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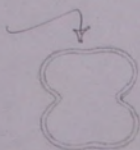
The Hunt Institute for Botanical Documentation, a research division of Carnegie Mellon University, specializes in the history of botany and all aspects of plant science and serves the international scientific community through research and documentation. To this end, the Institute acquires and maintains authoritative collections of books, plant images, manuscripts, portraits and data files, and provides publications and other modes of information service. The Institute meets the reference needs of botanists, biologists, historians, conservationists, librarians, bibliographers and the public at large, especially those concerned with any aspect of the North American flora.

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L 10  
W 9  
I 6

*Cosmarium tinctorum*

apex slightly but  
distinctly retuse



Wall yellowish

Pl 6 fig 22

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A 109  
North Australia

Feb 23/50

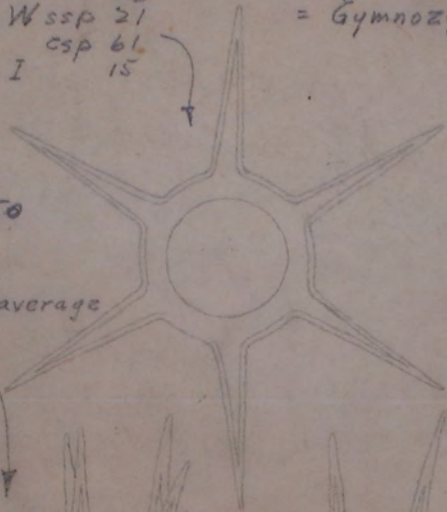
*Dambusina armata*, comb. nov.  
= *Gymnozyga armata*  
~~Löffler~~ Nordst.

B167

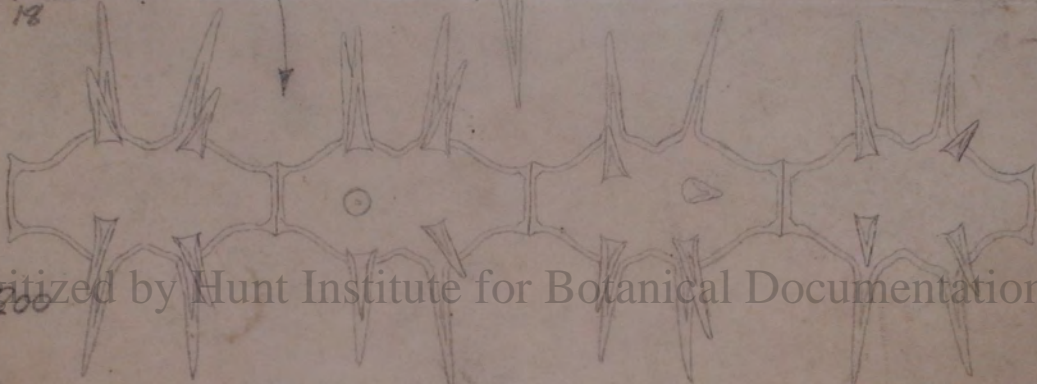
There is a smaller form  
in Brazil 11, W.csp. 42  
for minor?

L 36  
Wssp 21  
csp 61  
I 15

x 1550



L 4 cells 160 = 40 average  
Wssp 25  
Wcsp 60  
W pole 16  
I 18



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x 1200

Brazil 14

It seems to me that this would be more  
appropriately placed in *Desmidium*, by analogy  
with *D. curvatum*.

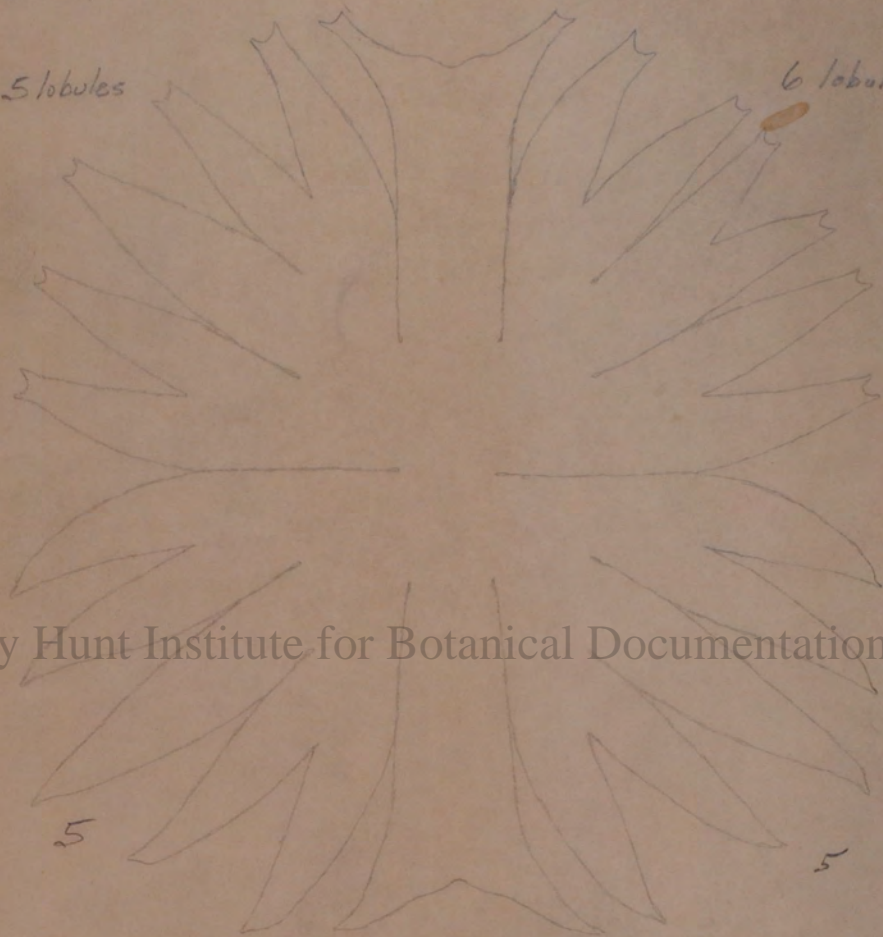
Apl 5/54

L 380 $\mu$   
W 366  
I 40

*M. torreyi* ;  
Note different polar lobes

5 lobules

6 lobules



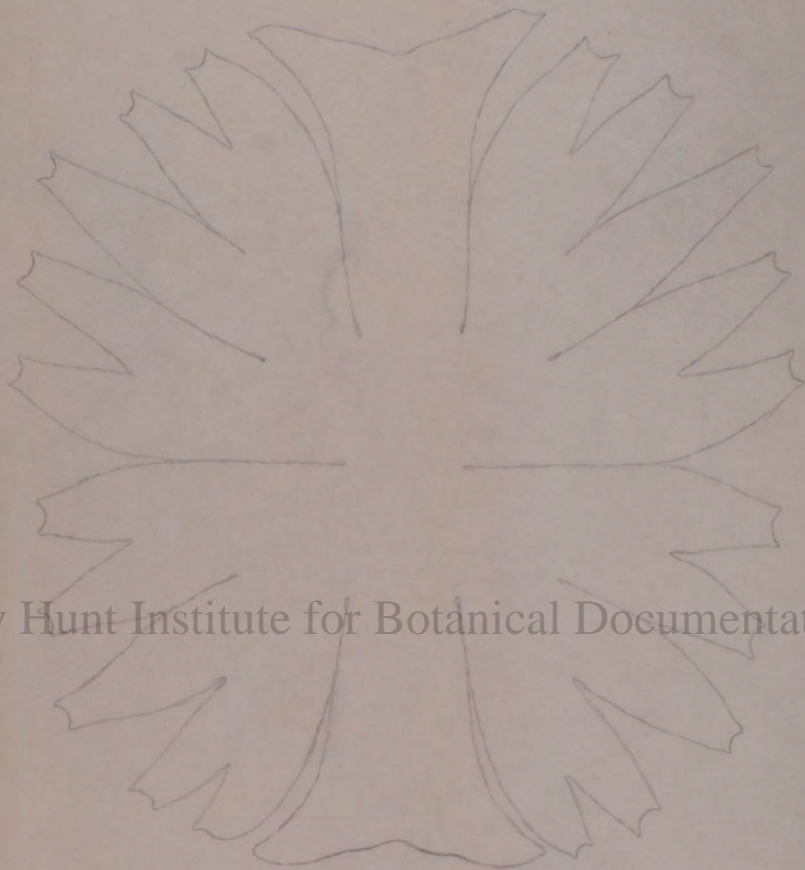
Alabama No. 5  
U.S.A.

Sept. 6/1951



L 331  $\mu$   
W 305  
I 40

*M. torreyi*



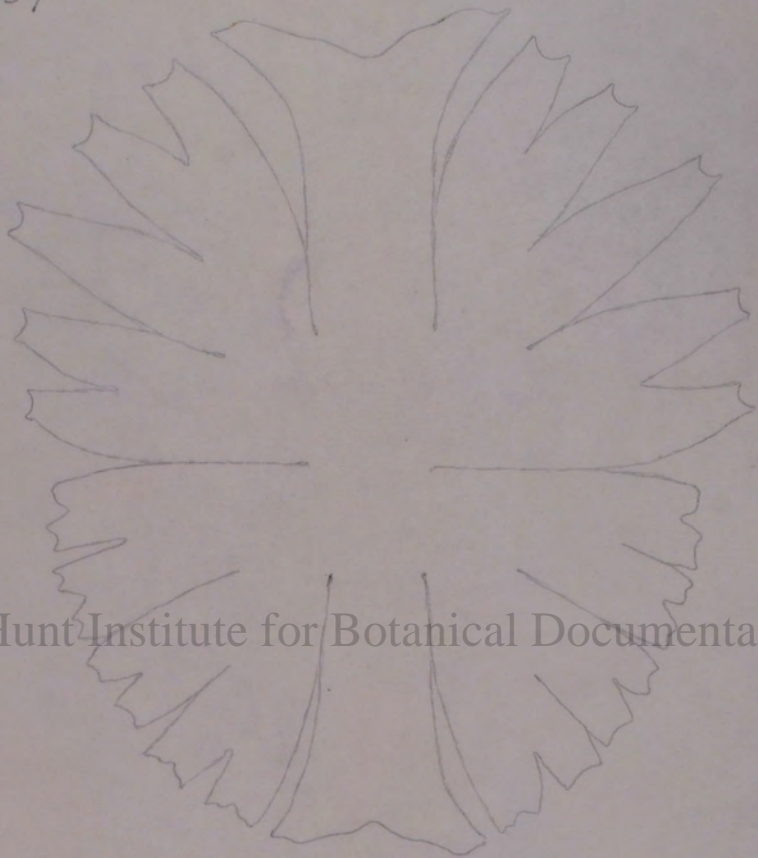
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Mississippi, No. 52  
U.S.A.

March 18/1945

L 341  $\mu$   
W 275  
I 39

*M. torreyi* fa



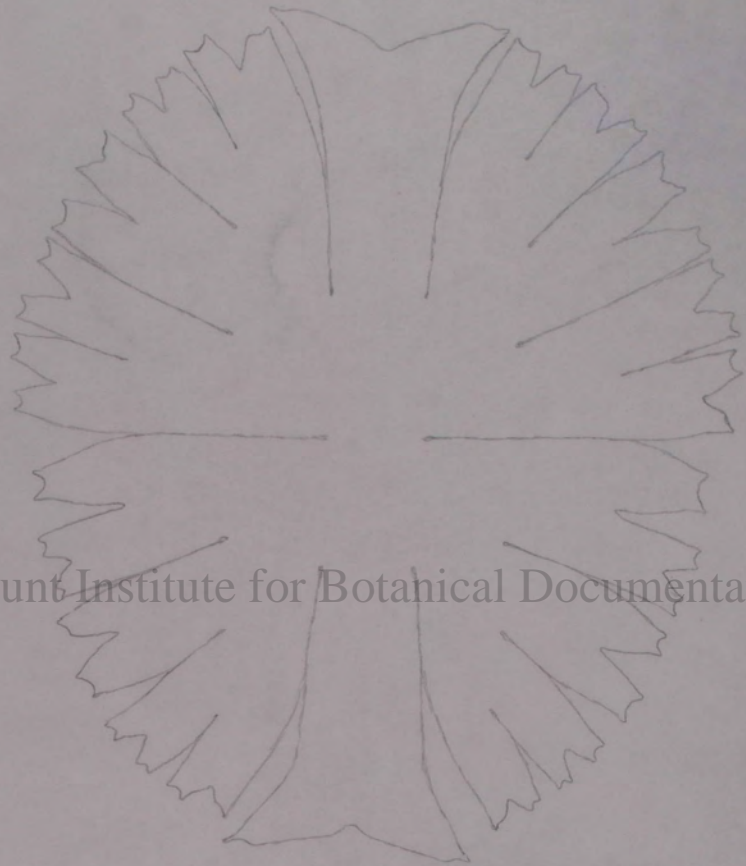
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Mississippi No. 52  
U.S.A.

March 15/1945

L 326  $\mu$   
W 287  
I 38

*M. torreyi* Fa.



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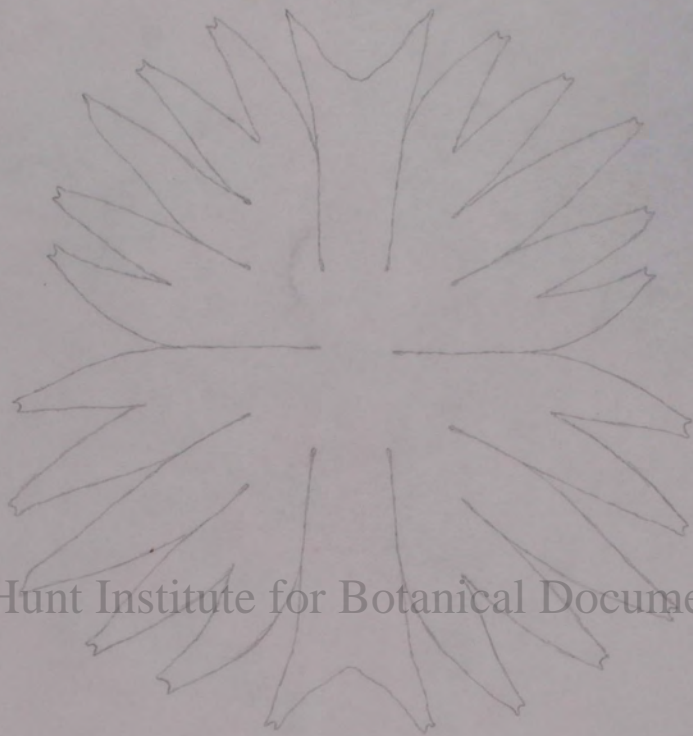
Mississippi No. 37  
USA

Dec 14/1942



L 361  $\mu$   
W 344  
I 36

*M. torreyi*



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Florida No. 169  
U.S.A.

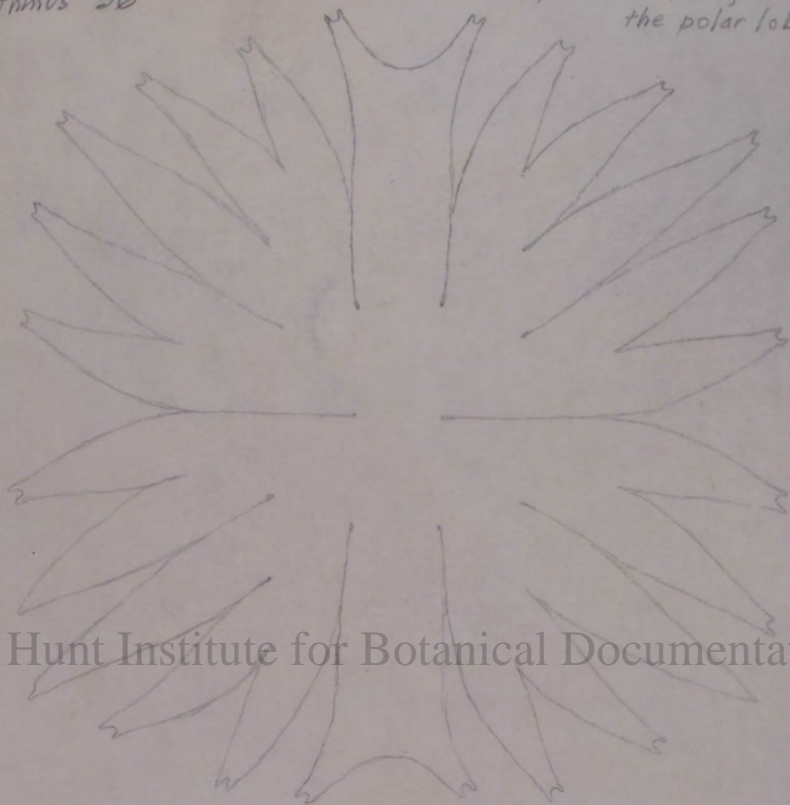
July 10/1948



Length 344 $\mu$   
Width 330  
Isthmus 36

*Micrasterias torreyi* Bail.

specific form, except  
the polar lobes



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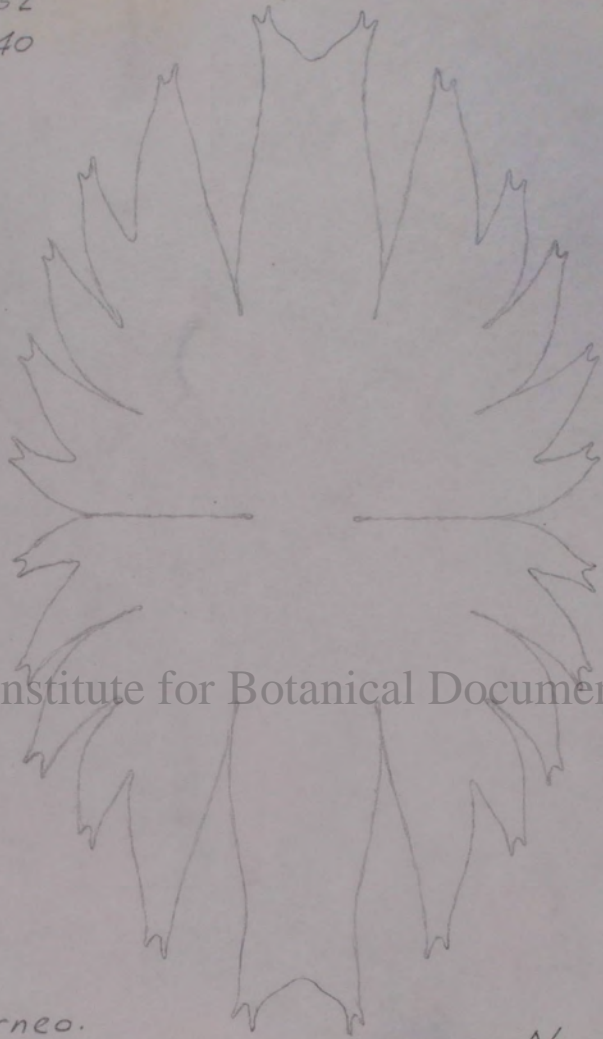
I consider this form to be a close analogue of var. doveri. If you could squeeze this specimen laterally to reduce its width and thereby increase its length, at the same time bending the lobules upwards, the result would be quite similar to the specimen from East Borneo depicted on the attached sheet.

Florida 90  
USA

Note that both of them have five lateral lobules, a feature not possessed by any other *Micrasterias* species.

April 7/1948

Length 444  $\mu$  *M. torreyi* var. *doveri* (Biswas) Krieg.  
Width 252  
Isthmus 40

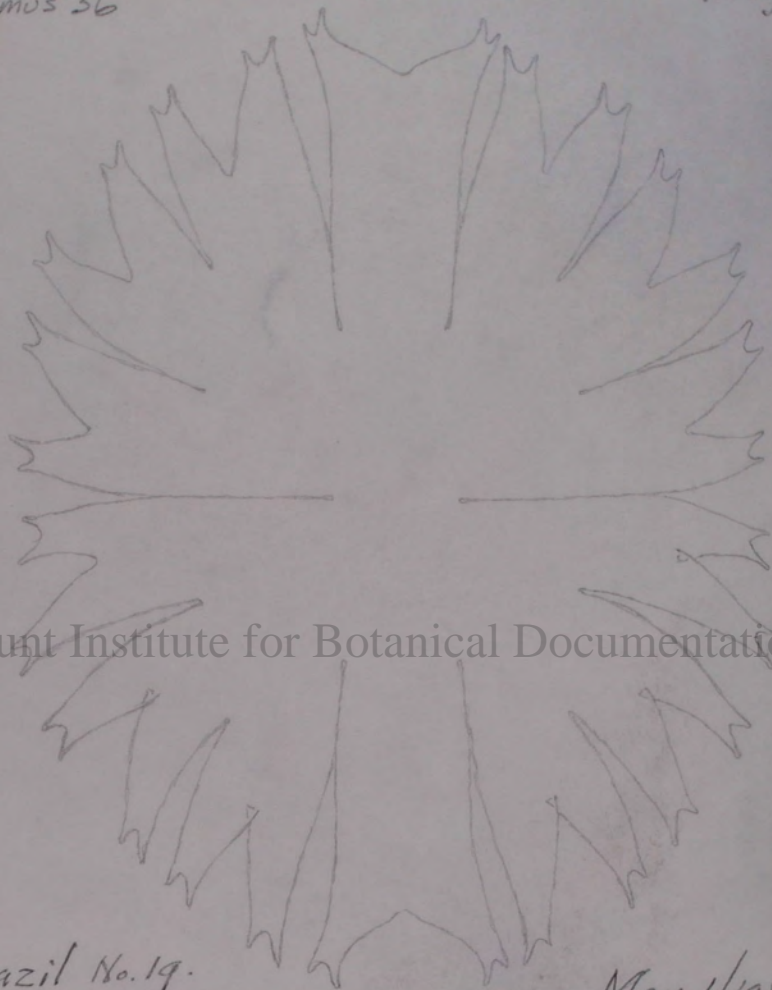


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East Borneo.

Nov. 16/1952

Length 301  $\mu$  *M. torreyi* var. *curvata* (Bern.)  
Width 230  
Isthmus 36 Krieg.



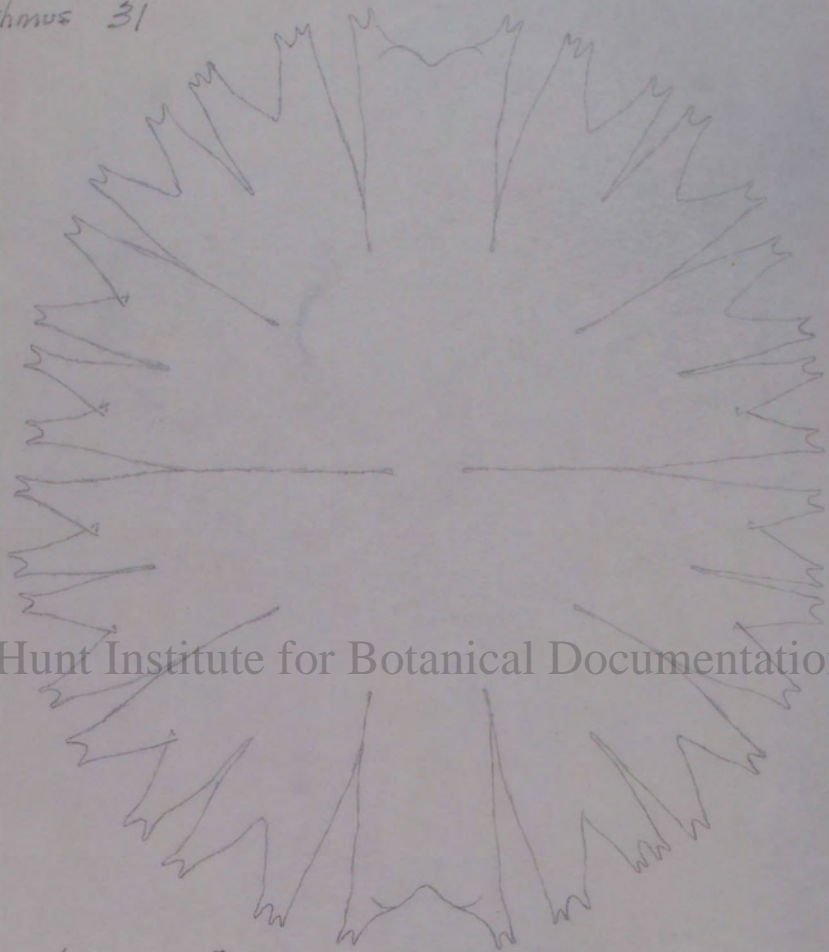
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Brazil No. 19.

May 1/1954



Length 394  $\mu$  *M. torreyi* var. *crameri* (Bern.) Krieg.  
Width 345  
Isthmus 31

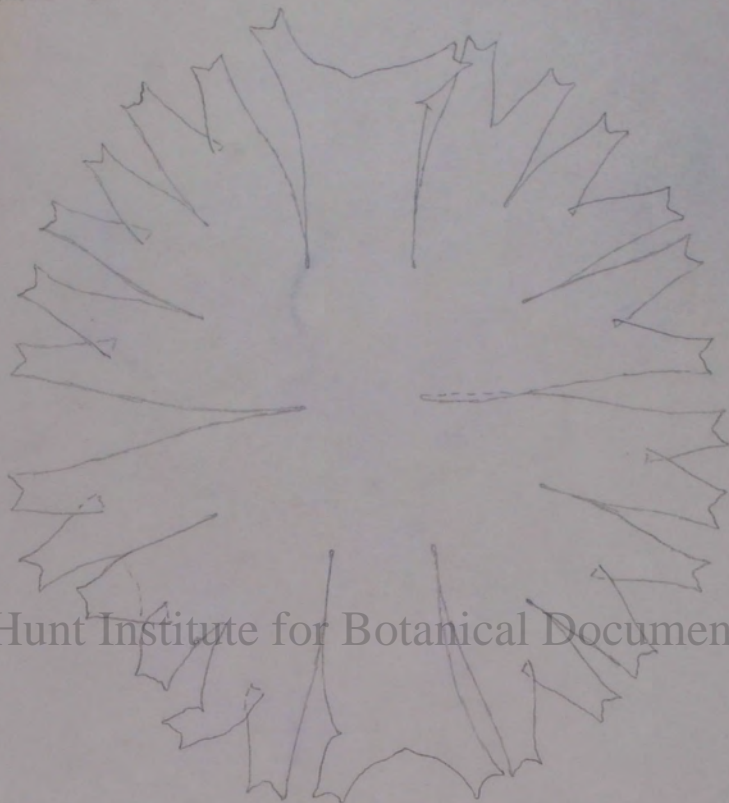


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Sumatra and Java.

Jan. 19/1957

Length 243  $\mu$  *M. torreyi* var. *nordstedtiana*  
Width 220 (Hier.) Schm.  
Isthmus 31



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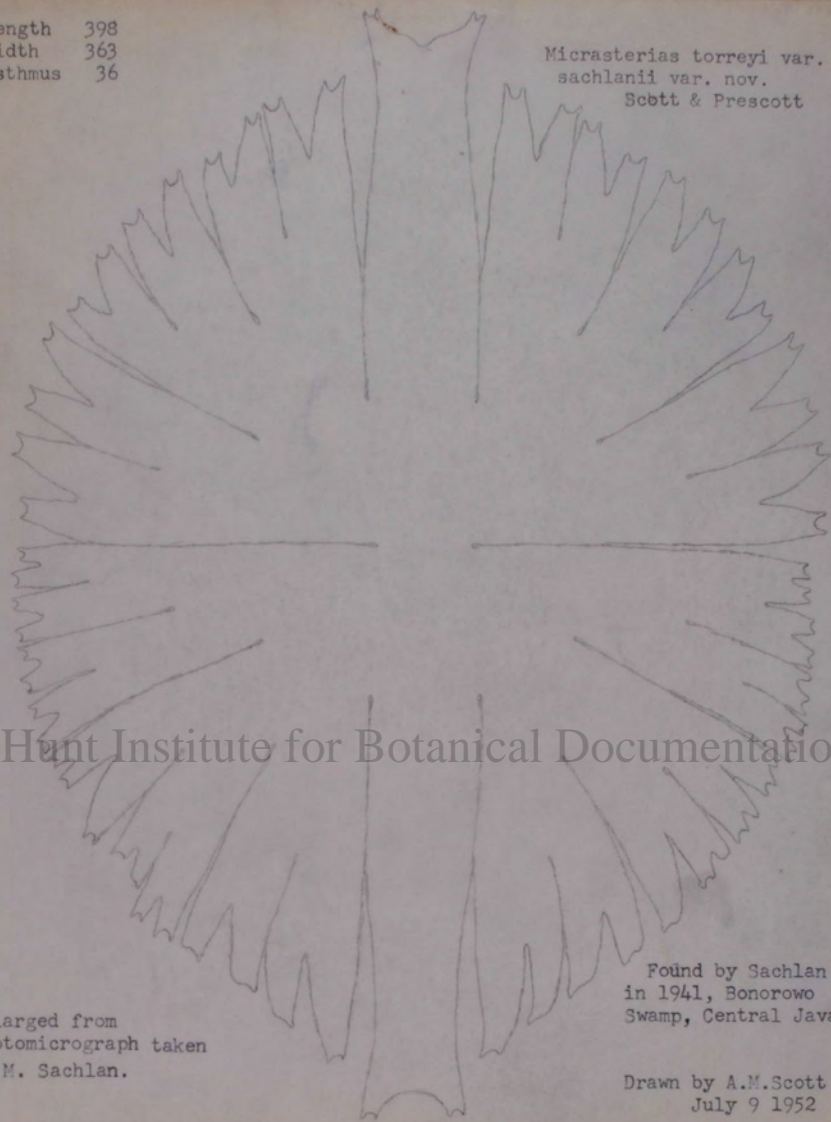
Old cell, partly crushed and distorted.

Brazil No. 6.

April 24/1954

Length 398  
Width 363  
Isthmus 36

*Microsterias torreyi* var.  
*sachlanii* var. nov.  
Scott & Prescott



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Enlarged from  
photomicrograph taken  
by M. Sachlan.

Found by Sachlan  
in 1941, Bonorowo  
Swamp, Central Java.

Drawn by A.M.Scott  
July 9 1952



Lista de material hidrobiológico coleccionado na Amazônia em 1952 por  
Dr. Harald Sieli.

Phytoplankton, Algas etc.

Parque de Santarém - Bei Santarém - Near Santarém.

31. 22.5.1952. Igarapé Irará bei Santarém. Brauner Schlick von zwischen  
grünen Algenmatten am Rande der Strömung. (pH 4.4). 4.7

Sistema fluvial do Rio Arapiuns - Flußsystem des Rio Arapiuns -

Riversystem of the Rio Arapiuns.

1. 30.5.1952. Rio Aruã, unterhalb Cachoeira. Phytoplankton. (pH 4.5).
2. 30.5.1952. Quelle bei Cachoeira do Rio Aruã. Brauner Eisennieder-  
schlag. (pH 4.5).
3. 31.5.1952. Lago da Cachoeira do Aruã. Phytoplankton. (pH 4.4).
4. 2.6.1952. Rio Maré, ± 3 km unterhalb der Cachoeira. Phyto-  
plankton. (pH 4.4).
5. 3.6.1952. Lago da Boca do Igarapé Mental. Phytoplankton, 0.50 -  
1.00 m Tiefe, 15<sup>h</sup>. (pH 4.5).
6. 4.6.1952. Rio Arapiuns, Mündungsbucht des Igarapé Curú. Phyto-  
plankton, 15<sup>h30</sup><sup>min</sup>, 0.50 - 1.00 m Tiefe. - (pH 4.5).
7. 7.6.1952. Rio Arapiuns, unterhalb Ponta Gurupá (= vor Enseada  
de Urubá). Phytoplankton, ± 1 m Tiefe, 15<sup>h30</sup><sup>min</sup>. -  
(pH 4.5).
8. 8.6.1952. Rio Arapiuns, kl. Bucht unterhalb Ponta Gurupá (= En-  
seada de Urubá). Ufernahe. Abgesaugt von Holz mit  
Algenbewuchs. (pH 4.5.)
9. 11.11.1952. Igarapé Mental. Phytoplankton, 17<sup>h</sup>. - (pH 4.5).
10. 12.11.1952. Lago da Boca do Igarapé Mental. Nach Regennacht, ganz  
trüber Tag, ± 9<sup>h</sup>. Oberflächenn-Phytoplankton. (pH 4.6).
11. 14.11.1952. Lago da Boca do Igarapé Mental. Semiger Tag, 16<sup>h15</sup><sup>min</sup>.  
Oberflächenn-Phytoplankton. (pH 4.6, im Tiefenwasser  
pH 4.5).
12. 16.11.1952. Rio Aruã am Fuße der Cachoeira. Regentag, 15<sup>h30</sup><sup>min</sup>.  
Phytoplankton. (pH 4.5).
13. 17.11.1952. Cachoeira do Aruã, Tümpel im versumpften Tal (das  
Igarapé Irará) mit Patanasal des Ig. de Femecca.  
Bodenbelag, abgeschöpft. (pH 4.4).
14. 18.11.1952. Rio Maré nahe Mündung. Sonntag, 15<sup>h30</sup><sup>min</sup>. Phyto-  
plankton. - (pH 4.4).

Lista de material hidrobiológico colecionado na Amazônia em 1952 por  
Dr. Harald Sieli.

Phytoplanton, Algas etc.

Região do Alto Rio Negro. - Gegend des oberen Rio Negro. -

Upper Rio Negro Region.

21. 15.9.1952. Rio Uaupés, Mündung. Phytoplanton, Oberfläche, 16<sup>h</sup>30<sup>min</sup>  
(pH 4.5.)
22. 15.9.1952. Rio Uaupés, Mündung. Von Ufersteinen abgesaugt, 0-10 cm  
tief. - (pH 4.5).
23. 16.9.1952. Jararaca-Igarapé, Schwarzwasser-Quellbach. Belag auf  
Sand und Blättern am Ufer. - (pH  $\leq$  4.1).
- 18.9.1952. Jararaca-Igarapé. Platz wie am 16.9., in ruhigen  
Wasser von Boden und Blättern abgesaugt. - ~~typischer~~  
(Klarwasser-Quellbach!! Nicht wie die obige Probe!!  
pH 4.8).
- 18.9.1952. Jararaca-Igarapé. Schwarzwasser-Quellbach. In ruhigen  
Wasser von Boden und Blättern abgesaugt. - (pH  $\leq$  4.1).
- 19.9.1952. Jandiá-Igarapé, Schwarzwasser-Quellbach. Von Blättern  
etc. am Ufer angesaugt. - (pH  $\leq$  4.1).
- 19.9.1952. Jandiá-Igarapé, Klarwasser-Quellbach. Von Blättern,  
bealigten Uferwurzeln, Steinen etc. abgesaugt. -  
(pH 5.2). *This bottle was broken and contents lost.*
- 22.9.1952. Rio Negro in Içana, Ufernähe. Phytoplanton. (pH 4.2 -  
4.3). (Içana ist der Ort, der früher den Namen "São  
Felippe" hatte.)
- 24.9.1952. Caburís-Igarapé. Klarwasser. Von toten Blättern am  
Ufer usw. abgesaugt. (pH 4.8).
- 24.9.1952. Iaitima-Igarapé. Schwarzwasser. Von toten Blättern  
am Ufer usw. abgesaugt. (pH 4.4).

Rio Uaupés: - Rio Caiari-Uaupés; Ort der Probenentnahme an  
der unteren, südlichen, seiner beiden Mündungen in den  
Rio Negro, bei Sitio Tatá, sodaß schon etwas Rio Negro-  
Wasser beigemischt ist.

Jararaca-Igarapé und Jandiá-Igarapé: Kleine Bäche wenige km  
landeinwärts von Sitio Tatá (siehe oben). Die untersuch-  
ten Quellbäche dieser Bäche haben teils schwarzes, sehr  
saures, teils kristallklares, weniger saures Wasser.

Caburís-Igarapé und Iaitima-Igarapé: Kleine Bäche wenige km  
landeinwärts auf dem linken Ufer des Rio Negro gegen-  
über dem Orte Içana (dem früheren São Felippe).

30  
25.9.1952. Rio Negro in Içana. Ufer, ruhiges Wasser, zwischen  
Wasserpfannen und Algenmatten, 10-30 cm tief.



Lista de material hidrobiológico colecionado na Amasônia em 1952 por  
Dr. Harald Sioli.

Phytoplankton, Algas e to... continuação.

15. 20.11.1952. Igarapé Curí. Phytoplankton (pH 4.5).  
 16. 20.11.1952. Igarapé Curí, Mündungsbucht. Schlickufer mit kurzem  
Gras, 0.40 m tief. Bodenbelag, abgesaugt (pH 4.5).  
 17. 20.11.1952. Igarapé Curí, Mündungsbucht. Heiser aber windiger  
Sonntag. 16<sup>h</sup>15<sup>min</sup>. Oberflächen-Phytoplankton. -  
(pH 4.5).  
 18. 23.11.1952. Rio Arapians vor Enseada de Urubá. 16<sup>h</sup>30<sup>min</sup>. Ober-  
flächen-Phytoplankton. - (pH 4.5~~z~~ - 4.6).  
 19. 25.11.1952. Igarapé-Assú, Mündungsee des Igarapé Curú. Ober-  
flächen-Phytoplankton, 8<sup>h</sup>. - (pH 4.6).  
 20. 27.11.1952. Rio Arapians, Bucht oberhalb der Ponta Icaú. Ein-  
fluß von Tapajós-Wasser. 15<sup>h</sup>. Oberflächen-Phytc-  
plankton. -(pH 5.6!! Schon nahe an der Mündung des  
Rio Arapians in den Rio Tapajós, daher bereits Mi-  
schung mit Wasser aus dem Tapajós, demzufolge beden-  
tend höheres pH und ganz anderes Plankton!).

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One bottle was not listed by Dr. Sioli, and this note is added by A..M.Scott,  
Sept 13 1953

32. 8. 5. 1953. Vigia. Aus Mulden im überschwemmten Campo.  
Brauneswasser. pH 4.3. Leg. Prof. Dr. Paul Ledoux.  
Für Desmidiaceen.



Lista de material hydrobiologico colacionado in Amazônia em 1953  
por Dr. Harald Sioli.

Proben für Diatomeen. - - - - - Amstras para Diatomáceas.

Região da Estrada de Ferro de Bragança e vizinhança.

Gebiet der "Eisenbahnlinie Belém-Bragança" und Umgebung, d.h. östlich von Belém-Pará, von der Küste im Norden bis zum Ufer des Rio Guamá.

- 49 12.8.1953. Igarapé Assaf. Bewuchs und Belag auf Hölzern.
- 50 12.8.1953. Igarapé Guarimã. Ausgedrückt aus Wasserpflanzen mit Eisenniederschlag in ruhigen Wasser.
- 51 12.8.1953. Igarapé Guarimã. Ausgedrückt aus Algenwatten in Strömung.
- 52 16.8.1953. Igarapé do Juvencio. Auf Nymphaeen, Elaeocharis etc. ausgewaschen. Stagn. Wasser.
- 53 16.8.1953. 2. Igarapé do Caripi. Auf Nymphaeen etc. am Ufer. Ausgewaschen.
- 54 23.10.1953. Rio Guamá in São Domingos. 17<sup>h</sup>. Flut, tägliches dezeitiges Hochwasser. - Phytoplankton.
- 55 23.10.1953. Rio Guamá in São Domingos. 11<sup>h</sup>. - Phytoplankton.
- 56 24.10.1953. Rio Capim, ± 10 km oberhalb Mündung. Auflaufendes Wasser. 17<sup>h</sup>. - Phytoplankton.
- 57 26.10.1953. Rio Guamá vor Mündung des Igarapé Murupucu. I. A. N. Belém. 15<sup>h</sup>. Gezeitenhochwasser. - Phytoplankton.
- 58 9.11.1953. Igarapé Corema bei Salinópolis. Aus besonnenen Grünalgenwatten ausge-drückt.
- 59 10.11.1953. Igarapé 11.9 km vor Pirabas. Aus Wasserpflanzen ausge-drückt.
- 60 11.11.1953. Rio Urindéua. Aus Algen ausge-drückt.
- 61 11.11.1953. Igarapé Capanêma, 8 km westlich Capanêma. Aus Algen ausge-drückt.
- 62 16.11.1953. Rio Guamá in Ourém 10<sup>h</sup>. - Phytoplankton.

Envio de Novembro de 1953 ao

Mr. A. M. Scott, Civil Engineer,  
2824 Dante Street,  
New Orleans 18, La., USA.

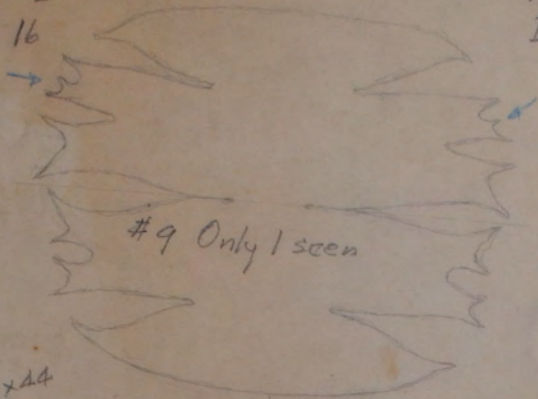
Repetition of broken samples:

- 63 23.9.1952. Rio Negro in Içana. Ufernähe. - Phytoplankton.
- 64 17.11.1952. Cachoeira do Aruã. Tümpel im versumpften Tal mit Patavasal  
des Ig. do Fonseca. Bodenbelag, abgeschöpft.

Patavasal

L 85  
W 102  
I 16

L 76  
W 99  
I 15



10x44

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Aug 12/60



L 80  
W 91  
I 16

L 103  
W 116  
I 18

#5. Only 1 seen

#7 Only 1 seen

L 82  
W 104  
I 15

60.2  
17.2

L 82  
W 104  
I 17

#6 Only 1 seen

#8. Similar to #2

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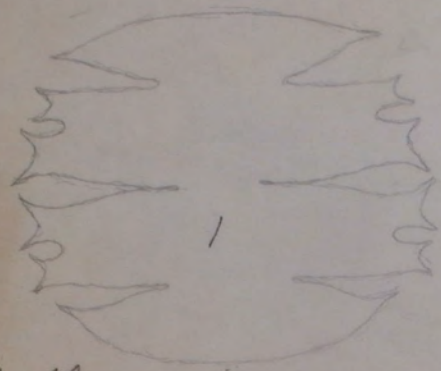
Sandstone quarry near Brisbane  
Coll. A. B. Cribb.

Aug 11/60



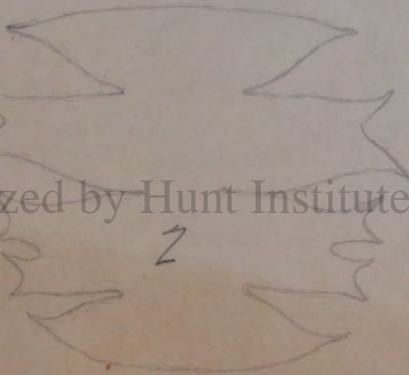
L 78  
W 93  
I 16

1. Common
2. Less common
3. Scarce
4. Only 1 seen



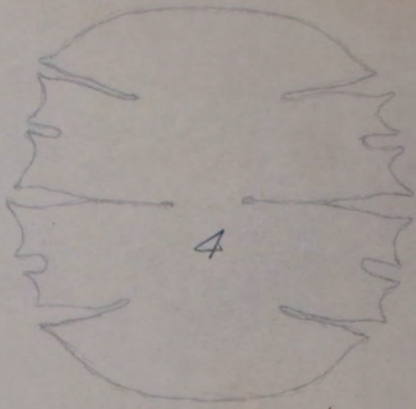
10x44

677  
98.8  
9.1

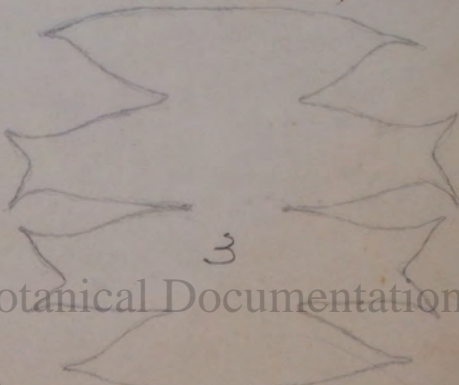


W 99  
I 16

L 86  
W 90  
I 16



L 82  
W 102  
I 18



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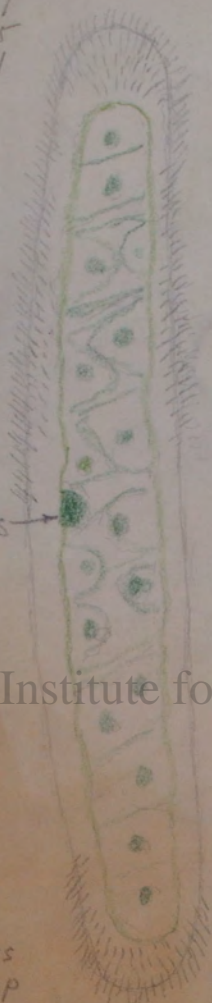
Sandstone quarry near Brisbane  
Coll. A. B. Cribb  
Aug 10/67

L SSP 153  
CSP 159  
W SSP 25  
CSP 31

Spirotaenia ?

Nucleus →

15 x 44



Wall colorless, very thin,  
densely covered all over with  
very fine "hairs."  
Chloroplasts <sup>taenio-</sup> parietal, spirally  
arranged.

Mount Compass  
Swamp

S. Australia 202

Feb 23/60

L semicell 48

W 75

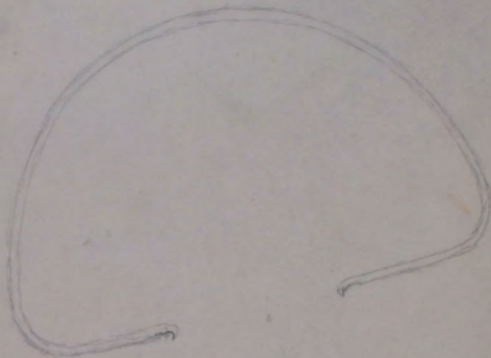
I 29

T 43



15x44

48.0  
49.7



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Wall closely & uniformly porous  
All pores same size

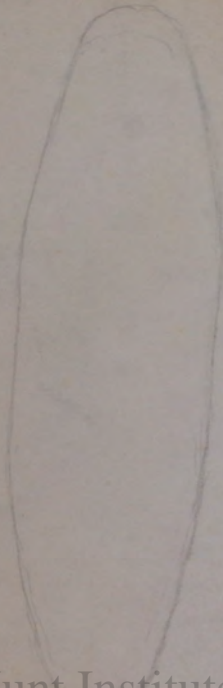
S. Australia 201

Feb 23/60



L 213

W max 63



$7\frac{1}{2} \times 44$

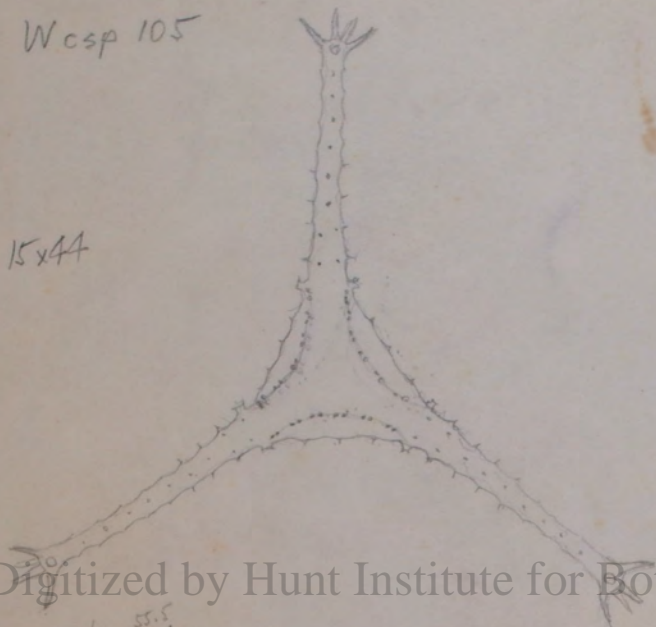
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Brazil 10 + 11

Aug 17/59

Wcsp 105

15x44



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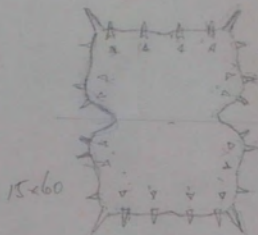
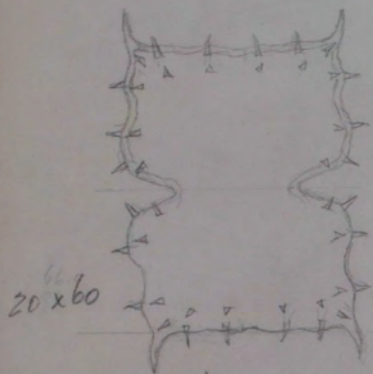
59.6  
51.9  
59.6

55.5  
92.6  
89.1

Schumacher  
N. Carolina E-2.

July 20/59

L SSP 22  
 CSP 27  
 W SSP 18  
 CSP 21  
 I 10  
 T 12



L SSP 24  
 CSP 30  
 W SSP 20  
 CSP 22  
 I 10

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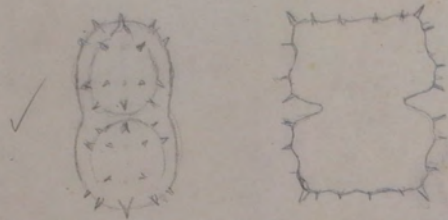
Brazil 8

Aug 10/59



L SEP 20  
OSP 24  
W SEP 17  
OSP 19  
I 7  
T 11

Xanthidium multispinosum sp. nov. B98



20x44

Incomplete  
Details concealed by chloroplast

To G 4/5/54

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Brazil 8

Oct 9/53

20x44

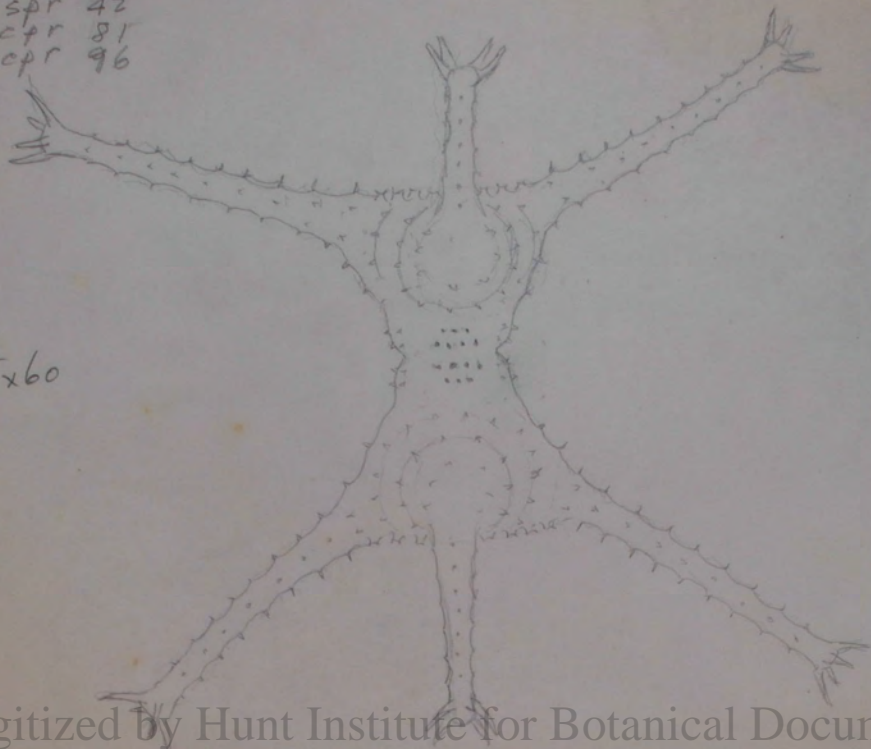


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L spr 42  
cpr 81  
W cpr 96

I 10

15x60



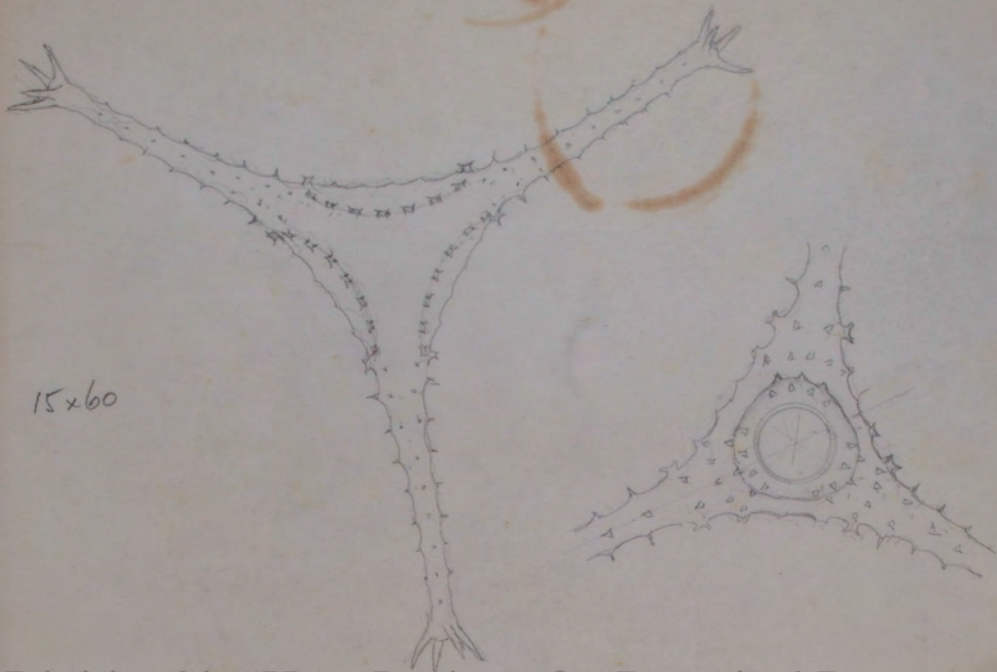
Digitized by Hunt Institute for Botanical Documentation

Schumacher  
N. Carolina E-2

July 22/59



W apr 90



15x60

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George J. Schumacher

N. Carolina E-2

July 24/59

L 49  
Wesp 42  
osp 45  
I. 25  
T 30



617  
459  
Xank

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Malaya 148  
Prowse

June 1<sup>st</sup>/58

L spr 16  
cpr 35  
W spr 12  
cpr 42  
I 9

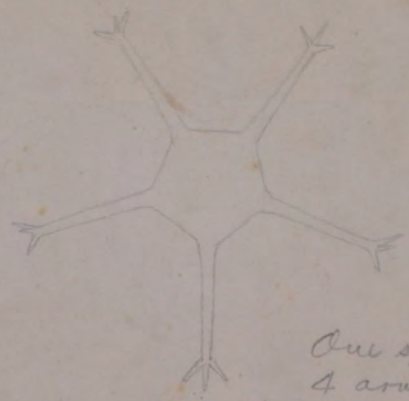
If this is new I suggest the name 2085

Staurastrum tryssos sp. nov. new species

~~cf St. pentactinum Krieg~~  
~~" St. Thienemannii Krieg~~

cf Borge

Stems nearest to  
S. stellifera Borge  
1925 pl. VII p. 3  
> "var. glabra"  
new var.?



15 x 65  
x 1750

One spec. seen with  
4 arms on 1 armicell  
5 on the other.

The 5-radiate form  
is more common

Also occurs in a 4-armed form

Very dainty & delicate.

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Fairly common

Fla 93

Dutch 3 m S of Kenansville

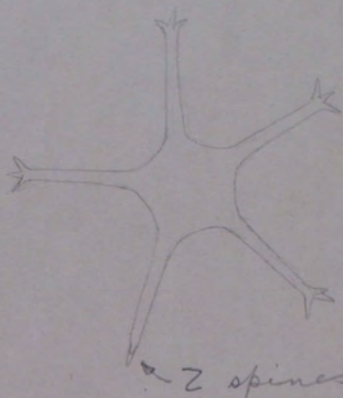
12/14/47



2086

L spr 17  
cpr 39  
W spr 12  
cpr 39  
I 9

Top view of another spec  
Wepr 39



2 spines

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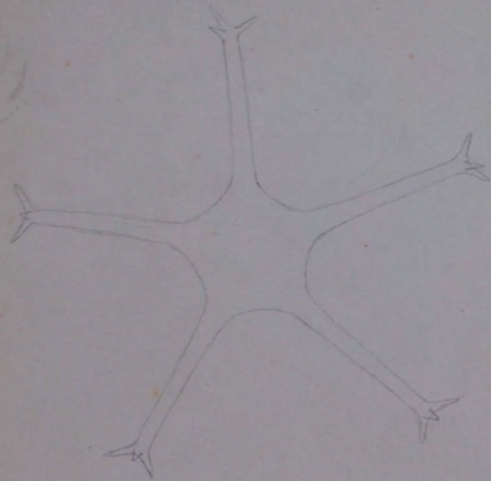
Common

Fla 93

4/17/48

Wepr 52

2087



15x65

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Fla 91

Very rare

4/11/48

L 49  
W 31.5  
I 15

*C. contractum* ?  
*C. moniliforme* ?

1278

Top view circular  
Wall punctate



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Rare

La 106 <sup>mm</sup> Ditch 1m W of Bouette La 6/12/45



L 50  
W 31.5  
I 10

*Cosmarium contractum Fries.* 1279



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La #91 Ditch 2 m S of Hickory La

9/29/42

L 38.5  
W 26.5  
I 8.2

1280



Finely punctate

*Cosmarium contractum?* small

Scarce

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La #50 Ditch 6 1/2 m NW of Boufouca La

11/2/41

L 57  
W 47  
I 13.5

Specimen lost in manipulation  
Believe surface is smooth, or  
perhaps faintly & coarsely punctate

1281

Only 1 seen

*Cosmarium contractum*  
var *ellipsoideum*? ||

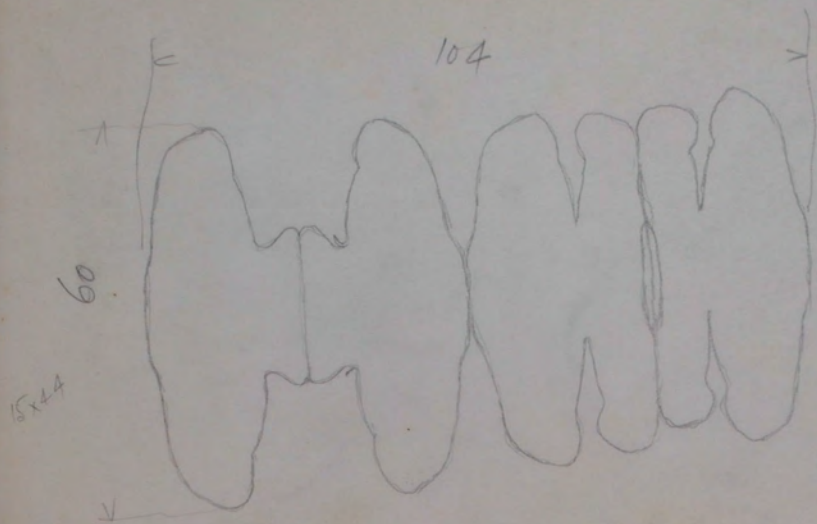


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La #32. Ditch 3.8 m W of Hickory La

7/20/41

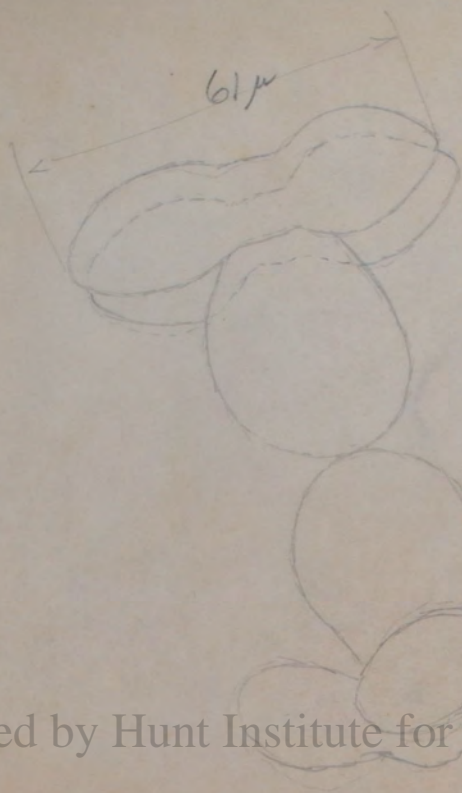




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Fla 11

Nov 6/57



*Sp. pulchrum*

early stage of  
conjugation

Contents decomposed

15 x 44

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both in same stage

*Fla 11*

Nov 6/57

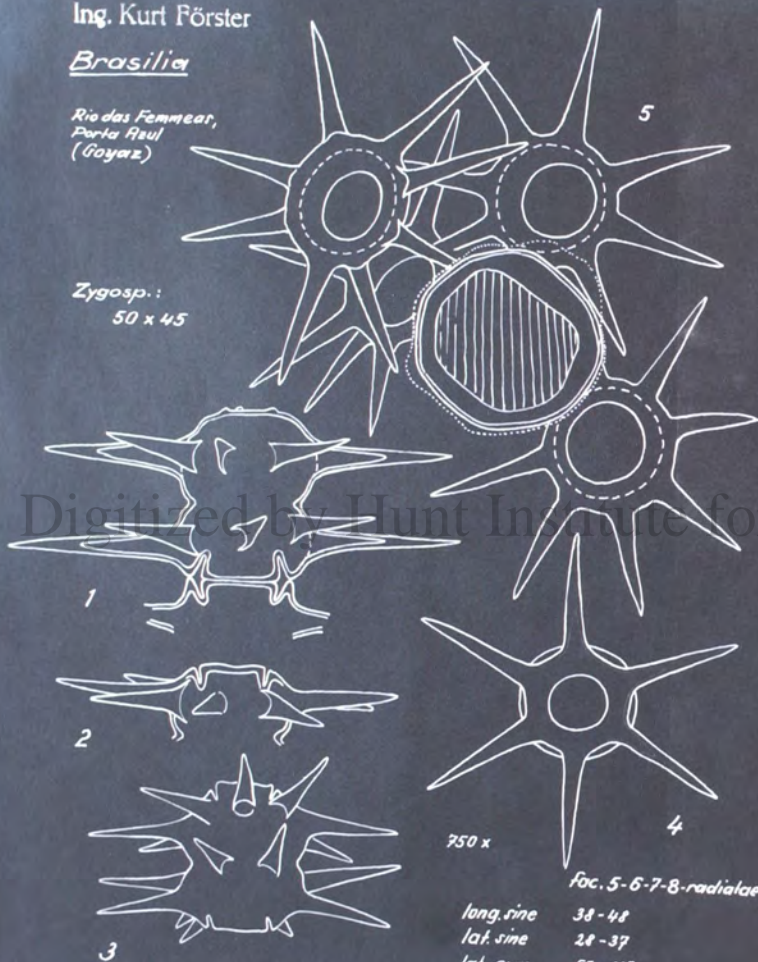


Ing. Kurt Förster

Brasilia

Rio das Formeas,  
Porta Azul  
(Goyaz)

Zygosp.:  
50 x 45



750 x

fac. 5-6-7-8-radiatae

long. sine 38-48  
 lat. sine 28-37  
 lat. cum 55-115  
 isthm. 17-28  
 apex 15-22  
 long. acul. 26-39

Fo<sup>II</sup>

Material Lützelburg

Ing. Kurt Förster

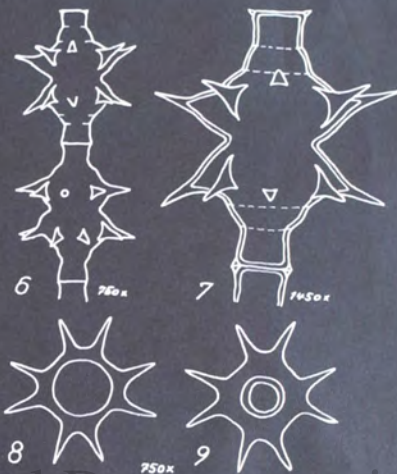
Brasilia

Rio das Formeas  
Porta Azul  
(Goyaz)

Material Lützelburg

long. 33-35  
 lat. sine 16-23  
 lat. cum 28-42  
 apex 75-11  
 isthmus 13-14  
 long. acul. 5-11

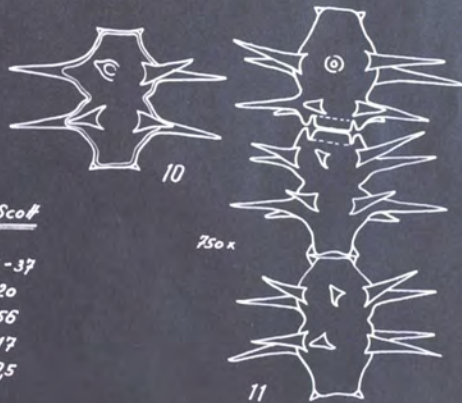
fac. 4-radiata



750x

750x

750x



750 x

Brasilia

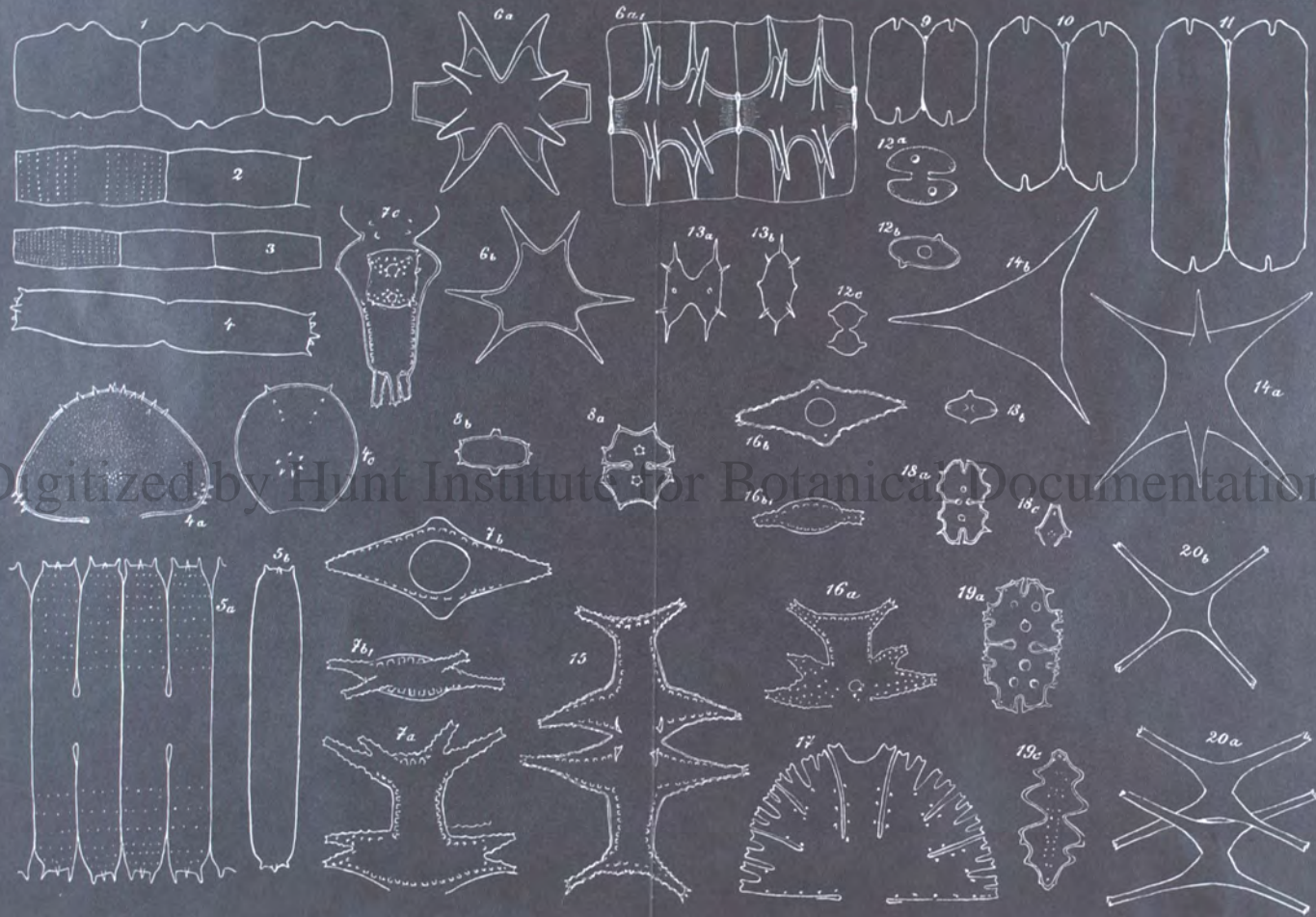
Material Scott

long. 31-37  
 lat. sine 20  
 lat. cum 56  
 isthm. 17  
 apex 9,5

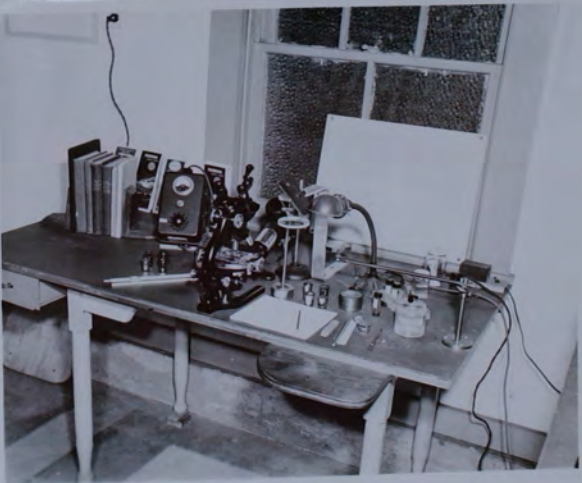
fac. 3-radiata

Fo<sup>II</sup>





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SIZE OF  
ROLL

NUMBER OF  
NEGATIVES

SIZE OF  
NEGATIVE

~~4~~  
3

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6. *P. ornatum* (NORST.) (Doedicium ovatum NORST. Doedic. Brasil. in Vidensk. Meddel. f. Naturk. For. i Kjob. 1869 pag. 205).

Locellus sphaerica apicalis corpusculis numerosis repletus. Capivary ad Cadda parv.

Subgen. II. *Triplocera* (BAILEY) RAB. Semicellulae apice 2-4 lobae.

7. *P. lobatum* nov. spec. Tab. II, fig. 3.

P. valde elongatum, circiter 15-19 partibus longius quam latius (cylindricum), ad apicem versus paululum angustatum, in medio constrictum, stricturae margine non prominente; semicellulae prominentibus verticillis apice bidentatis, denticulis superioribus acutis majoribus adscendentibus (praecipue in verticillis superioribus), inferioribus minoribus papilliformibus (in verticillis superioribus fere inconspicuis).

8. 10 in unoquoque verticillo, ornata, verticillis 14-18, in apice paululum dilatato-bilobae lobis 2-3-aculeatis.

Quae species a *Triplocer*, gracilis processibus non integris praecipue differt. In Scania et Bahamae Sueciae tantum exempla *Tripl.* gracilis apicalibus bilobis vidi.

Long. 500-520  $\mu$ ; lat. 26-33  $\mu$ ; lat. isthm. 12-14  $\mu$ . Capivary prope Cadda.

Gen. VI. *Phymatodocia* nov. gen.

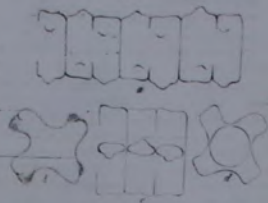
Cellulae in his nodis, long. fere, arte communi, subquadratae, medio sinu lineari angustae constrictae. Semicellulae (quasi-radiatae latere uno radiorum tuberculo) ornatae, latere altero nudo, quo fit, ut pars dextra (ut spectatori videtur) lateris frontalis 2) semicellularum superiorum cum

1) Tale nomen genericum (quae = later et dext., ut tubercul.)  
2) In forma tetragona sinuam. Domiciliorum quatuor sunt latera frontalia similia.

parte sinistra semicell. saepe. prorsum congruat, partes dextrae et sinistrae autem ejusdem cellulae a fronte vix dissimiles sunt, margine dextra semicell. super protuberantia ornata, sinistra recta tuberculo infra marginem sito ad spectatorem vertente. Zygoapex magna, canalem copulationis et marginem partem cellularum copularum occupantes.

1. *P. ulterius* nov. spec. Fig. xylogr. I et Tab. II, fig. 4.

Fig. 1.



P. fere tam longa quam lata, medio leviter constricta sinu lineari angustissimo; semicellulae a fronte vix (in quo situ anguli tantum 2 sunt conspicui) transverse rectangulares, apice recta, margine dextra semicellulae superioris (et sinistrae semicell. inferioris) tuberculo basi lato, apice obtuso, paululum infra medium sito, ornata, margine sinistra semicellulae superioris (et dextrae semicell. infer.) integra recta (sed tuberculo (ut descript.) paululum infra marginem sito ad spectatorem vertente); a latere vix (in quo situ anguli 3 ad spectatorem versi sunt) rectangulares margine laterali recto; a vertice vix quadrilata lateribus profunde sinuatis radius apice rotundato-truncatis (angulo sinistro saepe producto). Zygoapex rectangulares apicalibus subtruncatae, apicem versus

leviatis apice rotundato-truncata, lobis omnibus ad apicem mucronato-granulatis; a vertice vix rectangulares apicalibus (= lobulis superioribus loborum laterali) rotundis paululum tumidis, utroque latere tumidibus bilobis parvis et tumore medio majori, a basi ipsa vix apicalibus obtusis; a latere vix vixae brevissime retuso fere capitato-dilatata. Latitudo lobi polaris fere tertia pars diametri longitudinalis corporis. Latitudo isthmi, longitudinem lobi polaris aequans, fere quarta pars diametri transversalis cellulae; transversalis corporis latitudine isthmi duplo major.

Long. 61-74  $\mu$ ; lat. 56-64  $\mu$ ; crass. 30  $\mu$ ; lat. isthmi 15-16  $\mu$ ; lat. lob. polar. 24-26  $\mu$ .

Habitu fere E. belli NORST. Iuperima differt lobo polari breviori 1) sed latere, lobis lateraliibus evulgentibus bilobatis, lobulo superiore a vertice vix apice recto. — Quae species cum E. platycera REISSCH (Contrib. ad Algol. et Funz. pag. 85, tab. XII, fig. 6) identica sit, analog. ex descriptione et figura manca judicare non possumus.

Fortasse tantum forma E. belli sit; una semicellula E. belli + Lagoa Santa lobis lateraliibus a vertice vix rotundis, ceteris normalis, forma intermedia inter has duas species esse videtur.

Gen. IX. *Microsterias* MEISNER.

1. *M. ferata* RALPH.

Capivary ad Cadda.

2. *M. ornatum* BAILEY (Smithson. Contrib. to Knowl. 1850 p. 37, no. 6, tab. 1, fig. 6).

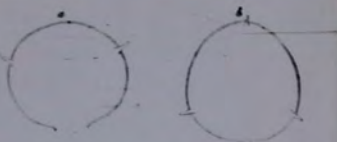
Omnis apices loborum sunt mucronati. Semicellulae a vertice vixae fusiiformes; a latere rectangulares prope apicem plus minus angustate productae. Fig. xylogr. II, 1, 2, c.

Long. 86-120  $\mu$ ; lat. 75-114  $\mu$ ; lat. isthmi 15-18  $\mu$ ; crass. circ. 25  $\mu$ .

Capivary ad Cadda.

1) Tale nomen specierum.

1877  
1209 24



8. *S. magnum*, fere duplo longius quam latius, medio profunde constrictum sinu acutangulo; semicellulae subcirculares, utroque latere ad marginem paulo supra medium aculeis singulis parvis adscendentibus ornatae; a vertice circulari-triangularibus angulis aculeis singulis ornatis. Distantia aculeorum ab isthmo: dux partes diametri longitudinalis semicellulae. Latitudo isthmi circiter tertia pars diametri transversalis cellulae. Membrana punctata. (Verisimili ad nomen *Phlebotomium* LUND. pertinens).

Long. 127-143  $\mu$ ; lat. 74-83  $\mu$ ; lat. isthm. 25-29  $\mu$ . Capivary ad Cadda.

3. *S. Rotula* NORST.

Capivary prope Cadda.

4. *S. leptocaulum* NORST.

Forma 9-gona. Semicellulae a vertice vixae 9-radiatae processibus dorsalibus 6.

a. minor.

Lat. sin. rad. 21  $\mu$ ; c. rad. 58  $\mu$ .

b. major.

Long. sin. rad. circiter 60  $\mu$ ; lat. sin. rad. 38  $\mu$ ; lat. c. rad. 172  $\mu$ ; long. rad. max. 60  $\mu$ .

Capivary ad Cadda.

constrictum, sinu exterosum valde ampliato; semicellulae globosae sed dorso processibus semis oblique sursum versis, in media parte notatis (in semicellula a fronte vix tantum 5 visibilibus) exterosum directis, ornatae, processibus omnibus rectis levibus apice bifidis, basalibus minoribus; a vertice vixae 6-gona angulis in processum (ut descript.) productis, a basi ipsa vixae 9-gona. Latitudo isthmi dux partes latitudinis cellulae (rad. exilis). Longitudo processuum dorsorum dux partes, long. proc. basaliium quarta pars latitudinis cellulae (proc. exilis).

Long. sine proc. 24  $\mu$ , c. proc. 44  $\mu$ ; lat. sin. proc. 18  $\mu$ , c. proc. 25  $\mu$ ; lat. isthmi 11,3  $\mu$ ; long. proc. dorsal. 12  $\mu$ , basal. circ. 5  $\mu$ .

Unam tantum exemplum e Lagoa Santa a me visum est.

Gen. XI. *Xanthidium* EHRBEN.

1. *X. dilatatum* (BRECK) KUTZ.

Haec forma a me inventa sunt:

a) *X. triquetrum* LUND. Forma brasiliensis. Fig. xylogr. IV.

A forma suecica differt magnitudine et semicellulis medio callo fusco nullo, dorso latissimis, aculeis (geminatis) superioribus et inferioribus magis approximatis. Unam tantum exemplum a me visum est. Fortasse propria sit species, melius ad genus *Staurastrum* adnumeranda.

Long. 116  $\mu$ ; lat. 108  $\mu$ ; lat. isthmi 57  $\mu$ ; long. spin. 30  $\mu$ .

Capivary prope Cadda.

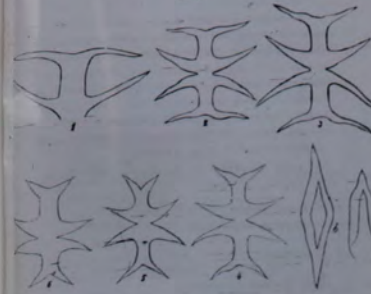
3. *expansa* (*Microsterias expansa* BAILEY l. c. no. 7, tab. 1, fig. 7). Fig. xylogr. II, 5, 6, b.

Long. 72-84  $\mu$ ; lat. 66-73  $\mu$ ; crass. 23  $\mu$ ; lat. isthm. 12  $\mu$ .

Capivary ad Cadda.

Quam transitio a *M. expansa* in *M. arcuat.*, ut mihi videtur, saepe occurrit, has formas in usam speciem reduci. Cf. fig. nostr. xylogr. II, 1-2. *M. arcuata*, 5-6. *M. expansa*; 3-4. *f. intermedia*.

Fig. II.

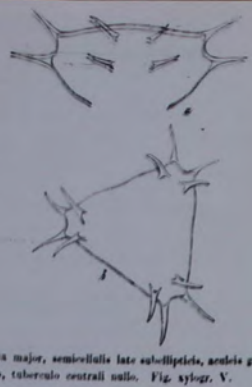


Gen. X. *Staurastrum* MEYER, RALPH.

1. *S. exornatulum* NORST.

Long. 90-98  $\mu$ ; lat. 50-52  $\mu$ ; lat. isthm. 30  $\mu$ .

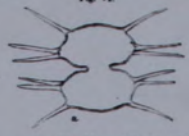
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pag. 27

periculis singulis [varietas in exemplis a Lagoa Santa geminata], tuberculo centrali nullo, aced intertub. membranosa in medio fuscaceo et parvis incrassata. Fig. xylogr. VI.

Fig. VI.



Long. s. spin. 60-64 μ; lat. sin. spin. 46-52 μ, c. spin. 100-110 μ; crass. 32 μ; lat. isthm. 13 μ; long. spin. max. 42 μ.

Caspivary ad Caldas.

2. *X. regulare* NOEDT.

Forma semicellulis a fronte visis aculeis in centro singulis, a vertice visis utroque latere aculeis singulis non geminatis. — Versimiliter forma normalis. Tab. II, fig. 10.

Long. sin. proc. acul. 48-50 μ, c. proc. sin. acul. 60-66 μ, c. proc. et acul. 105 μ; crass. sin. acul. circ. 60-70 μ, c. acul. 94-112 μ.

Caspivary prope Caldas.

forma major, semi-cellulis late subultraleis, aculeis geminatis, tuberculo centrali nullo. Fig. xylogr. V.

Fig. V.



Long. sin. spin. 96-100 μ; lat. sin. spin. 70-72 μ, spin. 166 μ; crass. 56 μ; lat. isthm. circ. 27 μ; long. n. max. 48 μ.

Caspivary ad Caldas.

[Corticoida in Dumal. Bras. (in Vidensk. Meddel. fra det Naturhistoriske Foren. i Kjobenh. 1902).]

- Fig. 229 lin. 28 per 8-gauge lege: 6-gauge
- 230 - 1 - 0.0006 = 15 lege; 0.00082 = 21
- 231 - 15 - c. acul. lege: lat. sin. acul.
- - - 16 - Lat. sin. lege: Long. c.
- - - - - c. lege: lat. c.
- 234 - 31 - " lege: "

1877 p. 28

Explicatio litterarum.

- a = cellula vel semicellula a fronte visa
- b = - - - - - vertice -
- c = - - - - - latere -
- d = - - - - - basi -
- e = spora a fronte visa cum cellulis residuis.
- f = - - - - - latere -

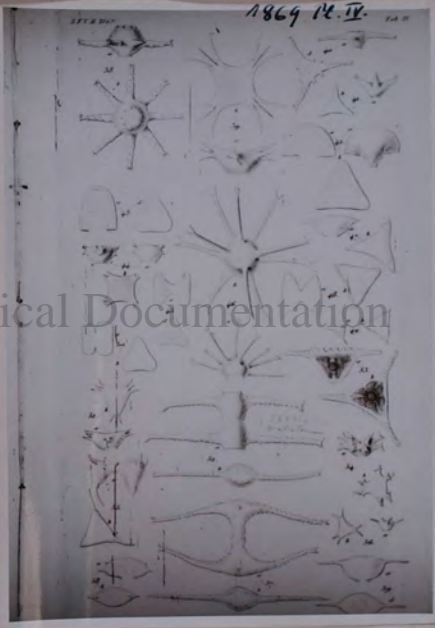
Tab. II.

- Fig. 1. *Cladonia sarcopora* nov. spec. a (100 μ), b (21 μ).
- 2. *Plectrocladia caldas* nov. spec. (100 μ).
- 3. (*Tryphocera*) *delicatula* nov. spec. (100 μ).
- 4. *Phyatodiscus alternans* nov. spec. et spec. (21 μ).
- 5. *Cocconium pseudocanthocladum* nov. spec. (100 μ).
- 6. *Lapanea* NOEDT. f. *coriacea* nov. var. (100 μ).
- 7. *Euastrea atropurpurea* NOEDT. f. *rotunda* nov. var. (100 μ).
- 8. *Acrocybe* nov. spec. a, c (100 μ), b (100 μ).
- 9. *Stictocarpus inaequalis* nov. spec. (100 μ).
- 10. *Xanthidium regulare* NOEDT. Forma (100 μ).

Figure xylographice impressa.

- Fig. 1. *Phyatodiscus alternans* nov. gen. et spec. (100 μ), a = 3] cellula, c = 1] cell.
- II. *Microstictis arcuata* RAIL. 1-6 (100 μ), 7-8 (100 μ), 1, 2, c = a; 5, 6, b = 3 expansa; 3-4 = forma intermedia.
- III. *Stictocarpus cryptocanthocladum* nov. spec. (100 μ).
- IV. *Xanthidium antiporum* (BEEK) R. & S. f. *triquetrum* LAND. f. *brasillicum* (100 μ).
- V. - - - - - f. *major*.
- VI. - - - - - f. *minor*.

MOENCH, DET. F. A. SCHUBERT & WILK.



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Explicatio litterarum.

p. 233.

- a = Cellula vel semicellula a fronte visa.
  - b = - - - - - vertice -
  - c = - - - - - latere -
  - d = - - - - - basi -
  - e = Lobus puncta a vertice visus.
- Testum in Sep. 17<sup>to</sup> h. 27<sup>to</sup> a. 22 a. d. gnomi sectione colorata esse.

Tab. II.

- Fig. 1. *Cladonia peruviana* n. sp. (100 μ).
- 2. - *Lapanea* n. sp. (100 μ).
- 3. *Euastrea atropurpurea* n. sp. (100 μ).
- 4. - *Isaria* (Tary) B. & S. forma *Lapanea* a. var. (100 μ).
- 5. - *quadripeta* n. sp. (100 μ).
- 6. - *bellum* n. sp. (100 μ).
- 7. - *volutum* n. sp. (100 μ).
- 8. - *schottianum* n. sp. (100 μ).
- 9. - *lacrym* n. sp. (100 μ).
- 10. - *quadrum* n. sp. (100 μ).
- 11. *Microstictis radialis* RAIL. f. *serena* n. var. (100 μ).
- 12. - *serena* BEEK. RAIL. f. *serena* n. var. a (100 μ), b (100 μ).
- 13. - *serena* BEEK. RAIL. f. *serena* n. var. a (100 μ), b (100 μ).
- 14. - *trigona* n. sp. a. n. n. (100 μ), b. (100 μ).
- 15. - *trigona* n. sp. (100 μ).
- 16. - *hilares* BAIL. f. *serena* n. var. (100 μ).

Tab. III.

- 17. *Cocconium pseudocanthocladum* n. sp. (100 μ).
- 18. - *brachyocladum* n. sp. (100 μ).
- 19. - *reticulatum* BEEK. f. *serena* n. var. (100 μ).
- 20. - *serena* BAIL. f. *serena* n. var. (100 μ).
- 21. - *serena* n. sp. (100 μ).
- 22. - *manilliforme* n. sp. (100 μ).
- 23. - *truncatum* n. sp. (100 μ).
- 24. - *pseudocanthocladum* n. sp. (100 μ).
- 25. - *serena* f. sp. (100 μ).
- 26. - *serena* n. sp. (100 μ).
- 27. - *peruviana* n. sp. (100 μ).
- 28. - *peruviana* n. sp. (100 μ).
- 29. - *Carpocarpus* n. sp. (100 μ).
- 30. - *brachyocladum* n. sp. (100 μ).



viliforme Ralfs, ils sont communs et chez toutes ces trois espèces ils sont différents.

Le *Coscinotus bicoloratus* Rehb. paraît comprendre plusieurs espèces. Des exemplaires originaux ressemblent au *Cosm. Deanevici* 2, 3, 4; Kiehl Ostpruss. Desm. p. 33, t. 3, fig. 41; les demi-cellules avaient au milieu un faible gonflement.

La figure de Rehb. du *Cosm. bicoloratus* montre des cellules pas tout au face, mais un peu inclinées; le sommet doit être un peu plus arrondi. Ici appartient probablement le *C. Chyaplo* Jarch.

On ne saurait dire ce que représente la figure de *Coscinotus Cosmida* Corda dans Alm. de Carlsbad 1835; elle ne paraît pas du tout s'adapter à l'espèce à laquelle Ralfs et d'autres après lui ont donné ce nom. Chez Corda l. c. on ne trouve aucune description de l'espèce.

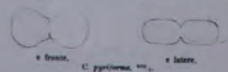
Les demi-cellules du *Stenocratus arcticus*, même sur l'exemplaire original dans Rab. Alg. Europ. n° 1592 peuvent être un peu plus largement elliptiques ou presque trapézoïdales (à peu près comme chez le *C. Belgicus*). Les épines sont disposées par rangs.

Le *Stenocratus silesiacus* Hille Rab. Alg. Europ. n° 1826 n'est qu'une forme peu remarquable du *S. arcticus*, et qui ne peut pas même être comprise comme une variété.

Il est vrai que M. Jacobsen a expliqué (l. c. p. 212) que les "isthmi" du *Spharocratus filiformis* étaient disposés comme chez le genre *Omphalotus*, mais il n'a pas donné une description détaillée de cette plante. Comme beaucoup d'autres, il pensait probablement à ce que Turner appelle *O. Nordostbalticum*, lequel tout il faudra garder jusqu'à nouvel ordre; puisqu'on est peu sûr de ce que c'est que *Tetradium filiformis* Ehrh. et qu'une forme encore plus ressemblante à la figure d'Ehrenberg que celle de Turner paraît avoir été trouvée (voir Cooke Brit. Desm. t. 2, f. 6).

Bebbison n'a jamais publié aucune description de son espèce *Dicranella laraburgensis*.

25. *C. woodiiforme* (Turp.) Ralfs Br. Desm. p. 107, t. XVIII, f. 8. *Tetradium woodiiformis* Turp. Dict. des sc. Nat. 1820 sec. Ralfs.  
Membrana subtilissime punctata, opae laevissima.  
Long. 0,001" — 28 p. Lat. 0,0003"—82" — 16—21 p.  
26. *C. pygmaea* n. sp.  
*C. mediore*, leve, diametro leve duplo longius, profundissime constrictum, sinus angulo linearis, a latere vixum oblongum; semicellulae breviter leviter rotundae, a latere truncatae, lateribus rotundatis inferius leviter rotundis, angulis inferioribus subrectis. Latitudo basis dimidium circiter diametri transversalis corporis. Articulii conjuncti latitudine circiter aequa pars diametri transversalis corporis. Crassitudo corporis duo partes latitudinis.



Long. 0,0025" — 63 p. Lat. 0,0013" — 34 p. Crass. 0,00087" — 23 p. Art. conj. 0,0003" — 7,5 p.  
27. *C. varicosum* n. sp. Tab. III, fig. 23.  
*C. parvum*, diametro leve duplo longius, medio constrictum late excavatum, a vertice vixum orbiculare; semicellulae subopae, angulis crenulatis, membrana verrucosa verrucula abbreviata.  
Long. 0,00083" — 20 p. Lat. 0,00045" — 11,5 p. Crass. 0,0003" — 7,5 p.

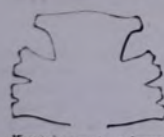
28. *C. pseudocrossatum* n. sp. Tab. III, fig. 17.  
*C. mediore*, ovale, subquadriforme, medio leviter sinuato-constrictum, utroque polo late rotundatum, angulis integerrimis, a vertice plane orbiculare, angulis angustioribus; semicellulae subhemisphaericae; membrana subtiliter punctata, acribus

vel laevissima. Diametri transversalis diametri longitudinalis duo partes.  
Long. 0,00165" — 43 p. Lat. 0,0011" — 28 p. Crass. 0,00098" — 23 p.  
29. *C. parvum* Rehb. List. d. Desm. p. 133, t. I, f. 18. Membrana subtilissime granulato-punctata.  
Long. 0,0011—135" — 25—34 p. Lat. 0,00039—67" — 15—17 p.  
30. *C. craciforme* De By. Conj. p. 72, t. VII G, f. 3—6. Membrana subtilissime punctata. Structuram massae chlorophyllaceae mihi non licuit observare.  
Long. 0,00071—91" — 15—23 p. Lat. 0,00043" — 11,5 p.

Nastrum Ehrh.

Abb. 1831, p. 82, mut. char.; Ralfs Br. Desm. p. 75.  
1. *E. quadratum* n. sp. Tab. II, fig. 10.  
*E. mediore*, quadrangulare, tertia parte leve longius quam latius, profunde constrictum sinus linearis extorsum non dilatato; semicellulae tumore basali instructae, 3-lobatae, sinibus brevibus, lobo polari breviter cylindrico, in apice truncato, leviter incavo-emarginato, lobis intermediis adscendentibus-subrectis in apice rotundatis, lobis inferioribus rotundatis-truncatis, angulis inferioribus subrectis, a vertice vixum elliptico, in medio inflato apicibus rotundatis, a latere conspicua tumore basali instructa tam longe quam crassa. Membrana granulato-verrucosa.  
Long. 0,0022—29" — 56—74 p. Lat. 0,0018—9" — 46—18 p. Crass. 0,00116" — 29 p.  
Nastrum verrucosum Ralfs et Antl., *E. corr.* J. Wallich l. c., *E. orbiculare* Wall. l. c., *E. quadratum* Mihi, *E. orbiculare* Bulschheim in Rab. Alg. Nr. 1571, *E. verrucosum* Ehrh. Verber. t. IV, f. 17, *E. orbiculare* var. Grun. l. c., *E. herpidium* Grun. l. c., *E. herpidium* Wall. l. c. una langquam series sunt.

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Long. 0,0005" — 115 p. Lat. 0,0018" — 123 p. Lat. lob. pol. 0,0031" — 83 p. Crass. 0,0002" — 32 p. Cit. Focke Phys. Stud. I, tab. I, f. 11.

*Microrotaria truncata*, y Lagerstedt

B. M. depressata n. sp.

*M. mediore*, tertia parte longior quam latior, medio profunde constricta sinu acutangulo angusto extorsum ampliato; semicellulae trilobae, lobo polari producto a lobis basilibus sinu amplo ac rotundata discretis, dorso subtruncato apice emarginato angulis bidentatis, lobis basilibus fere quadratis, paululum attenuatis, sinu obtusangulo latissimo in duos lobulos partitis, lobulis obtuse bidentatis dentibus productis divergentibus; semicellulae a vertice vix leve fastiformes. Membrana laevissima evidenter punctata. Lobi polaris latitudo tres quintae partes diametri longitudinalis corporis; latitudo basis lobi polaris triens diametri longitudinalis corporis. Latitudo loborum basaliom fere triens diametri transversalis semicellulae. Est quasi *Micr. truncata*  $\delta$  lobis intermediis deficientibus, unde nomen.



Long. 0,0033"—81—96 p. Lat. 0,0025"—9" — 64—75 p. Lat. lob. pol. 0,0019—23" — 45—59 p. Crass. 0,0009" — 23 p.

*Microrotaria depressata*, 177.

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226. Membrana subtilissime punctata. A fronte tantum vixum. Diam. 0,009" — 224 p.

*Microrotaria* sp?  
Tantum unum individuum manens a me vixum est, fuitque parvulus species, cujus lobi basales et intermedii semicellularum sunt angulati, bilobati, lobis bidentatis, lobulis bidatis, sinibus extremis bidentatis; membrana glabra. A vertice non vixum.  
In heredia nova species a me inventa, quae cum ea forma a fronte vix vixide congruit. Cf. Archer Descript. p. 73, Focke Phys. Stud. I, t. I, f. 1. Long. 0,009" = 224 p. Lat. 0,0071" = 190 p. L. lob. pol. 0,0039" = 66 p.

11. *M. radiosa* Ralfs Br. Desm. p. 72, t. VIII, f. 3; non Ag. Flora, nec Echlinella radiosa Lyngb. Hydroph. Dan. p. 209, t. 60, f. E, 3.

$\beta$ , ornata n. var. Tab. II, fig. 11.  
Membrana subtiliter punctata; semicellulae ad incertum parvarius aculeis parvis ornatae. Ad *Micr. papilliform* valde struenda. Cf. *Micr. papillif.* var. Bulschheim in Hedvigii II, Nr. 10 (1862), p. 58, t. X, f. 3.  
Long. 0,0035—81" — 117—213 p. Lat. 0,0036—80" — 142—203 p.

Nastrum Meyen.

Nor. act. p. 777, mut. char.; De By. Conj. p. 71.  
1. *S. rosarioides* n. sp. Tab. IV, fig. 43.  
*S. mediore*, oblongum, diametro duplo circiter longius, medio constrictum sinu linearis, angulis integerrimis, utroque polo rotundatum; semicellulae subconvexae et basi truncatae sinu sinuque, sed medio, attenuata, angulis inferioribus rectis, a vertice conspicua triangulatae angulis rotundatis, lateribus rectis; membrana subtilissime punctata. Articulii conjuncti latitudine circiter dimidium diametri transversalis.

Long. 0,00165" — 43 p. Lat. 0,0011" — 28 p. Crass. 0,00098" — 23 p.

29. *C. parvum* Rehb. List. d. Desm. p. 133, t. I, f. 18. Membrana subtilissime granulato-punctata.  
Long. 0,0011—125" — 25—34 p. Lat. 0,00039—67" — 15—17 p.

30. *C. craciforme* De By. Conj. p. 72, t. VII G, f. 3—6. Membrana subtilissime punctata. Structuram massae chlorophyllaceae mihi non licuit observare.  
Long. 0,00071—91" — 15—23 p. Lat. 0,00043" — 11,5 p.

Nastrum Ehrh.

Abb. 1831, p. 82, mut. char.; Ralfs Br. Desm. p. 75.  
1. *E. quadratum* n. sp. Tab. II, fig. 10.  
*E. mediore*, quadrangulare, tertia parte leve longius quam latius, profunde constrictum sinu linearis extorsum non dilatato; semicellulae tumore basali instructae, 3-lobatae, sinibus brevibus, lobo polari breviter cylindrico, in apice truncato, leviter incavo-emarginato, lobis intermediis adscendentibus-subrectis in apice rotundatis, lobis inferioribus rotundatis-truncatis, angulis inferioribus subrectis, a vertice vixum elliptico, in medio inflato apicibus rotundatis, a latere conspicua tumore basali instructa tam longe quam crassa. Membrana granulato-verrucosa.  
Long. 0,0022—29" — 56—74 p. Lat. 0,0018—9" — 46—18 p. Crass. 0,00116" — 29 p.  
Nastrum verrucosum Ralfs et Antl., *E. corr.* J. Wallich l. c., *E. orbiculare* Wall. l. c., *E. quadratum* Mihi, *E. orbiculare* Bulschheim in Rab. Alg. Nr. 1571, *E. verrucosum* Ehrh. Verber. t. IV, f. 17, *E. orbiculare* var. Grun. l. c., *E. herpidium* Grun. l. c., *E. herpidium* Wall. l. c. una langquam series sunt.

Long. 0,0012—15" — 30—38 p. Lat. c. rad. 0,0028—28" — 66—97 p.

15. *S. galatitum* n. sp. Tab. IV, fig. 52.  
*S. sublongum*; semicellulae quadrangulae dorso subproductae acutius linearis (vel quatuor?) parvis (a vertice vixum quatuor?) parvis instructae, angulis inferioribus rotundatis, superioribus in radium gracile elongatum acribus crenulato-dentatis apice lobulato-truncatis, a vertice vixum marginis integram apice acuminatum vel trilobatum productae.  
Long. 0,0009" = 23 p. Lat. c. rad. 0,0031—41" — 79—103 p. Crass. 0,00032" — 13 p.

19. *S. polygrammum* Rehb. in Ralfs Br. Desm.  
Forma (obis gracilioribus ad *S. grande* Ralfs fere transiens. Cf. Bailey Desm. l. I, f. 41.  
Long. 0,0009—11" — 23—29 p. Lat. 0,0018—27" — 46—60 p.

*Stenocratus cyphoformis* Rehb. in Ralfs Br. Desm. p. 133, t. XIII, f. 107. Long. 0,0009" = 23 p. Lat. 0,0012" = 21 p.

20. *S. heterocum* (Kie.) Ralfs Ann. Nat. Hist. v. 15, p. 150, t. X, f. 1; *Microrotaria heterocum* Kütz. Synops. Diat. p. 602, t. XIII, f. 83, 84.

Semicellulae a vertice lobulatae.



Lat. s. rad. 0,0000" — 15  $\mu$ , c. rad. 0,0024" — 6 — 49  $\mu$ . Long. rad. 0,0009 — 11" — 23—28,5  $\mu$ . Lat. lobum 0,00037" — 9,5  $\mu$ .

24. S. vestitum Ralls Br. Desm. p. 143.  $\beta$  densatum n. var. Tab. IV, fig. 40. Minor, semicellulae in dorso nuda, vertice valde inflexa. Long. 0,00073—80" — 19—23  $\mu$ . Lat. 0,0014—17" — 35—43  $\mu$ .

25. S. grandiparum n. sp. Tab. IV, fig. 34. S. parvum, circiter tam longum quam latum, marginis externi prominenteribus lateralibus instructum; semicellulae ellipticae vel subglobosae prominentibus 8 lobulatis muscatis, e vertice vix trigona, angulis in apice truncata vel sinuato hi-cuspidatis (= processibus lobulatis a fronte vix), sub apice processibus geminis lobulatis praeditis. Membrana punctulata. Long. s. proc. 0,00067" — 17  $\mu$ , c. proc. 0,001" — 26  $\mu$ . Lat. s. proc. 0,00052" — 13  $\mu$ , c. proc. 0,00099" — 25  $\mu$ . Coastr. 0,0003" — 7,7  $\mu$ .

Xanthidium Ehrh.

Abb. 1833, p. 317, mot. char.; Brch. List. d. Desm. p. 131. 1. X. fasciculatum Ehrh. Inf. p. 147, t. X, c. 24 s. X. scutellatum Ehrh. Metzger. t. I, f. 22 s.

Membrana sicc. vel subtilissime punctata. Long. s. sp. 0,0020—30" — 51—77  $\mu$ , c. sp. 0,0010—48" — 101—122  $\mu$ . Lat. s. sp. 0,0019—28" — 49—66  $\mu$ , c. sp. 0,0043—48" — 114—122  $\mu$ . Coastr. 0,0010—11" — 23—28  $\mu$ .

2. X. tritubum n. sp. Tab. III, fig. 35. X. mediocre, tam longum quam latum, lere octagonum, constitutione mediana lineari; semicellulae tubercula centrali granulata, trilobae lobis truncatis, angulis inferioribus granulato-dentatis, ceteris angulis in dorso in apicem inaequaliter hi-feratis geminatis (a fronte tantum singulis vix) productis, a dorso vix

2. A. macrocarpum n. sp. Tab. IV, fig. 36. A. mediocre, profunde contractum sicut acutangula, aculeis interseptibus armatis, pennis tam longis quam latus; semicellulae transversae ovales vel subhexagonae dorso latissimas rotundatae, angulis lateralibus oppositis aculeis subulato gracili parvis, angulis superioribus macrocarulis, a vertice vix ovales utroque polo aculeis instructis. Membrana glabra vel subtilissime punctulata.  $\beta$  forma angustiora hinc. Interdum in massa gelatinosa involuta.

Long. 0,00090—12" — 21—30  $\mu$ . Lat. s. acul. 0,0014" — 36  $\mu$ . Lat. c. acul. 0,00099" — 43  $\mu$ . Coastr. 0,00065" — 16  $\mu$ . Coastr. 0,0062" — 7,6  $\mu$ .

3. A. conserpens Ehrh. Inf. p. 152, t. X, f. 15.  $\beta$  penula n. var. Habitu 2/3 h. c. XX in Ralls Br. Desm. sed minor crassior aculeis abbreviatis.

Long. 0,00072" — 15,3  $\mu$ . Lat. s. acul. 0,00067" — 17  $\mu$ , c. acul. 0,00095" — 21  $\mu$ . Coastr. 0,00042" — 10,7  $\mu$ .

4. A. subulato Kiz. Spec. Alg. p. 176; Encyclum Nr. 12. ex p. Bailey Desm. p. 15, t. I, f. 12.

a. Forma major. Tab. IV, fig. 59. Long. 0,0023" — 54  $\mu$ . Lat. c. sp. 0,0017—20" — 43 — 54  $\mu$ . Lat. c. sp. 0,0037—43" — 94—110  $\mu$ . Coastr. 0,0018" — 29  $\mu$ .

Interdum in massa gelatinosa involuta.  $\beta$  b. Forma media — fig. 60. Ralls. Long. 0,0043" — 30  $\mu$ . Lat. 0,00271" — 70  $\mu$ . Lat. c. sp. 0,0032" — 27  $\mu$ . c. Forma minor — Arth. sub. Kiz. l. c. Long. 0,001" — 25  $\mu$ . Lat. 0,0019" — 48  $\mu$ . Lat. c. sp. 0,00099" — 23,5  $\mu$ .

19,6  $\mu$ .

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Forma trigona: Long. — Lat. 0,00067" — 13,2  $\mu$ .

21. S. gracile Ralls Ann. Nat. Hist. v. 13, p. 135, Br. Desm. l. XXII, f. 12 b. Long. 0,0019—21" — 48—51  $\mu$ . Lat. 0,0037—40" — 91—103  $\mu$ .

$\beta$  curtum n. var. Tab. IV, fig. 53. Semicellulae a vertice vix trigone lateralibus fere rectis, angulis subito in radium gracillimum attenuatis. Radii longitudo fere dimidium diametri longitudinalis corporis. Long. 0,002" — 50  $\mu$ . Lat. 0,003" — 76  $\mu$ .

22. S. quadrangulare Brch. in Ralls Br. Desm. p. 128, t. XXII, f. 7.

$\beta$  attenuatum n. var. Tab. IV, fig. 41. Semicellulae ad basin magis attenuatae quam in fig. 41. A. formam gallicam magis accedens quam ad anglicam.

a. Forma tetragona: Long. 0,00075—87" — 19—22  $\mu$ . Lat. 0,00066—82" — 10,5—21  $\mu$ .

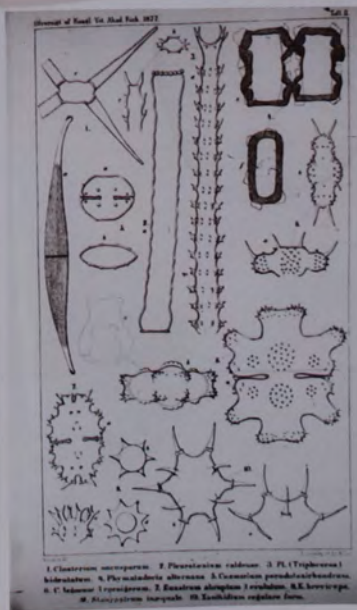
b. Forma pentagona: Long. — Lat. 0,00115" — 29  $\mu$ .

23. S. leptanthum n. sp. Tab. IV, fig. 46. S. submagnum, circiter tam longum quam latum, profundissime contractum; semicellulae subrotundae processibus 8 longis gracilibus apice lobulatis instructis, a vertice vix  $\beta$ -gonae, angulis in processibus longissimos apicem bifidum versus paululum attenuatos productis, in medio 4 processibus similibus praeditis. Longitudo radii tres octavae partes diametri transversalis semicellulae (rad. incl.). Latitudo lobum quique octavae partes diametri transversalis semicellulae (rad. excl.). Membrana glabra, aethra.

Fig. 34. Orycthonema lute n. sp. (1891). — 35. Xanthidium trilobum n. sp. (1891). — 36. Decidium alternans n. sp. (1891). — 37. — eatum n. sp. (a, 1891; e, 1891).

Tab. IV.

- 38. Stenostromum Botani n. sp. (1891).
- 39. — Brasilense n. sp. (1891).
- 40. — vestitum Ralls,  $\beta$  densatum n. var. (1891).
- 41. — triplex n. sp. (1891).
- 42. — orbiculare Ehrh. Ralls,  $\beta$  denticulatum n. var. (1891); a', semicellulae oblique a vertice et fronte vix.
- 43. — comaroides n. sp. (1891).
- 44. — quadrangulare Brch.,  $\beta$  attenuatum n. var. (1891).
- 45. — scutellatum Nae. (1874).
- 46. — leptanthum n. sp. (a, 1891; b, 1891).
- 47. — Clepheyra n. sp.,  $\beta$  acuminatum (1891).
- 48. — ferpa ovata, pseudocellulae dextrae in fig. 4 sub-n., obtusius peribulosa, archiatra ad  $\beta$  acuminatum valde accedens (1891).
- 49. — cuspidatum Brch.,  $\beta$  divergens n. var. (1891).
- 50. — coarctatum Brch.,  $\beta$  curtum n. var. (1891).
- 51. — trilobum n. sp. (1891).
- 52. — grillatorium n. sp. (1891).
- 53. — gracile Ralls,  $\beta$  curtum n. var. (1891); a, paululum oblique a fronte.
- 54. — gemiliparum n. sp. (1891).
- 55. — mammillatum n. sp. (1891).
- 56. — dipilum n. sp. (1891).
- 57. — leptocellum n. sp. (1891).
- 58. Arthrodesmus macrocarulus n. sp. (1891).
- 59. — subulatus Kiz. forma major (1891).



1. Encyclum conserpens. 2. Pseudocellulae dextrae in fig. 4 sub-n. 3. Pleurodictyon alternans. 4. Conostium pseudocleptoides. 5. Cleptoides leptanthum. 6. Stenostromum orbiculare. 7. Encyclum oblongum trilobum. 8. Lepidocarpus. 9. Stenostromum orbiculare. 10. Xanthidium orbiculare lute.

- 11-2-*Spiro longioribus*. Crass. fil. 68-74  $\mu$ ; crass. membr. cell. 9-12  $\mu$ .
- Barbados*.—On damp ground, Porter's Estate.
- The complete absence of rhinoids and also the peculiar habit of the plant are characteristic. The typical form, the filaments of which are 25-45  $\mu$  in thickness, is known from damp earth in Leeward, W. Africa.
- 9. *CLADOPHYLLA CRENATA* (Roth) Kütz. *Barbados*.—Porter's Estate.
- 10. *PHYCOSPORA OLIVACEA* Wirtz. —On the level and spines. Branch of the *Phycosporaceae*. Acta Nova Upsala, 1877, p. 58, t. 2, f. 18-15; t. 4, f. 18-18; t. 5, f. 1-18. Crass. fil. prim. 70-77  $\mu$ ; crass. rad. 41-60  $\mu$ ; long. spor. internod. 200-250  $\mu$ ; lat. 100-150  $\mu$ ; long. spor. term. 175-250  $\mu$ ; lat. 91-104  $\mu$ .
- Barbados*.—Bay Estate.

- This species was originally described from the West Indies, having been found by Cleve near Soldier Bay, St. Thomas. Cleve's specimens were clothed with an epiphytic *Cladophora*; this was a monocious species subsequently described by Witrock as *G. Polakowii*. Strange to say, the specimens from Barbados were also clothed with an epiphytic *Cladophora*—*G. Homaria*.
- 11. *VATROCKIA* sp. Sterile specimens with filaments 70-115  $\mu$  in thickness. They were largely encrusted with sand-grains, numerous diatoms, and a sterile species of *Chloasma*. *Trinidad*.—Royal Botanic Gardens, St. Ann's.
- 12. *MICROSTICHA ELABORATA* Wirtz. Sterile specimens with cells 4-8-4  $\mu$  in diameter, and 16-32 times longer than broad. The chloroplast occupied about the central two-thirds of the cell, and contained from 5 to 8 pyrenoids. *Barbados*—Bridgetown. *Trinidad*.—St. Clair.
- 13. *MICROSTICHA* sp. Sterile; cells 12-14  $\mu$  in diameter, and 7-8 times longer than broad. *Dominica*.—Rosenau Valley. *Trinidad*.—St. Clair.
- 14. *SPHYROTHA* sp. Sterile; cells 25-32-5  $\mu$  in diameter, and 2-8 times longer than broad; chloroplasts 2-3, with smooth edges and small pyrenoids, making from 1 to 2 layers in each cell, and contained from 5 to 8 pyrenoids. *Dominica*.—Rosenau Valley. *Trinidad*.—Pools on Pitch Lake.

- Fragrant specimens of two other sterile species of *Sphyrothra* were observed from Barbados.
- 15. *CLADOPHYLLA ACROBATH* (Schrank) Ehrh. Long. 408-470  $\mu$ ; lat. 52-5-40  $\mu$ . *Barbados*.—Grimes Hall Swamp.
- 16. *C. LAMBERTIANA* Kütz. *Dominica*.—In pond amongst water-lilies.
- 17. *C. MONTIPERENS* (Dory) Ehrh. *Barbados*.—Rosenau Valley.
- 18. *C. DIANE* Ehrh. *Barbados*.—Grimes Hall Swamp.
- 19. *C. BOSSIANA* Wirtz. Lat. 16-22  $\mu$ ; apices 198-200  $\mu$  inter se distantibus.

- 19. *C. ACUTUM* Roth. *Trinidad*.—Pools on the Pitch Lake, La Brea.
- 20. *CHLOASMA GRANATUM* Roth. *Trinidad*.—In fountain, Royal Botanic Gardens, St. Ann's.
- 21. *C. SALICINUM* Nordl. *Forma apiculata* minus truncata et subtruncata. Long. 41  $\mu$ ; lat. 40  $\mu$ ; lat. intern. 10-5  $\mu$ ; crass. 21  $\mu$ . *Trinidad*.—Pools on the Pitch Lake. (Fig. 14.)
- 22. *C. OBSOLETUM* Reinsch. The specimens observed were all forms similar to those described from Looh Chang (cf. West & G. S. West in Botanical Tidnings, xiv, 1901, p. 172). Long. 47  $\mu$ ; lat. 50  $\mu$ ; lat. intern. 12-5  $\mu$ ; crass. 20  $\mu$ . *Dominica*.—Rosenau Valley.

There are apparently two forms of this species widely distributed throughout the tropics; a large form with a prominent pore at the thickened basal angles, and a small form, destitute of this pore. It is the latter form which was observed from Dominica.

- 23. *C. LAVA* Kuhnelt. Long. 16-24  $\mu$ ; lat. 15-17-2  $\mu$ ; lat. intern. 2-4  $\mu$ . *Trinidad*.—Government Farm, St. Clair; Royal Botanic Gardens, St. Ann's.
- 24. *C. IMPERFORALE* Ehrh. Long. 39  $\mu$ ; lat. 23  $\mu$ ; lat. intern. 2  $\mu$ . *Barbados*.—Grimes Hall Swamp.
- 25. *C. LINDBERGII* West & G. S. West in Journ. Bot. April, 1897, p. 120, l. 956, f. 12.

- VAR. *INDEVELUTUM* var. n. (Fig. 14). Var. crassis lateribus robustis; semicircularibus a vertice versus ellipticis, ad medium subrotundis leviter infatis; pyrenoidibus binis. Long. 44  $\mu$ ; lat. 36  $\mu$ ; lat. intern. 11-5  $\mu$ ; crass. 21  $\mu$ . *Barbados*.—Near Bridgetown.
- This variety should be compared with *Chloasma subrotundatum* West & G. S. West, from which it is distinguished by its relatively greater length, its more attenuated semicells with narrower apices, and by the inclined vertical view.
- 26. *C. PUMILICOLA* Hoff. Long. 44  $\mu$ ; lat. 38  $\mu$ ; lat. intern. 11-3  $\mu$ . *Barbados*.—Bay Estate and Grimes Hall Swamp. The specimens were not quite typical, differing in the possession of smooth apices.
- 27. *C. STROBILIFERA* Nordl. Long. 24  $\mu$ ; lat. 19-2-2  $\mu$ ; lat. intern. 4-6  $\mu$ ; crass. 12-5  $\mu$ . *Barbados*.—Bay Estate. The specimens were rather small, but were otherwise similar to the type, and the chloroplasts were furnished with two pyrenoids.
- 28. *C. SUBTILIS* Hoff. Long. 44  $\mu$ ; lat. 38  $\mu$ ; lat. intern. 11-3  $\mu$ . *Barbados*.—Bay Estate and Grimes Hall Swamp. The specimens were rather small, but were otherwise similar to the type, and the chloroplasts were furnished with two pyrenoids.
- 29. *C. MINUTUM*, sem longum quam latum, profundissime contractum, sicut angustissimum linearum; semicellulis oblongoformibus, lateribus leviter convexis, angulis superioribus rotundatis, apiculis subrectis vel levissimis convexis; membrana subopaca et irregulariter granulata, in centro cum semulo granularum circulo; chloroplasto simplici, magnis, parietalibus et vertice yam ellipticis, tenore granulato in media utroque. Long. 21  $\mu$ ; lat. (max.) 19-2  $\mu$ ; lat. intern. 6-5  $\mu$ ; crass. 14-5  $\mu$ . *Barbados*.—Bay Estate.

This species is nearest to *C. latifrons* Lund, but is only about half the size, with rounder angles, fewer granules, and a different central filament.

- 29. *C. MINUTA* Nordl. var. *BARBADENSIS* var. n. (Fig. 17). Var. minor, semicellulis subparabolicis, marginibus lateribus leviter convexis, apice lateris. Long. 7-8-7  $\mu$ ; lat. 7-4-8  $\mu$ ; lat. intern. 1-9  $\mu$ ; crass. cum papilli. 5-4  $\mu$ . *Barbados*.—Near Bridgetown.

This minute *Camarium* differs from typical *C. hirsuta* Nordl. in its somewhat smaller size, in the absence of the lateral angles, and in the wider apices of the semicells. There is one pyrenoid in each chloroplast.

It should be compared with *C. hirsuta* var. *reticulata* W. & G. S. West in Trans. Linn. Soc. (Bot.) ser. 2, v. 1893, p. 56, t. 6, f. 37, from which it is distinguished by its smaller size, its proportionately greater breadth, and its narrowly linear, closed sinus. Compare also with *C. obscurum* W. & G. S. West in Journ. Roy. Met. Soc. 1897, p. 497, t. 7, f. 14.

- 30. *C. OCCURTA* Roth var. *ATTENUATA* nov. (Diphlocladia *Occurta* (Roth) Haug. —*Forma ad apicem versus attenuata* (bique late rotundata-truncata). Schmidt in Osterr. botan. Zeitschr. 1893, p. 847, t. 14, f. 16. Long. 24-27  $\mu$ ; lat. 12-17  $\mu$ ; lat. apic. 10-11-2  $\mu$ ; lat. intern. 14-15  $\mu$ . *Trinidad*.—Pools on the Pitch Lake, La Brea. (Fig. 18.)

This variety is somewhat smaller than typical *C. occurta*, and the semicells are distinctly attenuated towards their apices.

- 31. *C. PUNCTURATA* Nordl. Long. 15-4-19  $\mu$ ; lat. 10-5-11-9  $\mu$ ; lat. intern. 9-5-10  $\mu$ . *Trinidad*.—Pools on the Pitch Lake.
- 32. *CHLOASMA ANOMALUM* (Dory) nov. (*Sphaerococcus dissimiliformis* Dory. —*Alg. exot. Belg. Exped.*. Arch. f. Bot. nigrif. et R. St. Ver. Acad. Bel. 1, 1900, p. 120, l. 5, f. 23.) Long. cell. 8-12-5  $\mu$ ; lat. 4-5-2  $\mu$ ; lat. intern. 2-2-5  $\mu$ ; crass. 12-10-5  $\mu$ . *Trinidad*.—Pools on Pitch Lake, La Brea. (Fig. 11-13.)

This species occurred in abundance, and the twisted filaments were of relatively great length. The specimens differ somewhat from those described by Dory from Brazil, but not sufficient to be regarded as a distinct variety. The cells are a little smaller, and the lateral margins on each side of the median constriction are not so rounded as figured by Dory. In many cells the vertical view is somewhat asymmetrical (see fig. 113, M), and the cell wall in the vicinity of the lateral margins is delicately and sparsely pectinate.

This Desmid could almost equally well be placed in the section *Indegeneraceae*, of the genus *Indegenera*. Dory describes the presence of a mucous envelope round the filaments, but there was no trace of such a mucous investment in the Trinidad specimens.

- 33. *STREPTOCYSTIS TERNERIANA* De Not. Long. 33-35  $\mu$ ; lat. 28-31  $\mu$ ; lat. intern. 10-12  $\mu$ . *Barbados*.—Grimes Hall Swamp.
- 34. *CHLOASMA SUBRECTUM* A. Br. Long. cell. 14-2-25  $\mu$ ; lat. cell. 4-2-4  $\mu$ . *Barbados*.—Grimes Hall Swamp; epiphytic on *Nitzschia ophthallica*.

- 35. *PLEUROCOCCUS VILGARIUS* Menegh. Diam. cell. 6-9-15  $\mu$ . *Barbados*.—Bay Estate. Many of the cells were angular by compression. The chloroplast was lobed and contained a single pyrenoid.

- 36. *P. Kützingii*, sp. n. (*Platococcus minor* Kütz. Phytogen. Journ. 1843, p. 144; Tab. Phytogen. 1845, l. 2, 3; Spm. Alg. 1846, p. 138 (in part). // *Platococcus minor* (Kütz.) Rabenh. // *P. cellulis minimis, globosis vel angulari-globosis, plerumque 3-4-8-12 in familia associatis, et in strato tenui musci luteo-viridis 1 mm. crasso aggregatis; chromatophoris simplicibus, magnis, parietalibus et vertice yam ellipticis; chromatophoris simplicibus, magnis, parietalibus et vertice yam ellipticis, tenore granulato in media utroque. Long. 21  $\mu$ ; lat. (max.) 19-2  $\mu$ ; lat. intern. 6-5  $\mu$ ; crass. 14-5  $\mu$ . *Barbados*.—Bay Estate; forming a yellow-green stratum about 1 mm. in thickness, with a species of *Lophosiphia*.*

The small size of the cells and their yellow-green colour at once distinguish this species from *P. vilgarius* Menegh. The cells when solitary are globose, but in the small families of two, four, or eight cells they are generally somewhat angular by compression. The cell-wall is firm and of some appreciable thickness. There is only one chloroplast in each cell, of a pale-green colour and quite homogeneous. It is parietal and relatively massive, occupying a large part of the cell, and it contains one pyrenoid.

Under the name of *Platococcus minor* Kütz. I have described a number of minute unicellular alga the specific identity of which has long been questionable. It is now generally understood that a large proportion of Kützing's figures refer to a blue-green alga which has come to be known as *Chloasma minor* (Kütz.) Nag. Some of his drawings, rough though they are, clearly refer to sphaerococcus algae, and I think it extremely probable that they include the species found in the West Indies.

- 37. *PLEUROCOCCUS VIRENS* Kütz. Long. cell. 3-9-9-6  $\mu$ ; lat. cell. 2-9-3-6  $\mu$ . *Barbados*.—Bridgetown; epiphytic on *Chara* sp. The flat colonies were very small, containing not more than from 16 to 20 cells.

- 38. *SCYRHOIDEUS GRACILIS* (Turp.) Kütz. *Barbados*.—Bay Estate.

- 39. *S. SPHEROIDES* (Turp.) Roth. *Barbados*.—Bay Estate.
- VAR. *ELIPSEUS* W. & G. S. West. Long. cell. 11-5-12  $\mu$ ; lat. cell. 4-8-5  $\mu$ . *Barbados*.—Bay Estate. This is a 4-sided variety with ellipsoidal cells and a characteristic arrangement of the long bristles. It has only previously been recorded from Malagascia.

- 40. *S. SPHEROIDES* Lagerh. var. *LEONARDI* Haug. *Trinidad*.—Pools on the Pitch Lake, La Brea.

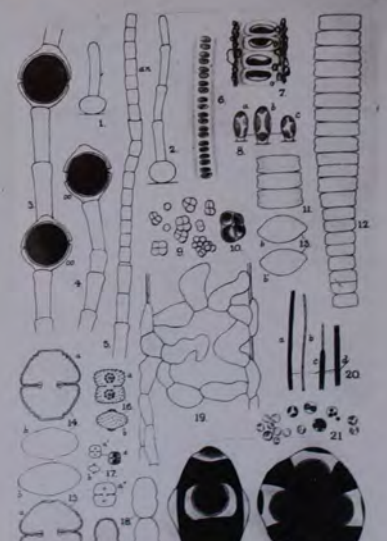
- 41. *UNICELLUS MELANUS* White. *Barbados*.—Near Bridgetown.

- 42. *Palmitococcus thermalis*, sp. n. (Fig. 21.) Cellulis globosis, minutis; chromatophoris parietalibus 2-3, internis viridibus, pyrenoidibus varietibus; membrana cellularum firma et

EXPLANATION OF PLATE 64.

- Figs. 1-5.—*Chloasma hirsutum*, sp. n. f. 250. 1 and 2, young plants showing basal cells; 3 and 4, female plants showing copious [oil?]; 5, male plant with subterminal cells (sv).
- 6-7.—*Hantzschia aculeiformis*, sp. n. f. 200; 7, x 1000, showing chloroplasts.
- 8.—*Chloasma ellipticum*, sp. n. x 200.
- 9-10.—*Platococcus Kützingii*, sp. n. 8, x 500; 10, x 1000, showing chloroplasts.
- 11-13.—*Sphaerococcus dissimiliformis* (Dory) nov. x 200.
- 14.—*Camarium Lihmannense* W. & G. S. West, var. *irregularis* var. n. (x 200).
- 15.—*C. pubescens* Nordl., forma, x 500.
- 16.—*C. sublatifrons*, sp. n. x 200.
- 17.—*C. hirsuta* Nordl. var. *attenuata*, var. n. a, a', and a, x 200; a'', x 1000.
- 18.—*C. Curvula* Roth var. *attenuata* nov. x 500.
- 19.—*Endoceras polymorphum*, sp. n. Small portion of thallus, x 200.
- 20.—*Lophosiphia ferruginea*, sp. n. x 200.
- 21.—*Palmitococcus thermalis*, sp. n. x 200.
- 22-23.—*Gloeocystis Zoellneri* (Dory) Haug. (x 200, 22, side view of 4-celled colony; 23, front view of another 4-celled colony).

[Deposited from the "Journal of Botany" for October, 1904.]





Here is a copy of  
West's West Indies  
Describers, which you  
told me you had not.

I am writing a letter  
later. I am not quite  
well.

A Happy New Year!

Ralph

30/XII. -56.