SHORT NOTE

NOTES ON ANTARCTIC LICHENS: VIII. LICHENS FROM THE SHACKLETON RANGE

By D. C. LINDSAY*

ABSTRACT. Seven species of crustose lichen are reported for the first time from the Shackleton Range lat. 80–81°S., long. 19–31°W.).

DURING a geological survey of the Shackleton Range (lat. 80°07′–80°51′S., long. 19–31°W.) between 1968 and 1971, P. D. Clarkson, M. J. Skidmore and H. Wiggins collected a small number of lichens. Although lichens are known to have been collected previously from this area (Rudolph, 1967), this is apparently the first published report of any genera or species from the Shackleton Range. The specimens were obtained at a number of sites, namely central Read Mountains, Herbert Mountains, Fuchs Dome, Lister Heights and near Turnpike Bluff, which can be located by means of the co-ordinates cited with each specimen on the sketch map of the Shackleton Range provided by Skidmore and Clarkson (1972, fig. 1).

The Shackleton Range appears to be very similar to other mountain ranges in the interior of continental Antarctica as regards physiography and geomorphology, consisting of a "dissected ice-covered plateau with peripheral areas of rock outcrop elevated between two major glaciers" (Skidmore and Clarkson, 1972, p. 69). As regards climate, the extremely scanty current knowledge is summarized by Skidmore and Clarkson (1972, p. 77), while Clarkson (1972) has given an account of the geology of the area.

The collection, which comprises one numerical series and is preserved in the herbarium of the British Antarctic Survey (AAS), at present housed in the Department of Botany, University of Birmingham, is scanty and much of it is insufficient for detailed anatomical or chemical investigation. In the absence of field notes, it is not possible to give any account of the ecology or distribution of the species but it appears that at least one, *Biatorella antarctica* J. Murr., is widespread throughout the range and probably locally abundant. The other six species are each only represented by single specimens but, since they occurred as very small thalli in rock crevices and so may have been overlooked elsewhere, it is probable they have a more widespread distribution.

Acarospora gwynnii Dodge et Rudolph

Areolae 0·3–0·5 mm. in diameter, greenish yellow, aggregated together and appearing cerebriform in places, occasionally extensively eroded to leave a weft of white medullary hyphae. Apothecia 1–3 per areole, varying from light to dark brown, 0·25–0·45 mm. in diameter, immersed; hymenium 100–150 μm. tall; asci infrequent, 80–100 by 20–25 μm., containing an indefinite number of spores; ascospores hyaline, ellipsoid, *c.* 3 μm. by 1·5 μm.

A widespread species in continental Antarctica, having been reported from Mac.Robertson Land (Filson, 1966), Enderby Land (Kashiwadani, 1970) and Victoria Land (Murray, 1963), it is also known from the Antarctic Peninsula (specimens in AAS).

Specimen examined

On quartz vein in micaceous schist, unnamed nunatak at lat. 80°26′S., long. 21°30′W., Clarkson and Skidmore 8.

Biatorella antarctica J. Murr.

All of the specimens agree well with Murray's (1963, p. 60) description. Apothecia are somewhat rare, being 0·4–0·9 mm. in diameter and concolorous with the yellow thallus or with a light brown tinge. The specimens from exposed habitats are heavily eroded and superficially resemble the species of *Catillaria*.

* Museum and Art Gallery, New Walk, Leicester LE1 6TD.

B. antarctica is circum-polar continental Antarctic in its distribution, being known from Dronning Maud Land (Lindsay, 1972), Mac.Robertson Land (Filson, 1966), Victoria Land (Murray, 1963) and the South Orkney Islands (specimens in AAS).

Specimens examined

On schist, Lister Heights, Clarkson and Skidmore 2; north-facing schists, north-east of Turnpike Bluff (lat. 80°43′S., long. 30°01′W.), Clarkson and Skidmore 3; in crevices in schist, hidden from wind, Herbert Mountains (lat. 80°26′S., long. 25°32′W.), Clarkson and Skidmore 5; on debris on schistose and micaceous soil on sheltered side of nunatak, Herbert Mountains (lat. 80°26′S., long. 25°34′W.), Clarkson and Skidmore 6; outcrop, north side of Fuchs Dome (lat. 80°27′S., long. 27°40′W.), Clarkson and Skidmore 10.

Buellia cf. *punctata* (Hoffm.) Massal.

Thallus forming an indeterminate matt black crust over micaceous soil, ± covered by apothecia, thin, ecorticate. Apothecia ± confluent, 0·2–0·4 mm. in diameter, rounded to sub-angular through mutual pressure, lecideine, adnate, with black, plane disc; epithecium dark brown, 5–10 μm. tall, paraphyes 2–3 μm. in diameter, not capitate at apices; hymenium 65–90 μm. tall, hyaline; hypothecium dark brown, 15–25 μm. thick; asci 65–75 by 18–25 μm., thin-walled; ascospores 8 per ascus, dark brown, 1-septate, irregularly arranged, ellipsoid, thin-walled, 8–12 by 5–6 μm.

The single specimen agrees in part with Lamb's (1968) description of *Buellia punctata*, but it differs in the slightly smaller spores, thinner hypothecium, non-capitate paraphyses and slightly larger asci. It approaches *B. muscicola* Dodge et Baker in some respects, but again differs in the non-capitate paraphyses, thin-walled asci, slightly taller hymenium and smaller apothecia. The variations in these features may be due to environmental modification and may have no genetic basis.

Specimen examined

On debris on schistose and micaceous soil on sheltered side of nunatak, Herbert Mountains (lat. 80°26′S., long. 25°34′W.), Clarkson and Skidmore 7.

Catillaria sp.

Thallus crustose, indeterminate, areolate, alutaceous; areolae 0·2–0·7 mm. in diameter, crowded together. Apothecia frequent, lecideine, adnate, subspherical, black, 0·3–0·5 mm. in diameter, usually occurring singly per areole; epithecium 5–10 μm. thick, aeruginose, HNO_3 +red; paraphyses 2–3 μm. in diameter, slightly capitate at apices; hymenium 60–90 μm. tall; hypothecium brown, 15–20 μm. thick, K −, HNO_3 −; asci rarely reaching maturity, usually 20–25 by 8–10 μm., without differentiation of contents, mature asci 60–75 by 20–24 μm., with 8 irregularly arranged ascospores; spores 1-septate, hyaline, ellipsoid, thin-walled, 10–12 by 5 μm. Pycnidia not seen.

The single specimen resembles in many respects the Antarctic endemics *Catillaria cremea* and *C. floccosa*, both described by Dodge and Baker (1938) from Byrd Land, but it differs from both in possessing an aeruginose epithecium. Further collections are required before the status of this material can be properly assessed.

Specimen examined

On micaceous soil, Herbert Mountains (lat. 80°26′S., long. 25°32′W.), Clarkson and Skidmore 4.

Lecidea sp.

Thallus crustose, determinate, areolate; areolae dull greyish green on a dendritic white hypothallus, 0·45–0·7 mm. in diameter, hemispherical, corticate; cortex 10–15 μm. thick, hyaline, algal layer up to 100 μm. thick, containing trebouxioid cells 12–16 μm. in diameter, medulla up to 200 μm. thick, merging with hypothallus. Apothecia infrequent, 0·6–0·8 mm.

in diameter, produced directly from the hypothallus, lecideine, disc black, plane, proper margin thin, continuous, persistent; epithecium brown, 5–10 μm. thick, paraphyses 1·5–2·0 μm. in diameter, slightly capitate at apices; hymenium 110–140 μm. tall, with faint aeruginose tinge; hypothecium light brown, 20–25 μm. deep; asci 60–70 by 15–20 μm., thin-walled; ascospores 8 per ascus, hyaline, ellipsoid, simple, irregularly arranged, 15–18 by 5–6 μm. Pycnidia not seen.

There appears to be no species of *Lecidea* described from the Antarctic that fits the above description.

Specimen examined

On schist, north-east of Turnpike Bluff (lat. 80°43′S., long. 29°55′W.), Clarkson and Skidmore 1.

Lecidea sp.

Thallus crustose, effuse, warted, continuous, light grey, up to 500 μm. thick; cortex 100–150 μm. thick, hyaline to light brown, of thin-walled, septate, occasionally contorted hyphae, the outermost 15–20 μm. gelified; algal layer up to 100 μm. thick, phycobiont trebouxioid, cells 13–16 μm. in diameter; medulla up to 250 μm. thick, hyaline, of thin-walled, septate, infrequently branched hyphae; hypothallus absent. Apothecia rare (only four on the specimen), adnate, lecideine, proper margin thin, continuous, persistent, disc black, plane; epithecium dark grey, 5–10 μm. thick, paraphyses 1·5–2·0 μm. in diameter, capitate at apices to 3–4 μm., unbranched; hymenium up to 100 μm. tall, hyaline; hypothecium up to 80 μm. thick, hyaline; asci 65–80 by 18–25 μm., thin-walled; ascospores 8 per ascus, irregularly arranged, hyaline, simple, subglobose, 8–10 by 6–8 μm. Pycnidia not seen.

As with the preceding species, no published description of any Antarctic *Lecidea* agrees with the above description. More material and a thorough revision of the Antarctic species, with due regard to the variation that may be caused by environmental factors is required to stabilize the taxonomy of many Antarctic crustose genera.

Specimen examined

Outcrop on north side of Fuchs Dome (lat. 80°27′S., long. 27°40′W.), Clarkson and Skidmore 11.

Rhizocarpon flavum Dodge et Baker

Thallus crustose, determinate, areolate, light yellowish green; areolae up to 1 mm. in diameter, round to slightly angular, aggregated to slightly dispersed on a thin, continuous black hypothallus. Apothecia arising at edges of areolae, disc black, plane, level with surface of areole, up to 0·8 mm. in diameter, irregularly angled; ascospores 8 per ascus, brown, muriform, 25–30 by 9–12 μm.

The single specimen agrees well with Filson's (1966) description and illustration, though the spores are slightly narrower. This species is apparently circum-polar continental Antarctic in its distribution, having been reported from Enderby Land (Kashiwadani, 1970), Mac. Robertson Land (Filson, 1966) and Byrd Land (Dodge and Baker, 1938).

Specimen examined

In cracks in south-west-facing cliffs, central Read Mountains (lat. 80°43′S., long. 23°57′W.), Clarkson and Skidmore 9.

ACKNOWLEDGEMENTS

I wish to thank Dr. S. W. Greene for reading the manuscript and Professor J. G. Hawkes, Mason Professor of Botany, University of Birmingham, for facilities provided in the Department of Botany.

MS. received 8 January 1974

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