species should have a striking colour, but I cannot see anything unusual in the colour. To my opinion this name is a mere synonym of that of the preceding species.

*O. raphidostegium* might be a hybrid between *O. albidum* and *O. cylindricum*. Those species often grow mixed in one tuft as I could frequently observe in Surinam. However, only experiments could prove this hypothesis to be true.

*O. pulvinatum* (Dozy et MOLK.) MITT. Journ. Linn. Soc. Bot. 12: 109. 1869.

Syn.: *Arthrocormus pulvinatus* DOZY et MOLK. Prodr. Flora Bryol. Surin. 6. 1854.

Type specimen: Splitgerber 1214, Surinam (L).

This species is often misinterpreted. The differentiating characters are: leaf apex very obtuse, apiculate, a little undulate; cells in the upper part of the lamina irregular and small (up to  $45\ \mu$  in longest diameter); leaves fragile; seta 10 mm or more long; capsule ovate cylindric with 16 slender peristome teeth, the latter more or less in pairs. Even sterile specimens are easily recognizable by the obtuse apex together with the additional character formed by the shape of the upper lamina cells.

The variety *angustifolium* BROTH. Hedwigia 45: 263. 1906, type specimen Ule 2239, Brazil (H) shows only two layers of leucocysts near the apex. It cannot be regarded as a variety of *O. pulvinatum*. See above under *O. pellucidum*.

*O. juruense* BROTH. Hedwigia 45: 263. 1906.

Type specimen: Ule 2265, Brazil (H).

The type specimen does not show any difference with *O. pulvinatum*, and the name is therefore reduced to the synonymy of the latter.

*O. densum* BROTH. Denkschr. Akad. Wiss. Wien 83: 278. 1927.

Type specimen: Schiffner s. n., Brazil (H).

The type specimen shows all the characters of *O. pulvinatum*, although Brotherus states that the costa is triangular in cross section near the apex. The name must be reduced to the latter's synonymy.

Two species have been described which are immediately recognizable by their colour:

*O. stramineum* MITT. Journ. Linn. Soc. Bot. 12: 110. 1869.

Type specimen: Spruce s. n., Colombia (NY).

*O. purpureobrunneum* C. M. Malpighia 10: 512. 1896.

Type specimen: Quelch s. n., British Guiana (K).

The leaves of these species are of a striking glossy purplish brown colour which passes gradually into straw-yellow towards the apex of the leaves. The colour is due to the thick outer cell walls of the leucocysts. The difference between the two species lies in the shape of the leaf apex, which is obtuse and apiculate in *O. stramineum* and acuminate

or acute in *O. purpureobrunneum*. The cells of the lamina are in both species elongated and rather narrow. The type of *O. purpureobrunneum* is sterile; the specimen of *O. stramineum* has an ovoid capsule on an 8 mm long seta and is said to have 16 peristome teeth (not seen). In my opinion these species might be well united. The specimen of Appun, British Guiana (NY), listed by Mitten as *O. ampullaceum* (see above), probably belongs to *O. stramineum*, although there are slight differences in the shape of the lamina cells. The material, however, is too poor for a decision.

*O. microcarpum* SCHIMP. (in herb.) is listed by Jaeger (l. c. p. 170 [322]) from South America (Surinam?), but the material on which it is based could not be traced, and it is moreover a nomen nudum. *O. pallidum* BESCH. from Mexico is listed by Cardot (l. c. p. 41) under this section. I did not find a description of the species.

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