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Bryophyta Collected in Santa Ines Is. and Seno-Iceberg Territory

Mszaki zebrane na wyspie Santa Ines i obszarze Seno-Iceberg

Мохообразные, собранные на острове Санта-Инес и на территории Сено-Айсберга

INTRODUCTION

Bryophyta presented in this paper were collected by Dr. Krzysztof Wojciechowski, a geographer, a member of the Polish Scientific Expedition around South America, during the voyage on board the yacht "Śmiały" in the years 1965—1966. Most hepatics and mosses were collected in March of 1966 during the stay of the members of the expedition in the southern part of the Archipelago Tierra del Fuego (Santa Ines Is.), the coast of the Pacific on the border of South Chile (Seno-Iceberg territory). All the identified material comes from two localities (Fig. 1); Santa Ines Is. (hepatics and mosses) and Seno-Iceberg territory (mosses and partly lichens). The collection abounded also in numerous species of crustaceous and foliaceous lichens *(Stereocaulon* and *Parmelia)* and ferns *(Hymenophyllum)*. Among the thalli of those lichens numerous species of small hepatics were found.

Bryophyta have been identified by comparison with a large material and numerous bryological papers dealing with the area of the Archipelago Tierra del Fuego, Magellan Strait and adjoining southern islands and the Antarctic sectors. All taxa of the mosses as well as their synonyms have been conformed to the Index Muscorum, vols. I—V (58) and new monographs and those of hepatics with the Species Hepaticarum (56), Synopsis Hepaticarum (21) and Index Hepaticarum. Parts I—IX (3). All taxa and families of mosses are given according to the system by Brotherus (6), and for hepatics by that of Schuster (46).

In addition to the taxonomic data there are mentioned for species in text the short descriptions of the examined plants and all known syno-

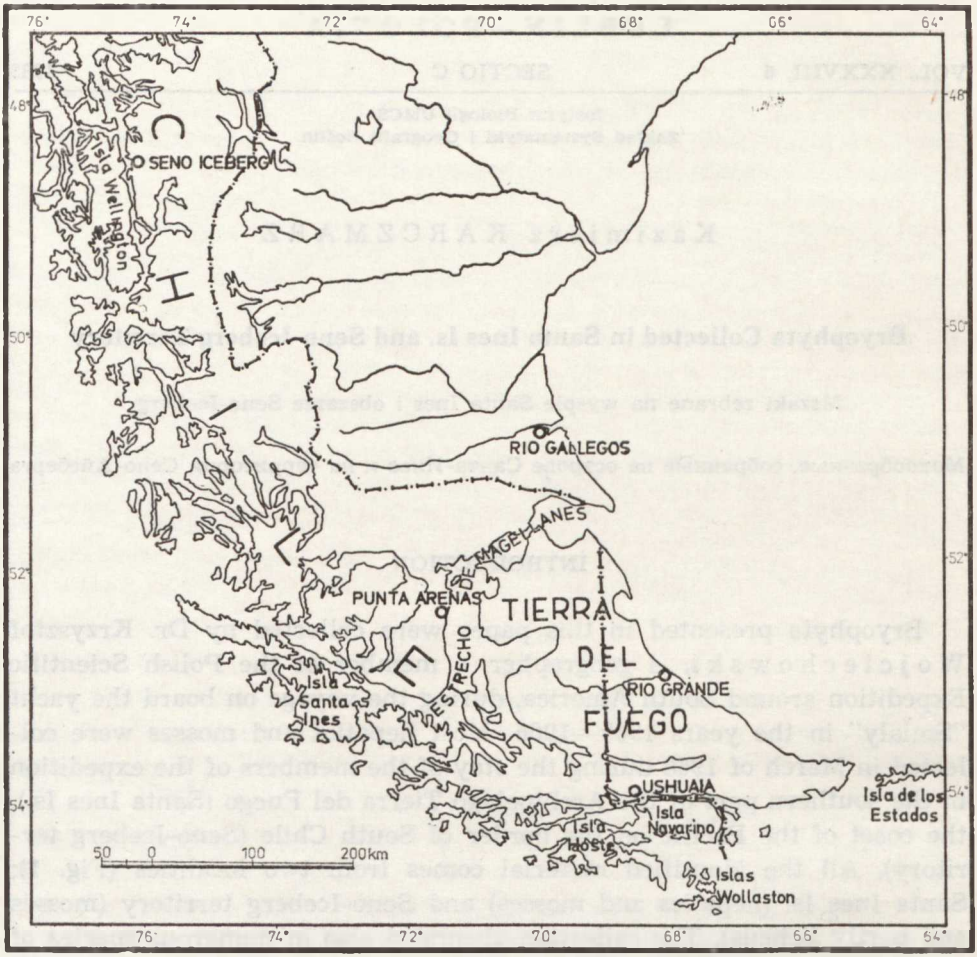

Fig. 1. The investigated territories in Southern Chile

nyms including also new synonyms according to modern publication in bryology.

I am most grateful to Dr. Riclef Grolle (Jena) for the revision and determination of all hepatics and taxonomic discussion on the modern synonym names.

GENERAL INFORMATION ON THE DISTRIBUTION OF BRYOPHYTES

The bryoflora of the Archipelago Tierra del Fuego and the adjacent territories is well-known due to many detailed papers. The first data about the moss flora of those areas are found in the fundamental work by Wilson and Hooker, Flora Antarctica (1844—1847). Wilson

and Hooker described numerous new species of mosses. This descriptions were based on the collections made by Joseph Dalton Hooker, surgeon and naturalist to Sir James Clark, Captain Ross' Antarctic Expedition on the ships Erebus and Terror in 1839—1843. Later, Mueller (41) and Dusén (13—17) wrote some papers including new taxa of Bryophyta. Detailed papers on mosses were published by Cardot (7, 8), Cardot and Brotherus (10), Roivainen (42), Roivainen and Bartram (43), Herzog (31—35) and Seki (49). A detailed work dealing with plant geography, including also bryophytes was published by Skottsberg (50). All these papers lack data about the flora of mosses and hepatics of the isles of the south-eastern part of the Archipelago Tierra del Fuego which was explored by the members of the Polish Expedition.

Santa Ines Is. is one of the islands of the Archipelago Tierra del Fuego of the Pacific south-east (Fig. 1). The mosses come from the northern part of the island adjacent to the Seno Nevada Gulf at the foot of the Wharton Mnt., 53°30′ S. Lat., 72°50′ W. Long. The substratum to bryphytes consists of deep-seated acid rocks among which granites and granodiorytes prevail. The annual rainfall amounts to 2.500 mm. Frequent and heavy rains favour a good development of numerous bryophytes. The mosses and hepatics grow on the seacoast in places free from glaciers, on unshaded rocksand on stones inundated with water. The majority of the species grow in depressions of rocks, not occupied by ice and filled up with running water.

The Seno-Iceberg territory lies in the south of Chile near Wellington Is., in the vicinity of a glacier lake formed by the water running out from below the Patagonian Glacier. The climatic factors and the type of rocky substratum are similar to those of the northern coast of the Santa Ines Is. The bryophytes grow under similar conditions in tufts in crevices filled with dripping water about 6—20 m a.s.l.

Santa Ines Is. as well as Seno-Iceberg territory are situated in the vicinity of forest border with evergreen beeches (*Nothofagus antarctica*, *N. betuloides*, *N. pumilo*) and other trees and bushes such as *Maytenus magellanica*, *Berberis ilicifolia* and *Drimys winteri*. In agreement with a map of distribution of the chief tree communities of this area, according to Skottsberg (50), the species composition of this communities of the Santa Ines Is. is similar to that of the eastern islands of the Archipelago Tierra del Fuego.

The moss flora of the Santa Ines Is. and the Seno-Iceberg territory is very similar to the bryoflora of the whole regions of the Scota sector (Tierra del Fuego, Strait of Magellan, Falkland Is., South Georgia and Kerguelen Is.). Among the mosses only *Racomitrium crispulum* is found

in New Zealand. Among the mosses prevail the species of the genus *Ditrichum* which show a large variability in the Antarctic sectors. Very frequent sterile forms of *Ditrichum* could not be identified to the species. There were also found frequent species of *Dicranum*. Some mosses were identified to be known only from Tierra del Fuego and adjacent areas. They are: *Blindia inundata, B. tenuifolia, Ditrichum hookeri, Hypnum lechleri, Mniobryum austro-albicans, Polytrichum alpinum* var. *integrifolium, Psilopilum compressum* and *Tortula densifolia*. A large number of the identified species are known only from the territory of Tierra del Fuego, such as: *Andreaea leiophylla, A. pseudomutabilis, Barbula andersonii, Campylopus fuegianus, Dicranoloma nigricaule* and *Grimmia amblyophylla*. Among the mosses only a small group is characterized by large geographical disjunction in the Southern Hemisphere. They include three species: *Dicranoloma robustum, Distichium capillaceum* and *Racomitrium crispulum* (37).

The flora of liverworts of the Santa Ines Is. is similar to that of the whole area of Tierra del Fuego and South Chile. The majority of the species are known only from Patagonia, Tierra del Fuego and South Chile. However, liverworts such as *Cryptochila grandiflora, Jamesoniella colorata, Leptoscyphus expansus* and *Riccardia alcicornis* have a wide geographical distribution of circum-subantarctic type in the Southern Hemisphere. Both species are reported from Australia and Tasmania. Among which *Jamesoniella colorata* is also known from South Africa and the Subantarctic regions (1). All other hepatics are widespread mainly in South-American regions to Kerguelen Is. and South Georgia.

BRYOPSIDA

ANDREAEALES

ANDREAEACEAE

Andreaea leiophylla Card. et Broth.

Kungl. Sv. Vet.-Akad. Handl. 63 (10): 5—6, Tab. 1, Fig. 1a—c (1923)

The plants yellowish-green, growing in compact patches; stems about 1 cm high, erect, simple or branched; stem leaves when dry partly spreading, ca. 0.8 mm long, 0.3 mm wide, ovate-lanceolate, distinctly acute; marginal cells of lamina form distinct rows; plants sterile.

Hab.: Seno-Iceberg, on moist ground and rocks, IV. 1966.

Distr.: Fuegia occ., Monte Bucland. The geographical distribution is characterized according to Roivainen and Bartram (43).

Andreaea pseudomutabilis D u s.

Arkiv Bot. 1: 454, Fig. 1—14 (1903)

The examined plants small; stems to 8—12 mm high, erect, seldom in basal part branched; the leaves in dry condition adpressed, in water distinctly spreading, oval-laceolate, apiculate; median cells strongly thick--walled in angles, at margins nearly rectangular in distinct rows, in median part slightly toothed with folded papillae. The specimens sterile and without gemmae.

Andreaea pseudomutabilis belonging to sect. *Enervae* C a r d. have been described by D u s é n on the basis of specimens from the Magellan Strait and is closely related to *A. verruculosa* C a r d. described from Tierra del Fuego. It differs from *A. verruculosa* by the presence of long and folded papillae distributed on marginal cells in the middle part of lamina. The marginal cells in the middle part of leaves in *A. verruculosa* form only single teeth.

Hab.: Santa Ines Is., on schistose rocks near glacier, IV. 1966.

Distr.: Desolation Is. (13).

POLYTRICHALES

POLYTRICHACEAE

Psilopilum compressum (H o o k. f. et W i l s.) M i t t.

Journ. Linn. Soc., Bot. 12: 607 (1869)

The plants in loose tufts or among other mosses; stems to 3—4 cm high; leaves adpressed, broad, obtuse; plants sterile.

Hab.: Santa Ines Is., on schistose rocks, with *Ditrichum hookeri*, no. 30, 69.

Distr.: Patagonia, Tierra del Fuego, Kerguelen Is., South Africa. General distribution was given by G r e e n e et al. (22).

Polytrichum alpinum L. var. *integrifolium* C a r d. et B r o t h.

Kungl. Sv. Vet. Akad. Handl. 63 (10): 72 (1923)

The plants dark brownish; stems to 5—7 cm length, thick, only in upper part foliate; costa thick. All specimens sterile.

Hab.: Santa Ines Is., between rocks, with *Ditrichum hookeri*, no. 31, 35.

Distr.: Tierra del Fuego (Lalago, Fagnano).

DICRANALES

DITRICHACEAE

Ditrichum hookeri (C. Muell.) Hampe

Flora 50: 182 (1867)

The plants yellowish-green, growing in compact cushions; stems to 2 (2.5) cm high, erect; leaves ca. 4—6 mm long, setaceous contracted to long subula, in basal part wide forms vaginula, entire, at apex obtuse; cells of basal part rectangular with thin walls, in upper part of margins quadrate, thick-walled but near nerve asymmetrical and thick-walled; nerve yellowish-green, stoud about 1/3 the wide of lamina; seta to 1.5 cm long, yellow, thin, flexuose, fragile; capsule asymmetrical, narrowly cylindrical, slightly flexuose, peristome teeth 16, clearly red, divided to base, and densely papillose.

Hab.: Seno-Iceberg, on schistose ground between rocks, no. 69; Santa Ines Is., between rocks, no. 31.

Distr.: West Patagonia, Tierra del Fuego, Falkland Is.

Distichium capillaceum (Hedw.) B. S. G.

Bryol. eur. 2: 156, Fig. 113 (1846)

Syn.: *Cynodontium capillaceum* (Hedw.) Brid., Spec. Musc. 1: 158 (1801).

All plants very typical but generally without sporophytes dark in colour, often brownish or yellowish-brown.

Hab.: Seno-Iceberg, on schistose rocks, on the border of alpine rivulet, ca. 20 m a.s.l., no. 71.

Distr.: According to Roivainen and Bartram (43) and Steere (51) this species is very largely distributed in the Antarctic regions, in Fuegia very frequent. It was reported from Patagonia (Andes) and Falkland Is. (10).

SELIGERIACEAE

Blindia inundata (Card.) Card.

Wiss. Ergeb. Schwed. Südpolar-Exp. 4 (8): 84—85 (1908)

The plants yellowish-brown; stems 2—3.5 cm length, branched; leaves 4—5 mm long, erect, in basal part broad, very narrowed, setaceous, with

affine subula; alar cells rectangular; any specimens with young sporophytes.

Hab.: Seno-Iceberg, on damp granite ground, no. 70.

Distr.: South-West Chile (Valdivia, Rio Futa, Fudo Sta, Elisa), Tierra del Fuego, Magellan Strait, Beagle Canal (7, 8).

Blindia tenuifolia (Hook. f. et Wils.) Mitt.

Journ. Linn. Soc., Bot. 12: 56 (1869)

The plants yellowish-brown; stems about 5 cm high, slightly branched those in *B. inundata*; leaves to 5—7 mm long, falcate, very narrowly subulate, acuminate, setaceous; nerve rather wide; sterile.

Hab.: Seno-Iceberg, abundantly in pools and on damp exposed rocks, no. 73.

Distr.: Fuegia, Magellan Strait, Desolation Is. It is also known from Tasmania, New Zealand and as often in South Australia (12, 48).

DICRANACEAE

Campylopus fuegianus Dus.

Arkiv Bot. 4 (13): 15, Tab. 7, Fig. 1—6 (1905 a)

The plants dark yellow growing in loose tufts; stems to 2—3 cm length; leaves 3—4 mm long, erect, lanceolate, spreading at stem, in two margin broadly convolute to middle part. In transverse section of the nerve shows evident asymmetrical stereid cells typical for subgen. *Palinocraspis* Lindb.

Hab.: Santa Ines Is., on moist rocks, among *Hymenophyllum* sp., no. 30, 31.

Distr.: East Patagonia (Peal Inlet, Puerto Témpanos), Desolation Is. (14).

Dicranoloma robustum (Hook. f. et Wils.) Par.

Index bryol. ed. 2, 2: 29 (1904)

All collected specimens very large and similar in habit to var. *giganteum* Card., Wiss. Ergeb. Schwed. Südpolar-Exp. 4 (8): 66—67 (1908).

Hab.: Santa Ines Is., on humid schistose rocks, no. 31, 32.

Distr.: A very large distributed species in South Hemisphere, South Patagonia and Tierra del Fuego territories frequent (43, 49).

Dicranoloma nigricaule (Aengstr.) Par.

Index bryol. ed. 2, 2: 28 (1904)

The plants are typical in habit and structure of leaves: stems in upper part often black coloured.

Hab.: Santa Ines Is., on humid granite stones, scarce, no. 35.

Distr.: According to Roivainen and Bartram (42) *Dicranoloma nigricaule* occurs in forest regions of Eastern Fuegia and Magellan Strait. It was also reported from South Patagonia (10).

POTTIALES

POTTIACEAE

Barbula anderssonii (Aengstr.) Jaeg.

Ber. S. Gall. Naturw. Ges. 1871—1872: 457 (1873)

The plants little; stems to 1 cm high; leaves lingulate, shortly sharped, in basal part of stems obtuse, at margins convolute; cells of stem leaves multiform, thick-walled; nerve thick.

Hab.: Santa Ines Is., on damp rocks, no. 35.

Distr.: Tierra del Fuego (region of Beagle Canal and Great Lake Lapataia), Magellan Strait.

According to Cardot (8) the South-American taxa distinguished earlier mainly by Mueller (41) can also be included to this species; they are: *Barbula australis* Par., *B. conotricha* C. Muell., *B. magellanica* C. Muell. as well as *B. patagonica* C. Muell. However, at present this opinion may be founded only on the investigations of the type specimens of these species.

Tortula densifolia (Hook. f. et Wils.) Mitt.

Journ. Linn. Soc., Bot. 12: 168 (1869)

The plants yellowish or brownish; stems to 0.5—1 cm high, spreading foliate; leaves lingulate and sharped, spreading, the upper leaves longest, apiculate, flexuose, from upper basal part at margins strongly toothed; nerve in most leaves shortly excurrent with one large cell in apiculus; specimens sterile.

Hab.: Santa Ines Is., on moist rocks, among *Grimmia* sp., no. 36.

Distr.: Frequent in forest regions in Patagonia (Punta Arenas), Tierra del Fuego (Ushuaia, Magellan Strait), and Falkland Is.

Tortula densifolia belongs to genus *Tortula* in sect. *Zygotrichia* (B. S. G.) Mitt., Journ. Linn. Soc., Bot. 12: 145 (1869). However, Cardot included this species to sect. *Neobarbula* (Dus.) Card., Wiss. Ergeb. Schwed. Südpolar-Exp. 4 (8): 95 (1908). All examined specimens are identical with figures pictured by Wilson and Hooker (57), Dusén (16) and Brotherus (4).

GRIMMIALES

GRIMMIACEAE

Grimmia amblyophylla C. Muell.

Syn. Musc. 1: 779 (1849)

The plants growing in loose or compact tufts, generally sterile. The specimens collected near glacier are partly modified in habit. Its stems are often very small and more compact.

Hab.: Seno-Iceberg, on moist rocks and stones near glacier, no. 74, 74 a.

Distr.: Tierra del Fuego.

Racomitrium crispulum (Hook. f. et Wils.) Dix.

Fl. Nov. Zel. 2: 75 (1854)

Syn.: *Dryptodon crispulus* Hook. f. et Wils., Fl. Antarct. 1: 124, Tab. 57, Fig. 9 (1844); London Journ. Bot. 3: 544 (1844). — *Racomitrium symphyodontium* (C. Muell.) Par., Index bryol.: 1081 (1897). — *Grimmia symphyodonta* C. Muell., Syn. Musc. 1: 809 (1849). — *Racomitrium flavescens* Card., Revue Bryol. 27: 41 (1900). — *R. crispulum* (Hook. f. et Wils.) Hook. f. et Wils., Fl. Tasman.: 181 (1867). — *R. chlorocarpum* Mitt. ex Fleisch., Musci Fl. Buitenzorg 1: 377 (1904); New Zealand Inst., Bull. 3 (4): 158—161 (1926); Index Musc. 2: 174 (1962), 4: 266, 268, 276 (1967).

The plants dark brownish-yellow; stems 2—3 cm long, erect often prostrate, usually without lateral branches; stem leaves 2.5—3 mm long, 0.6—0.8 mm wide, lanceolate, plicate on one side only, margins of basal part recurved, in upper part foliate; cells 10—30 μm, isodiametric, in central part longer, lengthened and linear, nodulose, at basal margins short, rectangular not distinct hyaline, hair-point hyalin smooth, short often wanting; nerve strong, continued to the apex; seta red, to 2 cm long; capsule 2 mm long, oblong, smooth, pale, peristome red with 16 papillose teeth, divided nearly to the base.

Hab.: Seno-Iceberg, on lichens detritus, no. 79; on schistose ground, no. 74; Santa Ines Is., wet granite stones and rocks, between *Hymenophyllum* sp. and foliaceous lichens, no. 31.

Distr.: Widespread in Southern Hemisphere; West Patagonia and regions of Andes, Tierra del Fuego, Juan Fernandez Is. and Falkland Is. (42, 49). It occurs in the montane regions of New Zealand and Southern Australia (12, 48).

Racomitrium crispulum was described by Hooker on the basis of specimens from New Zealand. The plants collected in Santa Ines Is. and Seno-Iceberg are identical within the type. Because of its variability and wide geographical distribution, the plants belonging to this species were described for a long time as a new species. Its epithets were given in mentioned synonyms. According to the general view of its morphological features *R. crispulum* may be also included to *R. crispipilum* (Tayl.) Jaeg., Ber. S. Gall. Naturwiss. Ges. 1872—1873: 96 (1874). *R. flavescens* described by Cardot (7) was treated in the rank of a separate species, and others such as *R. symphyodontum* (C. Muell.) Jaeg. fo. *flavescens* Card., Cardot and Brotherus (10) and Dixon (12) included to *R. crispulum* also *R. nigritum* Jaeg. and *R. rupestre* (Hook. f. et Wils.) Hook. f. et Wils. as varieties. However, according to Roivainen (42) the above taxa may be treated as two different species. In taxonomy of genus *Racomitrium*, *R. crispulum* belongs to the group of species having stems dichotomously branched without branchlets, hyaline apiculus and short cells in the upper part of stem leaves. The main distinguished characteristics of this species (as *R. symphyodontium*) and of the related South-American species have been given by Roivainen and Bartram (43).

The variability of the collected plants is large and deals with the habit and ending of stem leaves. Ecological modifications are met very often.

EUBRYALES

BRYACEAE

Mniobryum austro-albicans (C. Muelll.) Broth. in Engler et Prantl.

Nat. Pflanzenf. 1 (3): 553 (1903)

The plants obscure with yellow in colour; stems loose, 1.5—2.5 cm length, delicate, erect, ± with close foliage, only exceptionally in under part with few rhizoids and long vermicular gemmae; leaves alike, 1.2 mm

long and 0.5 mm wide, shortly sharped, in upper part at margins toothed to serrated; median cells short 5—6-angular, widest in central part and lacking chloroplasts; nerve brownish, red, thick, reaching to above 4/5 the apex; seta to 1 cm, capsule elipsoidal, pendulous.

Hab.: Santa Ines Is., on rocks, in crevices, no. 37, IV. 1966.

Distr.: South Georgia, Kerguelen Is. It is new for Tierra del Fuego.

Mniobryum austro-albicans is rather little variable in size. The variability of plants depends on insolation and their age. The multiplication by spores and typical gemmae.

HYPNOBRYALES

HYPNACEAE

Hypnum lechleri C. Muell.

Bot. Zeit. 14: 455 (1856)

The plants yellowish-brown, delicate, slightly shining; stems 2—3 cm long, brown, few branched; stem leaves 3—3.5 mm long and 0.5 mm wide, arcuate, longly sharpened; median cells very long, slightly curved, 5—40×7—55 μm, in basal part shorter, yellow with few pores; alar cells small, oval, slightly convex; nerve not dinstinct. Specimens sterile.

Hab.: Santa Ines Is., on weathered rocks, no. 37 c, d.

Distr.: South-West Chile, according to Herzog (35) as growing on trees, Tierra del Fuego, South Georgia (Cumberland Bay, Moraine Fiord), Kerguelen Is. In some localities it was reported from Juan Fernandez Is. by Bartram (2).

HEPATICOPSIDA

JUNGERMANNIALES

HERBERTACEAE

Herberta runcinata (Tayl.) Kuntze

Rev. Gen. Pl. 2: 836 (1891)

Syn.: *Sendtnera runcinata* Tayl., Journ. Bot. 5: 372 (1846). — *S. chilensis* De Not., Mem. Reale Accad. Soc. Torino 2 (16): 228 (1855). — *Schisma chilensis* (De Not.) Mass., Nuov. Giorn. Bot. Ital. 17 (3): 251 (1885). — *Herberta rununcinata* (Tayl.) Herz. in Skottsberg, Nat. Hist. J. Fern. a. Eastern Is., Bot. 2: 728 (1942).

The examined plants very robust, brown; stems to 5—6.5 cm long, single branched with blackish stolones; all specimens sterile.

Hab.: Santa Ines Is., on damp granite rocks, soil, turf and decaying wood, no. 21, 37.

Distr.: South Chile, Argentina (Los Estatos Is.), Magellan Strait, Juan Fernandez Is.

This species was first described from Chile (Chiloé, Coming). Four other taxa have been distinguished by Stephani (56) in his Species Hepaticarum, vol. 4 (1909) in the rank of genus *Schisma (S. chilensis, S. ferrugineum, S. reicheanum, S. runcinatum)*, and they are identical with *Herberta runcinata*. Two new combinations used by Kuhnemann (38, 39) also belong to *H. runcinata*.

LEPICOLEACEAE

Lepicolea rigida (De Not.) Scott

Nova Hedwigia 2: 147—150, pl. 11 (2), Fig. 20—39 (1960)

Syn.: *Sendtnera rigida* De Not., Mem. Reale Accad. Soc. Torino, 2 ser. 16: 229—230, pl. 15 (1857). — *Herberta rigida* Trev., Mem. Reale Istit. Lombardo, 3 ser. 4: 397 (1877). — *Leperoma rigida* (De Not.) Mass., Nuovo Giorn. Bot. Ital. 2 ser. 17: 252—253 (1885). — *Lepicolea seriata* Herz., Hedwigia 66: 91—92, Fig. 8 (1926). — *L. ochroleuca* var. seriata Herz., Nat. Hist. J. Fern. a. Eastern Is., Bot. 2: 728—729 (1943).

The plants robust, rigid, yellowish-green; stems to 2—8 cm long, regularly pinnate with flagelliform branches; the laciniae long, lanceolate, with the end cell short. All specimens sterile.

Hab.: Santa Ines Is., on damp rocks among moss tufts and lichens, no. 37.

Distr.: Chile (Valparaiso, Valdivia, Island Harbor, Newton Is., Chiloé, Aysen), Tierra del Fuego (Port Gallant, Villarino Bay, Lapataia, Hermite Is., Cape Horn), Magellan Strait, Patagonia, Argentina (Neugnén, Chubut, Los Estados Is.).

Lepicolea rigida was first distinguished on the basis of specimens from Valparaiso. According to the examinations of Scott (47) *L. seriata* Herz., Hedwigia 66: 91—92, Fig. 8 (1926) collected at Punta Leopardo in Chile also belongs to this species. The examined species is congeneric to *L. ochroleuca* (Spreng.) Spreng. which was often mixed in collections. New localities of this species were given by Hässel de Menéndez and Solari (30).

LEPIDOZIACEAE

Lepidozia chordulifera Tayl.

Journ. Bot. 5: 371 (1846)

All examined plants with numerous small branches are characteristic of hepatics of nivale zone; stems to 2—6 cm long, branched; amphigastria subquadrate and to central part divided.

Hab.: Santa Ines Is., on damp ground in tufts of mosses in *Nothofagus* forest, no. 40, 41.

Distr.: South and West Chile, Patagonia, Tierra del Fuego (Clarence Is.), Falkland Is., South Georgia.

JUNGERMANNIACEAE

Jamesoniella colorata (Lehm.) Schiffn. in Engler et Prantl.

Nat. Pflanzenf. 1 (3): 83 (1893)

Syn.: *Jungermannia colorata* Lehm., Linnaea 4: 366 (1829). — *J. oenops* Lindenb. et Gottsche in Gottsche, Lind'enb. et Nees, Syn. Hep. 673 (1847). — *J. arcta* De Not., Mem. Reale Accad. Soc. Torino, 2 ser. 16: 219 (1857). — *J. spectabilis* De Not., ibid. 16: 219 (1857). — *J. malouina* Gottsche, Ann. Sci. Nat., Bot. 4 ser. 8: 337 (1857). — *J. dusenii* Steph., Bihang Gungl. Sv. Vet.-Akad. Handl. 3, 26 (6): 23 (1900). — *J. gibbosa* Steph., ibid. 46 (9): 18 (1911). — *J. raknesii* Kaal., Nyt. Mag. Naturv. 49: 89 (1911). — *J. reflexa* Herz., Hedwigia 66: 89 (1926). — *J. repens* Herz., Archiv Esc. Farm. Fac. Cienc. Ned. Córdoba (R.A.), Secc. Cient. 7: 8 (1938). — *J. grolleana* Herz., Revue Bryol. Lichénol. 26: 145 (1958).

The plants median and varying in size, often modified, brown; stems 1.5—3 cm long, vermiform; amphigastria small; the size of leaf cells and morphology of perianthium are variable; sterile and with perianthia.

Hab.: Santa Ines Is., on soil, damp rocks and wood, no. 40 a.

Distr.: Very widespread hepatic in antipodal territories, Eu-circum--subantarctic element in Chile (Valparaiso, Valdivia), Tierra del Fuego, Falkland Is., Tristan da Cunha, Inaccessible Is.; South Africa (Cape Prov., Natal, Transvaal); Marion Is., Prince Edward Is., Crozet Is., Campbell Is., Antipodes Is.; New Zealand.

A very large variability of *Jamesoniella colorata* is caused by the environmental conditions (1, 31). It is very distinct in the morphology of leaves and cells, in the presence of cuticulla papillae and in the mouth of periathium. In the range of the first two features Herzog (31—35) dinstinguished in *J. colorata* four varieties (var. *libera*, var. *marginata*, var. *obovata*, var. *oblata*) and three forms (fo. *latifolia*, fo. *reflexa*, fo.

subtilis). Stephani (55, 56) on the basis of morphological characteristics of perianthium described two new species as *Jamesoniella dusenii* and *J. gibbosa*. The last species may also possess entirely or slightly crenulated perianthium which is normally not well preserved. On the other hand, the specimens from South Georgia determined by Stephani (54) as *J. oenops* belong to *Cryptochila grandiflora*.

Cryptochila grandiflora (Lindenb. et Gottsche) Gro.

Feddes Rep. 82 (1): 19—22, Fig. 20 (1971)

Syn. *Jungermannia grandiflora* Gottsche, Lindenb. et Nees, Syn. Hep. 673 (1847). — *Jamesoniella grandiflora* (Lindenb. et Gottsche) Spruce, Journ. Bot. 14: 30 (1876). — *J., grandiflora* (Lindenb. et Gottsche) Jack et Steph., Hedwigia 31: 13 (1892). — *Jungermannia sonderi* Gottsche, Linnaea 28: 550 (1857). — *Jamesoniella sonderi* (Gottsche) Steph., Spec. Hep. 2: 99 (1901) n. illeg. — *J. sonderi* Steph., Hedwigia 34: 48 (1895). — *Jungermannia penicillata* Loitlesb. in Szyszlov., Diagn. pl. nov. C. Jelski in Peruvia lect., pars 1, Acad. Litt. Cracov. 238 (1894). — *Jamesoniella hectori* Berggr., On Zeal Hep. 15 (1898). — *J. nervosa* Berggr., ibid. 13 (1898). — *J. allionii* Steph. in Herz., Bibl. Bot. 87: 182 (1916). — *J. pyrogea* Mass., Atti Reale Istit. Veneto Sci. Lett. Art. 87 (2): 235 (1928). — *J. pellucida* Herz., Hedwigia 74: 85 (1934).

The plants very variable, brownish; stems to 4—5 cm long; amphigastria very small or sometimes lacking; sterile.

Hab.: Santa Ines Is., on damp granite and in crevices, no. 37 f, g.

Distr.: Chile (Valdivia), Tierra del Fuego, Tristan da Cunha, Kerguelen Is., Marion Is., Prince Edward Is.; South America (Bolivia); South Africa (Cape Prov., Natal); Tasmania.

This species was described by Lindenberg and Gottsche (21) on the basis of specimens from South Chile (Valdivia). Other plants from the oldest collections are unknown. It is a very varying hepatic in natural conditions of humid antipodal territories. The largest numbers of taxa which were described as a new species belong to different modified forms in the variability of geographical populations.

SCAPANIACEAE

Blepharidophyllum densifolium (Hook. f.) Aongstr.

Öfver. Kong. Vet.-Akad. Förh. 4: 151 (1873)

Syn.: *Jungermannia densifolia* Hook. f., Musci exot. 1, Tab. 36 (1818). — *Scapania densifolia* Nees in Gottsche, Lindenb. et Nees, Syn. Hep. 72 (1884). — *Diplophyllum densifolium* (Hook. f.) Mitt., Journ. Linn. Soc., Bot., London 15: 69 (1876).

A very characteristic species, varying in colour from black, brownish to yellowish-white; stems to 2 cm long, usually branched; all plants sterile.

Hab.: Santa Ines Is., on damp granite rocks, no. 37 g, 40.

Distr.: West and South Patagonia, Tierra del Fuego, Magellan Strait (Clarence Is.), Crozet Is., Kerguelen Is., Marion Is., Prince Edward Is. and Possesion Is. The present geographical distribution is given according to Grolle (24).

This relatively well-known species was first included to genera *Scapania* and *Diplophyllum* in the *Scapaniaceae* family by Nees and by Mitten on the basis of morphological features of stem leaves and cells areolation (24). Its present taxonomic status have been stated after description of the new genus *Blepharidophyllum* Aongstr.

LOPHOCOLEACEAE

Clasmatocolea puccioana (De Not.) Gro.

Revue Bryol. Lichénol. 29: 72 (1960)

Syn.: *Jungermannia puccioana.* De Not., Mem. Reale Accad. Sci. Torino, 2 ser. 16: 221 (1857). — *Lophocolea Puccioana* (De Not.) Mass., Nuovo Giorn. Bot. Ital., 2 ser. 17: 227 (1885).

The plants yellowish-brown; stems median size, to 2.5—3.5 cm long, very typically branched; amphigastria large, concave, inserte, lobae acute to obtuse in young plants; examined specimens sterile.

Hab.: Santa Ines Is., on wet granite ground between rocks, no. 43.

Distr.: Chile, Magellan Strait.

A new taxonomic status of this species and of others congeneric with it has been analyzed by Grolle (23).

Leptoscyphus expansus (Lehm.) S. Arnell

Hep. S. Africa 267—269, Fig. 195 a—f (1963)

Syn.: *Jungermannia expansa* Lehm., Linnaea 4: 361 (1829). — *J. congesta* Lehm., Pugilus 8: 51 (1844). — *J. elata* Gottsche, Int. Polarforsch. 1882—1883. — *Lophocolea elata* (Gottsche) Steph., Spec. Hep. 59 (1906). — *Chiloscyphus retroversus*, non Schiffn., Steph., Kung. Sv. Vet.-Akad. Handl. 46 (9): 56 (1911). — *Lophocolea abnormalis*, non (Besch, et Mass.) Steph., pro p., Steph., ibid. 46 (9): 38 (1911). — *L. bisetula*, non Steph., ibid. 46 (9): 40 (1911).

The plants yellowish-green; stems procumbent, somewhat branched, to 5—6 cm long; stem leaves of middle part of stems ovate, rounded,

convex, upper leaves imbricate; amphigastria small, widely quadrate to trapezoidal, denticulate, about twice the width of the stem; all specimens sterile.

Hab.: Santa Ines Is., on irrigated and damp rocks, often in tufts of *Jamesoniella colorata*, no. 40 a, 43 a.

Distr.: Central Chile, Patagonia, Tristan da Cunha, Kerguelen Is., Marion Is., Prince Edward Is., Juan Fernandez Is., Tierra del Fuego (to Southern Bolivia), Falkland Is., South Georgia (Cumberland Bay), Gough Is.; South Africa (Cape Prov.).

The relatively widespread hepatic described from Cape Province, South Africa, and similar to all species of the genus shows a large variability in size and stem leaves. All examined specimens belong to depauperated forms growing in subantarctic environments. They have modified leaves and large stems. In the collections *Leptoscyphus expansus* was often mistaken with *Lophocolea willii* Gro. (28).

SCHISTOCHILACEAE

Schistochila alata (Lehm.) Steph.

Spec. Hep. 4: 71 (1909)

Syn.: *Jungermannia alata* Lehm., Linnaea 4: 395 (1829); Pugilus 3: 44 (1831). — *Gottschea alata* (Lehm.) Nees in Gottsche, Lindenb. et Nees, Syn. Hep. 16 (1844). — *Notarisia alata* (Lehm.) Trev., Mem. Reale Istit. Lombardo Sci. Lett. 3 ser. 4: 392 (1877).

The plants very stoud, brown; stems single or branched, to 4 (7) cm long; amphigastria varying, very toothed, concave, to 1/2 of the length divided; examined plants sterile or contained decayed perianthia only.

Hab.: Santa Ines Is., on wet rocks, no. 43 b.

Distr.: Widespread in Chile (Osorno, Hornos), Juan Fernandez Is., Tristan da Cunha, Tierra del Fuego, Los Estados Is., Basket Is., West Patagonia, Magellan Strait, Desolation Is.

An exclusively and distinct species in genus *Schistochila* Dum. According to Hässel de Menéndez and Solari (30) it has sixteen synonyms of which only have been described by Stephani (56) under other synonymous names in genus *Schistochila*. However, in the last papers of Stephani (55, 56) four other taxa had also been included to *Schistochila alata*, which were omitted by Hässel de Menéndez and Solari; they are:

Jungermannia gayana Mont. in Gray, Hist. Chil. Crypt. 6, Fig. 4 (1840); Ann. Sci. Nat., 2 ser. 14. 349 (1840).

Chiloscyphus gayanus (Mont.) Gottsche, Lindenb., et Nees, Syn. Hep. 710 (1847).

Lophocolea gayana (Mont.) Mitt., Flora Vit. 404 (1859).
L. vinciguerrana Mass., Nuovo Giorn. Bot. Ital. 17: 229 (1882).

ADELANTHACEAE

Adelanthus unciformis (Tayl.) Mitt.

Journ. Linn. Soc., London 7: 244 (1864)

Syn.: *Jungermannia uniciformis* Tayl., Journ. Bot. 3: 457 (1844). — *Plagiochila Lindenbergiana* Lehm., Pugilus 8: 53 (1844). — *P. sphalera* Hook. f. et Tayl., Crypt. Antract. 121, Tab. 156, Fig. 8 (1844). — *P. uniciformis* Tayl. et Took. in Gottsche, Lindenb. et Nees, Syn. Hep. 653 (1847). — *Jungermannia ? haliotiphylla* De Not., Mem. Reale Accad. Soc. Torino, 2 ser. 16: 217—218, 5 Fig. 1—7 (1857). — *Adelanthus unciformis* (Hook. et Tayl.) Spruce, Journ. Bot. 14: 217 (1876).

The plants scorpioid in size, often varying, brown; stems 8—12 cm long, with many fine stolones; amphigastria absent; examined specimens sterile.

Hab.: Santa Ines Is., in moss layer on rocks, no. 43, 45.

Distr.: Widespread in South Chile (Valparaiso), Tierra del Fuego (Clarence Is.), Tristan da Cunha; Peru, Venezuela, Costa Rica; South Africa (Cape Prov., Cape of Good Horn, Table Mt. Swellendam), Ruwenzori; Madagascar, Mascarene Is.; Europe (West Ireland).

This hepatic was first included to genus *Adelanthus* Mitt. by Mitten. As a curious species in the geography of liverworts (19, 25) has distinct anatomical features. According to the original description of Taylor and also to the diagnosis of De Notaris (11, see Icon. V 1—7) it is well distinguished from allied species of whole genus by one-side toothed stem leaves and very thick-walled oval lamina cells. Many other distinguished species are distinct large and probably belong to fo. *major* Mass., Nuovo Giorn. Bot. Ital. 17: 213 (1885).

LEJEUNEACEAE

Harpalejeunea decurvicuspis (Besch. et Mass.) Steph

Spec. Hep. 5: 270 (1913)

Syn.: *Lejeunea decurvicuspis* Besch. et Mass., Bull. Mens. Soc. Linn., Paris 1 (80): 639 (1886).

The plants yellowish-brown; stems to 10—14 cm long; stem leaves remote, concave; amphigastria so long such wide; all specimens sterile.

Hab.: Santa Ines Is., in moss layer on damp rocks, no. 46.
Distr.: Patagonia.

METZGERIALES

ANEURACEAE

Riccardia alcicornis (Hook. f. et Tayl.) Trev.

Mem. Istit. Lombardo, 3 ser. 4: 431 (1877)

Syn.: *Jungermannia (Aneura) alcicornis* Hook. f. et Tayl., Journ. Bot. 3: 479 (1844). — *Aneura alcicornis* Tayl. et Hook. f. in Gottsche, Lindenb. et Nees, Syn. Hep. 499 (1846). — *A. subnigra* Steph., Kungl. Sv. Akad.-Handl. 46 (9): 9, Fig. 1 H (1911). — *Riccardia alcicornis* (Tayl. et Hook. f.) O. K., Rev. gen. pl. 2: 838 (1891).

The plants brownish-black to black; thalli rigid, numerously divided, to 10—14 (15) mm long, 1—1.2 wide, in cross section irregularly oval; lateral branches to 4 mm long, 1.5—2 mm wide; female and male specimens.

Hab.: Santa Ines Is., in moss layer on damp rocks, no. 76; Seno-Iceberg, on wet rocks near glacier, no. 35.

Distr.: Chile, South Patagonia, Tierra del Fuego, Falkland Is.; Campbell Is., Tasmania.

Riccardia alcicornis have been described by Hooker and Taylor (57) on the basis of plants collected by Hooker in Cape Horn. The morphological and anatomical features of all examined specimens are in accord with the description given in taxonomic revision of the South-American species of genus *Riccardia* by Evans (18) and Hässel de Menéndez (29).

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STRESZCZENIE

Podano nowe dane o rozmieszczeniu i uwagi taksonomiczne o 17 gatunkach mchów i 12 wątrobowców zebranych na wyspie Santa Ines w Chile i na obszarze Seno-Iceberg w Ziemi Ognistej. Wśród znalezionych mszaków obok szeroko rozprzestrzenionych w Subantarktyce i południowej półkuli znajdują się południowoamerykańskie mchy (*Andreaea, Barbula, Campylopus, Mniobryum*) oraz wątrobowce (*Blepharidophyllum, Herberta, Lepicolea, Schistochila*). Natomiast najbardziej interesującym pod względem briogeograficznym jest wątrobowiec *Adelanthus unciformis*.

РЕЗЮМЕ

В работе приводятся новые данные о распространении и таксономические заметки о 17 видах мхов и 12 печеночников, собранных на острове Санта-Инес в Чили и на территории Огненной земли (Сено-Айсберг). Из собранных мохообразных, наряду с широко распространенными в Субантарктиде и южном полушарии, встречаются южно-американские мхи (*Andreaea, Barbula, Campylopus, Mniobryum*) и печеночники (*Blepharidophyllum, Herberta, Lepicolea, Schistochila*). Наиболее интересным в биогеографическом отношении является печеночник *Adelanthus unciformis*.