

APPENDIX TO THE REVISED LIST OF BRITISH MARINE ALGAE¹.—In the preparation of the Revised List of British Marine Algae, which is, we believe, the first attempt that has been made in recent years to show the distribution of Marine Algae reported to occur in Britain, it was almost inevitable that some errors would pass unobserved by us.

I. It has been objected to our method of mapping out Britain into littoral districts that while some places are included in two separate divisions, others are not included in any of them. This objection, we think, may be easily met by a very slight alteration in the delimitation of the districts, which in no way affect the distribution given in the body of the work.

1. From Duncansby Head to Ardnamurchan Point, including the Orkneys, Shetlands, and the outlying Hebrides in the same latitude.

2. From Ardnamurchan Point to the Esk, including the outlying islands.

3. From Duncansby Head to Aberdeen.

4. From Aberdeen to the Tweed.

5. From the Esk to the Great Orme's Head, including the Isle of Man.

6. From the Great Orme's Head to the Land's End, including Anglesea, Lundy Island, and the Scilly Islands, &c.

7. From the Tweed to Cromer.

8. From Cromer to Dover.

9. From the Land's End to, and including Dover, the Isle of Wight, and the Channel Islands.

IRELAND.

10. From Malin Head to Llyne Head, including the outlying islands.

11. From Llyne Head to Crow Head, including the outlying islands.

12. From Malin Head to Howth.

13. From Howth to Raven Point.

14. From Crow Head to, and including Raven Point.

II. It has been affirmed² that we were in error when we stated that the 'type-specimens' of Mrs. Griffiths were in the possession of the Linnean Society of London, and those of Mrs. J. E. Gray in the Herbarium of the University of Cambridge. In the passage inadvertently on we employed the word 'type' in the same broad sense in

¹ See Ann. Bot., Vol. V, p. 63.

² See loc. cit., p. 228.

which Mr. Thiselton-Dyer uses the word, where he says: 'The type-collection is certainly not there (i.e. Linnean Society, Burlington House), for the simple reason that it is where it has always been since Mrs. Griffiths' death, at Kew.' It is evident that in neither of these cases could the word 'type' be used in the most limited sense, i.e. as referring to the actual specimens on which the original descriptions of the plants were founded, since it is generally understood that Mrs. Griffiths *did not describe any new species*. Our object in giving the list was to indicate, for the use of actual students of algology, where the special herbaria of previous algologists are to be found, since these would obviously represent the species as understood by them. Mr. Thiselton-Dyer states that Mrs. Griffiths' type-collection is at Kew, and that 'this fact is well known to critical algologists, for Dr. Bornet writing to me mentions incidentally: L'herbier de Mrs. Griffiths et celui de Berkeley sont conservés au Musée de Kew.' The evidence on which our statement is founded is as follows:—

1st. In the Proceedings of the Linnean Society, bearing date November 10, 1858 (vol. iv. pt. i), the following words occur: '*The* valuable collection of British Algae formed by the late Mrs. Griffiths, arranged according to Harvey's Manual of British Algae. Presented by the subscribers to a fund for its purchase.'

A similar statement is repeated on p. lxxxviii.

That this collection was purchased as *the special one* of Mrs. Griffiths seems evident from the fact that Dr. Cocks' collection of marine algae in the possession of the Linnean Society is described as: *A collection of British Marine Algae, formed by Dr. Cocks of Plymouth.* That the collection was purchased by the Society as the special collection made by Mrs. Griffiths for her own use, is confirmed by a letter received by one of us (B), from Mr. W. Carruthers, F.R.S.

2nd. The collection in the Kew Herbarium was received at Kew *four years later*, according to the Kew Report, 1862, and was presented by Lady Burdett-Coutts. It presumably consisted of Mrs. Griffiths' very large stock of duplicates.

3rd. It is certain that both Mrs. Griffiths and her daughter gave away other collections made by the former, for there is one collection at the Devon and Exeter Institution at Exeter, presented by Miss Griffiths in 1861, and another exists in the Museum at Torquay. Hence the word 'etc.' placed after the words 'Linnean Society' in our list (p. 66).

With respect to the sentence quoted by Mr. Thiselton-Dyer from Dr. Bornet's letter to prove that the existence of Mrs. Griffiths' special collection of algae at Kew is accepted as a fact by critical algologists, we have Dr. Bornet's permission to say that his authority for the statement is the following quotation from De Candolle's *Phytographie*:—'Griffiths (Mad.) de Torquay, *Algues britanniques*: herb. royale de Kew, Rep. (1862); herb. de la Société Linnéenne de Londres (3 vol. in fol.).'

Dr. Bornet adds in his letter to one of us (H): 'La première de ces indications est confirmée par les auteurs du "Bibliographical Index of British and Irish Botanists" qui a paru dans le *Journal of Botany*, 1889, vol. xxvii. p. 47, Griffiths, Amelia W., Algologist, Algae at Kew.' [By James Britten, F.L.S., and G. S. Boulger, F.L.S.]

It will be seen therefore that the foundation for the opinion of Dr. Bornet actually rests on the Kew Report, the statement in which, as we have shown above, is not in accordance with facts published elsewhere.

III. In the same note exception is taken to our statement that Mrs. Gray's specimens are in the Herbarium of the University of Cambridge, and the suggestion is made that the specimens alluded to by us are one of a series of sets made up by Mrs. Gray for distribution to various public institutions.

The evidence on which our statement rests is as follows:—The Herbarium has been examined by one of us (H) and is evidently a large and valuable collection, containing as it does an extensive series of specimens of many of the species, and many rarities. We have still further confirmation for our statement in the following letter, bearing date May 16, 1891, received from Professor C. C. Babington, Professor of Botany in the University of Cambridge:—

'We certainly have both Dr. and Mrs. Gray's special Herbaria of Algae in the Cambridge Herbarium. It came through her executors.'

IV. It is pointed out¹ that the type-specimen of *Ectocarpus fenestratus*, Berk., in the Berkeley Herbarium at Kew, has been lent to Dr. Bornet at his request and has proved to be identical with *E. Lebelii*, Crn., and it is assumed that the former species must therefore be discarded. This, however, by no means follows as a necessary sequence.

Neither of us examined the type-specimen of *Ectocarpus fenestratus*.

¹ See loc. cit., p. 227.

tratus, and indeed when we were preparing the 'Revised List' we did not know that it was accessible for examination: we therefore willingly bow to the decision of Dr. Bornet, that *E. fenestratus* is the same species that is known in France under the name of *E. Lebelii*, Crn. At the same time we venture to think that few algologists would have come to this conclusion from an examination of Harvey's figure and description. The *Elachista*-like epiphytic tuft, 'rameuse dès la base' of *Ectocarpus Lebelii*, only one centimetre in height, bears but a small resemblance to the sparingly branched alga 'one or two inches high' figured by Harvey under the name of *E. fenestratus*, and which he remarks is not 'unlike many specimens of *Ectocarpus siliculosus*' (*E. confervoides*, Le Jol.).

Granting, however, that the two plants belong to the same species, the name *fenestratus* is certainly the older of the two, having being published in 1849 in Harvey's second edition of the 'Manual' of British Algae; it was also figured in the *Phycologia Britannica* before 1851¹.

On the other hand *Ectocarpus Lebelii* was apparently described for the first time in 1867 by Crouan frères in their *Florule du Finistère*, where they quote their 'Liste des Algues Marines du Finistère,' which was published in May and November, 1860, in the *Bulletin de la Société Botanique de France*. On referring to that work (vol. vii. p. 836), *Ectocarpus Lebelii* (Aresch. MS.), Crn. is given as the new name for *Elachista Lebelii*, Aresch. MS., but no description of the plant is appended. We have not been able to find any mention of the plant in any of Areschoug's published writings previous to the date of the *Florule*, and are therefore compelled to consider the description of the species in that work as the earliest one. In the list given in vol. i. of Crouan's 'Algues Marines du Finistère,' which contains the *Ectocarpaceae*, we find that no mention is made either of *Elachista Lebelii* or of *Ectocarpus Lebelii*; and as it does not occur in the list given in the *Bulletin de la Société Bot. de France* in May, 1860, but in that published in the following November, it would appear that the plant was not identified by the brothers Crouan until that year. Consequently the name given by Berkeley has a priority of eleven years, and the species must therefore be retained under the name of *E. fenestratus*, Berk.: but as the plant described by the brothers Crouan differs in

¹ The *Phycologia Britannica* was published in monthly parts, all of which had been issued before 1851.

several important particulars from the typical form, we propose to keep it as a well-marked variety under the name of *E. fenestratus*, Berk. var. *Lebelii*, Holm. et Batt., and to regard the plant described by Kjellman under the name of *E. Lebelii* var. *borealis* as another variety, under the name of *Ectocarpus fenestratus* var. *borealis*, Holm. et Batt.

V. Our attention has also been called to several small errors, principally in regard to authorities for names, which we do not propose to deal with at present. The following corrections and additions may, however, be made.

P. 68. 'Tribe II.—Lyngbyeae' should precede '**Phormidium** Kütz.'

P. 70. Immediately after 'Anabaena torulosa, Lagerh.' insert 'Species requiring confirmation,' *Sphaerozyga Berkeleyana*, Thur. 6; *Sphaerozyga Broomei*, Thur. 6.

P. 76. To follow 'Cladophora crystallina.'

Cladophora gracilis, Kütz. 5. 6. 9!

P. 76. Under 'Species requiring confirmation,' after 'Cladophora lanosa, Kütz.', insert 'Cladophora Gattyae, Harv.'

P. 77. Read *Codium tomentosum*, Stackh.

f. *amphibia*, Holm. et Batt.

instead of *C. adhaerens*, C. Ag.

f. *amphibium*, Holm. et Batt.

P. 78. To follow 'Striaria attenuata, Grev.,' add as a 'Species requiring confirmation,' 'Striaria fragilis, J. Ag.'

P. 87. For 'Diploderma miniatum, Kjellm.,' read 'Wildmania miniata, Fosl.': and for 'D. amplissimum, Kjellm.,' read 'W. miniata f. amplissima, Fosl.'

P. 95. For 'Polysiphonia byssoides, Grev.,' read 'Lophothalia byssoides, J. Ag.', and place it after **Pterosiphonia**.

VI. During the present year several species of Marine Algae have been detected as natives of Britain, and others collected by us before the present year have been identified. We therefore embrace the present opportunity of publishing the additional species.

P. 68. Under **Oscillariaceae** add *Lyngbya lutea*, Gom. 5!

P. 71. Under **ULVACEAE**, and above *Pringsheimia scutata*, add *Protoderma marinum*, Rke. 2!

Ulvella lens, Crn. 2!

Monostroma fuscum, Wittr. 2!

- P. 73. **CHAETOPHORACEAE**: *add* under *Trichophoreae*,
Acrochaete repens, Pringsh. 2!
- P. 78. **PUNCTARIACEAE**.
Punctaria latifolia, Grev.
f. laminarioides, Holm. et Batt. 2! 9!
- „ „ **ECTOCLADACEAE**.
Streblonema intestinum, Holm. et Batt. 9!
Streblonema sphaericum, Thur. 2! 9!
Ectocarpus erectus, Born. 9!
- P. 82. **CHORDARIACEAE**.
Mesogloea lanosa, Crn. 2! 9!
Myriocladia tomentosa, Crn. 9!
- P. 87. **PORPHYRACEAE**.
Porphyra miniata, J. Ag. 2!
Wildmania miniata, Fosl.
f. tenuissima, Fosl. 2! 4!
- P. 90. **RHODOPHYLLIDACEAE**.
Cystoclonium purpurascens, Kütz.
f. cirrhosa, J. Ag. 9!
- P. 93. **RHODOMELACEAE**.
Laurencia obtusa, Lamx.
var. pyramidata, J. Ag. 9!
- P. 97. **CERAMACEAE**.
Rhodochorton seiriolanum, H. Gibs. 6! 9!
- P. 99. Ceramium strictum, Harv.
var. delicata, J. Ag. 9!
- P. 100. **NEMASTOMACEAE**.
Nemastoma marginifera, J. Ag. 9!
- P. 102. **CORALLINACEAE**.
Lithothamnion corallioides, Crn. 2!

It has been suggested to us that some indication of the present state of knowledge concerning the reproductive organs in the Marine Algae found in Great Britain might be useful to students of algology. We therefore offer the following necessarily imperfect list of species in which, so far as we have been able to ascertain, various organs of reproduction are still unknown, or imperfectly known.

CHLOROPHYCEAE.

PROTOCOCCACEAE.—The sexual mode of reproduction has been observed only in **Chlorochytrium**.

Characieae. Sexual reproduction unknown.

BLASTOSPORACEAE. Sexual reproduction unknown.

ULVACEAE. Reproduction, both asexual and sexual, unknown in **Capsosiphon**, and imperfectly known in the species of the genera **Monostroma** and **Ulva**.

CHAETOPHORACEAE. Sexual reproduction unknown in **Achrochaete**, **Bolbocoleon**, **Entoderma**, and **Epicladia**: no mode of reproduction known in **Ochlochaete**.

CLADOPHORACEAE. Asexual zoospores unknown in **Rhizoclonium** and **Chaetomorpha**. Sexual reproduction known only in one species of **Cladophora** (*C. sericea*, Kütz.).

GOMONTIACEAE. Sexual reproduction unknown.

DERBESIACEAE. Sexual reproduction unknown.

CODIACEAE. Asexual reproduction unknown, conjugation of gametes (?) not observed.

PHAEOPHYCEAE.

Plurilocular sporangia are unknown in the genera **Desmarestia**, **Dictyosiphon**, **Stictyosiphon**, **Striaria**, **Battersia**, **Stypocaulon**, **Petrospongium**, **Chorda**, **Laminaria**, **Saccorhiza**, **Alaria**, **Sporochnus**, **Carpomitra**, and **Aglaozonia**, and in the following species;

Litosiphon Laminariae.

Elachista Areschougii.

„ *flaccida*.

Sphacelaria radicans.

„ *olivacea*.

„ *tribuloides*.

„ *plumula*.

„ *plumigera*.

Ralfsia spongiocarpa.

Chordaria flagelliformis.

Leathesia crispa.

Unilocular sporangia are unknown in the genera **Sorocarpus**, **Halothrix**, **Arthrocladia**¹, **Phyllitis**, and **Scytosiphon**: and in the following species;—

¹ See, however, Johnson, Ann. Bot., Vol V, p. 140.

- Streblonema fasciculatum*.
 „ *intestinum*.
 „ *simplex*.
Ectocarpus erectus.
 „ *parvulus*.
 „ *caespitulus*.
 „ *fenestratus*.
 „ *Crouani*.
 „ *Sandrianus*.
 „ *virescens*.
 „ *secundus*.
 „ *longifructus*.
 „ *acanthophorus*.
 „ *Hincksiae*.
 „ *brachiatus*.

RHODOPHYCEAE.

Antheridia and cystocarps are both unknown in *Actinococcus*, *Haematocelis*, *Haematophlaea*, *Hildenbrandtia*, *Monospora*, *Rhodochorton*, and *Rhododermis*.

Antheridia are unknown in *Ahnfeltia*, *Calosiphonia*, *Compsothamnion*, *Cordylecladia*, *Dilsea*, *Dumontia*, *Euthora*, *Grateloupia*, *Schmitziella*, and *Sphaerococcus*.

Tetraspores are unknown in *Ahnfeltia*, *Bonnemaisonia*, *Calosiphonia*, *Helminthora*, *Helminthocladia*, *Naccaria*, *Nemalion*, *Scinaia*, and *Sphaerococcus*.

In the following species one or more organs of reproduction are unknown and are indicated thus :—a.=antheridia ; c.=cystocarps ; t.=tetraspores.

- Antithamnion floccosum* : a.
 „ *barbatum* : a., c.
Callithamnion affine : a., c.
 „ *interruptum* : a., c.
 „ *fruticulosum* : a.
 „ *tripinnatum* : a., c.
Ceramium acanthonotum : a.
 „ *ciliatum* : a.
Chondrus crispus : a.

- Dasya ocellata : a.
,, punicea : a.
,, Cattloviae : a., c.
Gigartina mamillosa : a., t.
Gracilaria multipartita : a., t.
,, divergens : a., t.
Halymenia ligulata : t.
Lomentaria rosea : a.
Nitophyllum literatum : a.
,, reptans : a., t.
,, uncinatum : a.
,, versicolor : a.
Peyssonnelia Harveyana : a.
Phyllophora Brodiaei : a., t.
,, rubens : t.
,, Traillii : t.
Polysiphonia elongella : a.
,, foetidissima : a., c.
,, furcellata : a., c.
,, Richardsoni : a., c.
,, parasitica : a.
,, simulans : a.
,, spinulosa : a.
,, subulata : a.
,, subulifera : a.
,, variegata : a.
Pterosiphonia complanata : a., c.
Rhodymenia nicaeensis : a.
,, palmata : c.

E. M. HOLMES.
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