

LICHENS NEW TO SOUTH GEORGIA

By D. C. LINDSAY

ABSTRACT. This paper gives the first report of nine genera, 36 species and one variety of lichen from the sub-Antarctic island of South Georgia. *Cladonia bellidiflora* (Ach.) Schaer. var. *austrogeorgica* D. C. Lindsay is described as new to science.

IN common with other areas of the sub-Antarctic and Antarctic regions, the lichen flora of the sub-Antarctic island of South Georgia (lat. 54° S., long. 37° W.) is little known. In the only published check-list of lichens from the island, Darbishire (1912) recorded 23 genera and 58 species. Examination of recent collections made by British Antarctic Survey personnel has revealed nine genera, 36 species and one variety that have not been previously recorded from the island. These species are in addition to those reported by Lindsay (1969*b*, 1971*a, b, c*). It is only to be expected that future collecting will add further genera and species, particularly when it is considered that a prominent species such as *Himantormia lugubris* (Hue) M. Lamb, which is widespread in the Falkland Islands and Antarctic Peninsula region (Lamb, 1964; Lindsay, 1969*a*), has yet to be seen on South Georgia.

The genera new to South Georgia are *Acarospora* Massal., *Alectoria* Ach., *Cornicularia* Ach., *Hypogymnia* (Nyl.) Nyl., *Pannaria* Del., *Placopsis* Nyl., *Platismatia* Culb. & Culb., *Psora* Hall. and *Verrucaria* Schrad. A species of the last-named genus, *Verrucaria exquisita* Darb., was described as a new taxon by Darbishire (1912), but the specimen on which this species was based was shown by Lamb (1948) to be a juvenile form of *Lecidea dicksonii* (J.F. Gmel.) Ach. The records presented below are thus the first firm reports of the genus *Verrucaria* from South Georgia.

All specimens cited, except where otherwise stated, are part of the British Antarctic Survey herbarium, at present housed in the Department of Botany, University of Birmingham. Records for each species are localized by grid reference, grouped under the appropriate 5 km. square of the grid overprint on the South Georgia map in Greene (1964). Full details of all the specimens have been incorporated into the data bank associated with the Survey's herbarium.

The species new to South Georgia are listed alphabetically in Table I. A description of the new taxon is given in the text as are notes on species requiring comment.

Acarospora macrocyclos Vain.

Previously known only from the Antarctic Peninsula region, the geographical range of this species is now extended to South Georgia.

Cladonia balfourii Cromb.

The South Georgian material is referable to f. *chlorophaeoides* (Vain.) Evans, which is almost identical with *C. chlorophaea* (Flörke ex. Sommerf.) Spreng., differing only in the longer podetia which possess isidioid warts.

C. bellidiflora (Ach.) Schaer.

The South Georgian material is referable to the following variety:

var. *austrogeorgica* D. C. Lindsay, **var. nov.**

Planta ut in *C. bellidiflora* var. *bellidiflora* sed differt acido fumarprotocetrarico continens. *Holotypus*. 090 148 amongst tussock, alt. c. 50 ft., behind old whaling station above Pig Point, Prince Olav Harbour. Leg. S.W. Greene 2.ii.1961, Greene 1736.

This variety differs from Northern Hemisphere material in possessing fumarprotocetraric acid; usnic and squamatic acids are also present.

Cladonia carneola (Fr.) Fr.

Darbishire's (1912) record of *C. deformis* Hoffm. refers to this species.

TABLE I. TAXA NOT PREVIOUSLY REPORTED FROM SOUTH GEORGIA

Species	Specimens examined arranged by 5 km. squares
<i>Acarospora macrocyclos</i> Vain.	130 125 Greene 3485; 140 120 Greene 974; 160 060 Greene 2816
<i>Alectoria chalybeiformis</i> (L.) Howe jr.	035 145 R. Smith 1115
<i>A. minuscula</i> (Nyl. ex Arnold) Degel.	130 120 R. Smith 1126
<i>A. pubescens</i> (L.) Howe jr.	130 120 R. Smith 1127
<i>Cladonia aggregata</i> (Sw.) Ach.	035 150 Greene 1111; 080 125 Greene 2725
<i>C. balfourii</i> Cromb.	130 125 Greene 2042; 140 120 Greene 973
<i>C. bellidiflora</i> (Ach.) Schaer. var. <i>austrogeorgica</i> D. C. Lindsay	035 150 Greene 722; 090 145 Greene 1736; 125 095 Greene 2576
<i>C. carneola</i> (Fr.) Fr.	130 120 R. Smith 1101, Trøim 42 (TRH); 130 125 Trøim 2 (TRH)
<i>C. elongata</i> (Jacq.) Hoffm.	<i>Inadequately localized</i> Moraine Fjord, 29.iv.1902, Skottsberg s.n. (S, as <i>C. deformis</i>) 155 095 Greene 2225
<i>C. mitis</i> Sandst.	120 135 Greene 3343
<i>C. pycnoclada</i> (Pers. ex Gaudich.) Nyl.	030 150 Greene 353a; 115 135 Greene 1378; 120 130 Longton 192; 130 120 Greene 1510; 130 120 Longton 461; 130 125 Greene 1978
<i>Cornicularia aculeata</i> (Schreb.) Ach.	055 135 R. Smith 1134; 075 125 R. Smith 1135
<i>C. epiphorella</i> (Nyl.) Du Rietz	030 150 Greene 2001a; 035 145 R. Smith 1114
<i>Haematomma erythromma</i> (Nyl.) Zahlbr.	140 120 Greene 983; 145 070 Greene 2754; 160 095 Greene 2232
<i>Hypogymnia lugubris</i> (Pers.) Krog	055 150 Clarke and Greene 28; 080 125 Greene 2606; 090 145 Greene 1379; 115 135 Lindsay 1687; 120 130 Greene 3034
<i>Lecanora aspidophora</i> Vain.	<i>Inadequately localized</i> "Kirkesletten", 10.iii.1933, Trøim 29 (TRH)
<i>Lecidea atrobrunnea</i> (Ram.) Schaer.	080 125 Greene 2614; 130 120 Greene 1874; 130 120 Greene 1877; 130 120 Trøim 11 (TRH); 130 125 Greene 3484
<i>L. cremoricolor</i> Hue	115 135 Greene 3214
<i>Pannaria hookeri</i> (Borr. ex Sm.) Nyl.	130 120 R. Smith 1108; 140 120 Greene 947
<i>Parmelia gerlachei</i> Zahlbr.	040 155 R. Smith 1118
<i>P. saxatilis</i> (L.) Ach.	030 125 R. Smith 1132; R. Smith 1133
<i>Peltigera canina</i> (L.) Willd.	035 150 Greene 721a; 070 145 Greene 1271b; 115 130 Greene 3071; 130 125 Greene 1867; 130 125 Greene 1965; 140 120 Greene 968
<i>Placopsis contortuplicata</i> M. Lamb	130 120 R. Smith 1107 035 150 Greene 721b
<i>P. cribellans</i> (Nyl.) Räs.	035 145 R. Smith 1113
<i>P. parellina</i> (Nyl.) M. Lamb	130 120 Trøim 20 (TRH)
<i>Platismatia glauca</i> (L.) Culb. & Culb.	115 130 Greene 3070
<i>Psora</i> cf. <i>demissa</i> (Rustr.) Steiner	<i>Inadequately localized</i> "Saxicola in ins. Süd- Georgien", Will s.n. (HBG, LECTOTYPUS of <i>Buellia austrogeorgica</i>) 055 150 Clarke and Greene 30; 070 145 Greene 1237; 080 125 Greene 2724; 130 120 Greene 1872; 130 120 Trøim 24 (TRH)
<i>Rhizocarpon superficiale</i> (Schaer.) Vain.	160 060 Greene 2820b 130 120 R. Smith 1146 090 145 Trøim 8 (TRH); 130 120 Trøim 27 (TRH)
<i>Stereocaulon glabrum</i> (Müll. Arg.) Vain.	<i>Inadequately localized</i> Moraine Fjord, 29.iv.1902, Skottsberg s.n. (S) 130 120 R. Smith 1104
<i>St. ramulosum</i> (Sw.) Rausch.	020 150 Greene 1079; 130 125 Greene 3486a; 130 125 Greene 3487a; 140 120 Greene 975
<i>Umbilicaria polyphylla</i> (L.) Baumg.	160 095 Greene 2235
<i>Usnea aurantiacoatra</i> (Jacq.) Bory	125 095 Greene 2507 125 095 Greene 2512
<i>Verrucaria</i> cf. <i>aethiobola</i> Wahlenb. ex Ach.	
<i>V. durietzii</i> M. Lamb	
<i>V. maura</i> Wahlenb. ex Ach.	
<i>V. racovitzae</i> Vain.	
<i>V. tessellatula</i> Nyl.	

Pannaria hookeri (Borr. ex Sm.) Nyl.

The thallus in the specimen cited is greenish grey with dull reddish brown, rather than brown-black, apothecial discs.

Parmelia saxatilis (L.) Ach.

All Antarctic and South Georgian material of this species seen so far by the author has been referable to f. *sphaerophoroides* Linds., in which the thallus is densely isidiate. *F. acervata* (Hue) M. Lamb (= *P. acervata* Hue) appears to be a synonym of this form.

Psora cf. *demissa* (Rustr.) Steiner

The Troim specimen differs from Northern Hemisphere material in the darker brown thallus, dark ventral surface of the squamules and brownish black apothecia.

Rhizocarpon superficiale (Schaer.) Vain.

Thomson (1967) listed *Buellia austrogeorgica* Müll. Arg., described by Müller [Argoviensis] (1890), as a synonym of this species without stating whether or not he had examined the type specimen. Thomson's view can now be confirmed following a re-examination of the type by the author.

Verrucaria cf. *aethiobola* Wahlenb. ex Ach.

The specimen cited belongs to the *V. aethiobola* complex. Of the British species of this group, it approaches *V. hydrela* Ach. in the morphology of the perithecium and the spreading involucrellum, but it has the thallus colouring (dark olive-brown) of *V. aethiobola*. It is distinguished from all of the British aquatic species by the thin, continuous, non-subgelatinous thallus which lacks a hypothallus. It resembles *V. lacustris* M. Lamb, described from Patagonia (Lamb, 1955), but it differs in the completely submerged habitat and lighter thallus colour.

ACKNOWLEDGEMENTS

I wish to thank the Curators of the herbaria at Hamburg, Stockholm and Trondheim for the loan of material, and Dr. I. M. Lamb, Farlow Herbarium, Harvard University, for identifying the material of *Stereocaulon*. I am grateful to Dr. S. W. Greene for reading the manuscript and to Professor J. G. Hawkes, Mason Professor of Botany, University of Birmingham, for facilities in his department.

MS. received 22 December 1971

REFERENCES

- DARBISHIRE, O. V. 1912. The lichens of the Swedish Antarctic Expedition. *Wiss. Ergebn. schwed. Südpolarexped.*, Bd. 4, Lief. 11, 74 pp.
- GREENE, S. W. 1964. The vascular flora of South Georgia. *British Antarctic Survey Scientific Reports*, No. 45, 58 pp.
- LAMB, I. M. 1948. Antarctic pyrenocarp lichens. 'Discovery' *Rep.*, 25, 1-30.
- . 1955. New lichens from northern Patagonia, with notes on related species. *Farlowia*, 4, Pt. 4, 423-71.
- . 1964. Antarctic lichens: I. The genera *Usnea*, *Ramalina*, *Himantormia*, *Alectoria*, *Cornicularia*. *British Antarctic Survey Scientific Reports*, No. 38, 34 pp.
- LINDSAY, D. C. 1969a. Further data on Antarctic Usneaceae. *British Antarctic Survey Bulletin*, No. 20, 33-40.
- . 1969b. New records for Antarctic Umbilicariaceae. *British Antarctic Survey Bulletin*, No. 21, 61-69.
- . 1971a. Notes on Antarctic lichens: I. New records for *Buellia* and *Rinodina*. *British Antarctic Survey Bulletin*, No. 24, 11-19.
- . 1971b. Notes on Antarctic lichens: II. The genus *Peltigera*. *British Antarctic Survey Bulletin*, No. 24, 115-18.
- . 1971c. Notes on Antarctic lichens: III. *Cystocoleus niger* (Huds.) Hariot. *British Antarctic Survey Bulletin*, No. 24, 119-20.
- MÜLLER [ARGOVIENSIS], J. 1890. Lichenes. (In *Die Internationale Polarforschung 1882-83. Die Deutschen Expeditionen und ihre Ergebnisse*. Berlin, A. Asher and Co., Bd. 2, 322-27.)
- THOMSON, J. W. 1967. Notes on *Rhizocarpon* in the Arctic. *Nova Hedwigia*, 14, Ht. 4, 421-81.