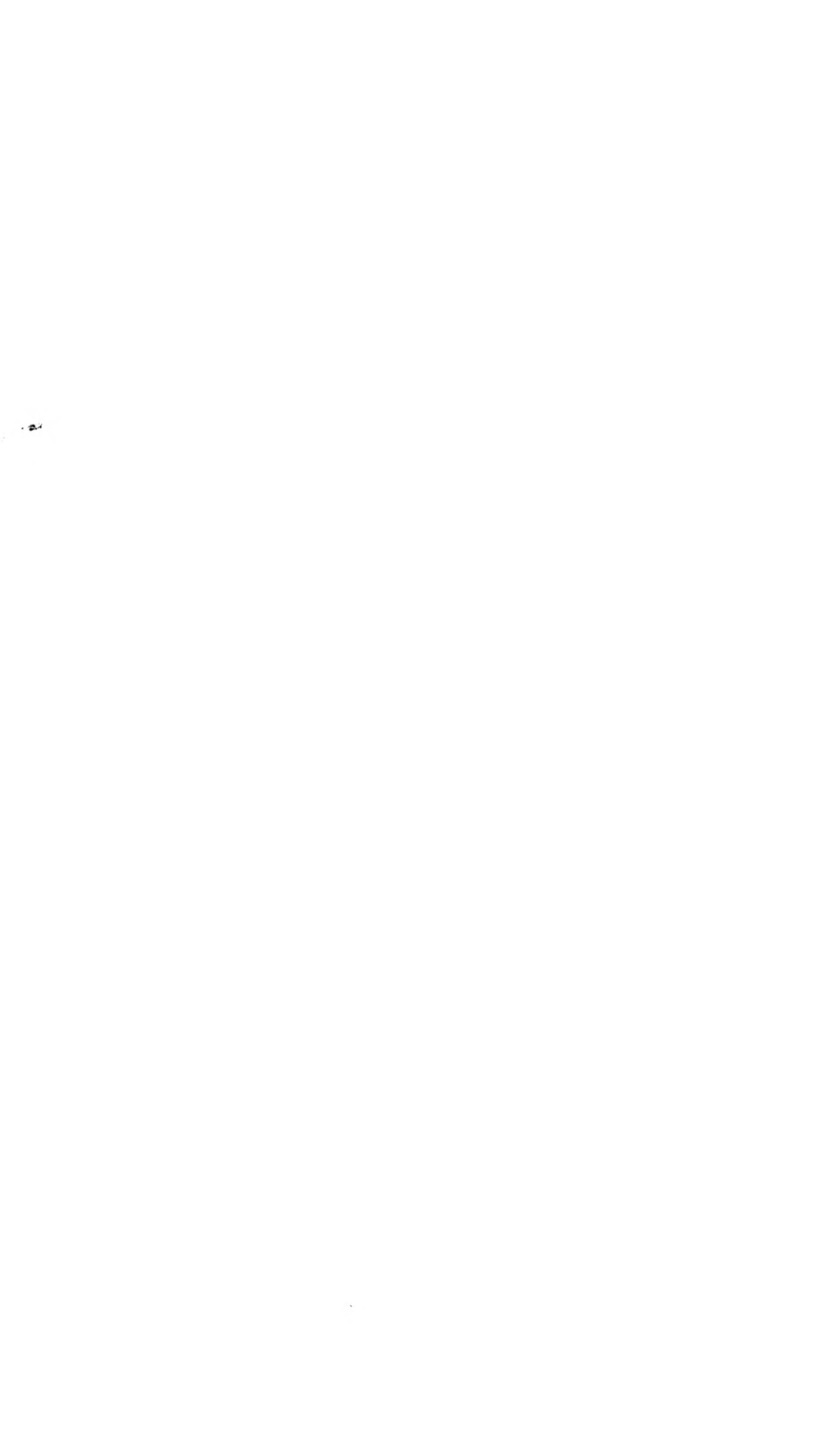


UNIVERSITY OF
ILLINOIS LIBRARY
AT URBANA CHAMPAIGN
JUL 11 1980 BIOLOGY

JUL 11 1980



3
7

5

Biological

FIELDIANA

Botany

Published by Field Museum of Natural History

Volume 38, No. 7

August 20, 1977

Austral Hepaticae IX

Anastrophyllum tristanianum, A New Species from Tristan da Cunha

JOHN J. ENGEL¹

DONALD RICHARDS ASSISTANT CURATOR OF BRYOLOGY
FIELD MUSEUM OF NATURAL HISTORY

Anastrophyllum tristanianum Engel, n. sp.

Simile *Anastrophylo crebrifolio* (Hook. f. & Tayl.) Steph., sed differt 1) foliorum margine integro; 2) cellulis foliorum medianis trigonis magnis et parietibus tenuibus separatis institutis; 3) stolonibus praesentibus; 4) ramificatione typi *Frullaniae* nulla.

Holotype: Tristan da Cunha, above Burntwood, 650 m., 10 January 1938, *Christophersen & Mejland* 889 (0!).

Plants soft, rather spongy, somewhat brittle, red brown to yellow brown, the axis tips usually deep red to magenta; plants in nearly pure, compact mats or loosely intermixed with other bryophytes; axes suberect, rather robust, 1.3-1.8 mm. wide, the axes commonly increasing in size toward the apex or with swollen, intercalary regions.

Branching rather frequent, of lateral-intercalary type, terminal branching absent; lateral-intercalary stolons rather common, the stolons narrow, wirelike, leafless, with rhizoids.

Stems rather rigid, red brown, 170-215 μ thick, 220-320 μ wide, of 15-16 cells thick, somewhat dorsiventrally flattened; cortex in 3-4 rows of distinctly thick-walled, pigmented cells, but with outermost row with radial walls only moderately thick-

¹I wish to extend grateful thanks to Dr. Anna-Elise Torkelsen, Botanical Museum, Oslo, Norway, for the loan of specimens, to Mr. William Petersen for assistance with the plates, and to Dr. Rolf Singer for assistance with the Latin diagnosis.

US ISSN 0015-0746

Library of Congress Catalog Card Number: 77-839-49

The Library of the

Publication 1267

71

APR 05 1978

APR 6 1978

BIOLOGY LIBRARY
101 BURRILL HALL

University of Illinois
at Urbana-Champaign

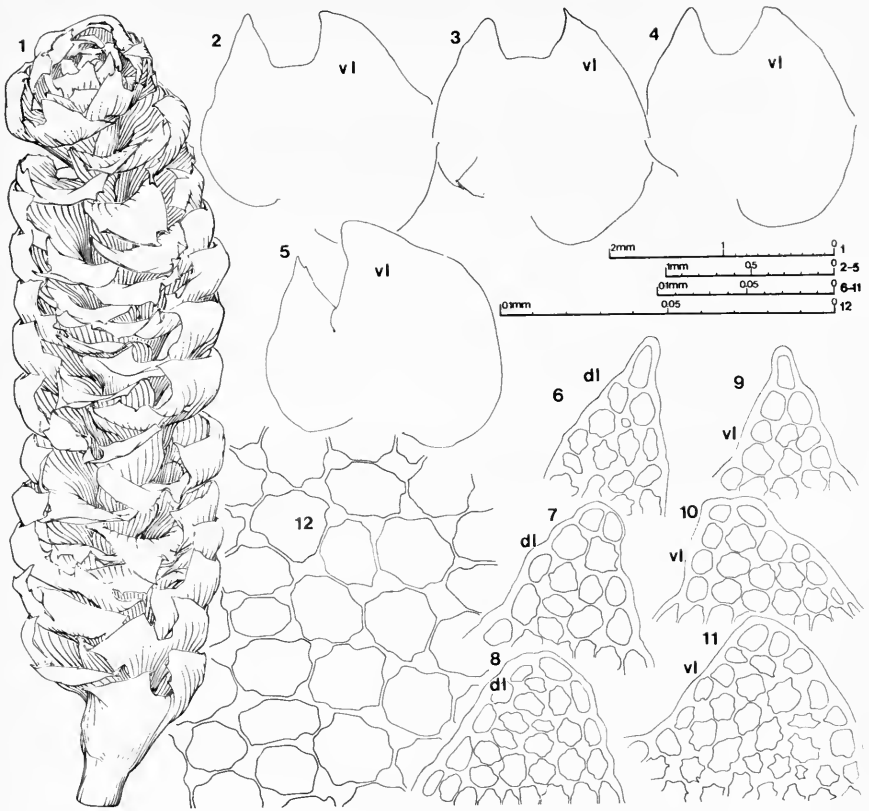


FIG. 1. *Anastrophyllum tristanianum* Engel. 1, portion of main axis, dorsal view, note ensheathing leaf bases; 2-5, leaves (flattened; vl = ventral lobe); 6-8, dorsal lobe (= dl) apices of leaves; 9-11, ventral lobe (= vl) apices of leaves; 12, median leaf cells. Numbers 1-3, 7-10, 12 from holotype material; 4 from Christophersen & Mejland 235; 5, 6, 11 from Christophersen & Mejland 232.

ened and exposed wall thin or slightly thickened; medullary cells thin-walled, the corners thickened similarly to small trigones. Rhizoids not seen on leafy axes.

Leaves 0.9-1.2 mm. from segment apices to leaf insertion, 1.3-1.4 mm. wide, dorsal half \pm transversely inserted, the base dilated and extending across and often somewhat beyond stem, not decurrent, the ventral half obliquely inserted, not decurrent; leaves strongly spreading, imbricate (closely so from ventral aspect), somewhat dorsally secund with axes thus appearing strongly convex in ventral aspect, deeply concave, the ventral half of leaf deeply concave-subcupulate (in ventral view leaves with an elongate, distinct, broad, convex bulge); leaves asymmetrically broadly ovate, the margins broadly rounded (the ventral margin semicircular in outline, much more round than the dorsal margin), entire; leaves 0.25-0.45 bifid; lobes entire, acutely triangular, the apices rounded or tapering to a rather sharp tip, often hyaline; dorsal lobe slightly incurved (and then entire leaf deeply concave), erect or

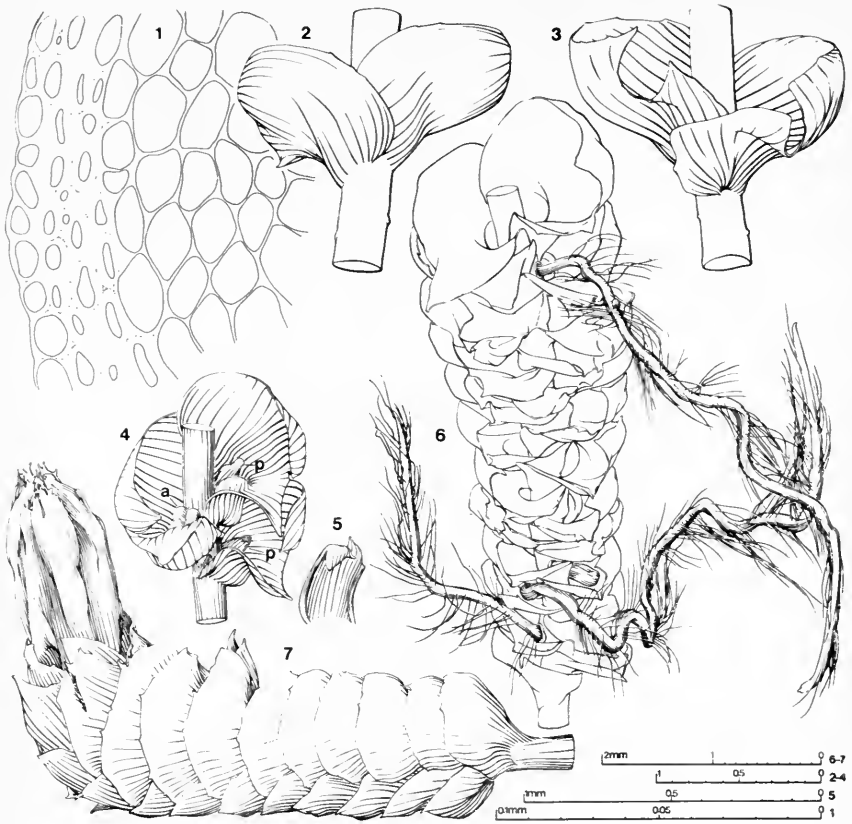


FIG. 2. *Anastrophyllum tristanianum* Engel. 1, stem, cross-section; 2, 3, portion of axis, dorsal and ventral views respectively (note leaf insertion); 4, male bracts showing antheridia (= a) and paraphyses (= p); 5, large paraphysis from axil of male bract shown in 4; 6, portion of main axis with three stolons; 7, portion of axis with perianth, lateral-ventral view. All from holotype material.

broadly recurved, 1.1-1.3 \times wider than long, 0.5-0.75 \times area of ventral lobe; ventral lobe somewhat incurved, 1.0-1.9 \times wider than long; sinus rounded or truncate. Underleaves absent. Gemmae absent.

Median leaf cells with large, bulging, often knotlike trigones which are rarely confluent, the intervening walls thin, the cells 12-24 μ wide, 18-26 μ long; subapical lobe cells 17-24 (-26) μ wide, 16-26 μ long; basal cells moderately elongated, the trigones less pronounced. Cuticle faintly striate.

Diocious; androecia becoming intercalary on main axes or long branches; bracts in 3-5 pairs, of similar size to leaves, the bracts strongly saccate at dorsal base, similar to leaves except dorsal margin usually with a tooth or lacinium at the base; antheridia (1-) 2-3 per bract; paraphyses variable, rudimentary or lobelike and

acute, to ca. 0.5 leaf length, issuing from median, dorsal portion of stem or from bract axil.

Gynoecea on main axes, without subfloral innovations; bracts rather closely imbricate, opposing pairs laterally strongly overlapping one another, those of innermost series erect, sheathing base of perianth, concave, especially so at the immediate base where sharply, abruptly concave, the bracts bifid to ca. 0.35-0.5; bract lobes entire, erect, deeply concave, acutely or obtusely triangular, the apices sharp, often apiculate, the sinus sometimes gibbose; dorsal margin of bract with 1-2 sharp teeth, the ventral margin of bract with 1-2 small or large teeth; bract of innermost series sometimes vestigial and considerably smaller than that of next outermost series. Perianth ca. 2.5-4 mm. long, 1.0-1.1 mm. wide, 0.55-0.6 emergent, subcylindrical, 5 plicate in distal 0.5-0.75, the plicae pronounced, rounded, with 3-4 sulci descending below level of bracts; perianth contracted at the hyaline mouth, the mouth irregularly dentate by unicellular very thick-walled teeth which extend for varying lengths.

Anastrophyllum tristanianum is rather closely related to *A. crebrifolium* (Hook. f. & Tayl.) Steph. of southern South America and north in the Andes to Ecuador, from which it differs in the following features: 1) leaves with dorsal margins entire throughout; 2) median leaf cells with large trigones separated by thin walls, the trigones only rarely confluent; 3) stolons present; and 4) *Frullania*-type branching absent. *Anastrophyllum crebrifolium*, on the other hand, has 1) leaves with dorsal margins 1(2-3) lacinate-lobate or occasionally dentate at the base; 2) median leaf cells with large, confluent trigones, or if not confluent, then with the intervening walls thickened; 3) stolons absent; and 4) *Frullania*-type branching occasionally present.

Ecology-Phytogeography.—Endemic to Tristan da Cunha where on ground or tree ferns, 200-650 m.

Specimens seen.—Tristan da Cunha, above Burntwood, 650 m., 10 January 1938, *Christophersen & Mejlund 889* (Holotype)(0); above settlement, 200 m., 21 December 1937, *Christophersen & Mejlund 232, 235* (0).



UNIVERSITY OF ILLINOIS-URBANA

580 5FB

C001

FIELDIANA. BOTANY\$CHICAGO

37-39 1974-76



3 0112 009379170