



Hunt Institute for Botanical Documentation
5th Floor, Hunt Library
Carnegie Mellon University
4909 Frew Street
Pittsburgh, PA 15213-3890
Telephone: 412-268-2434
Email: huntinst@andrew.cmu.edu
Web site: www.huntbotanical.org

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About the Institute

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.

Hunt Institute was dedicated in 1961 as the Rachel McMasters Miller Hunt Botanical Library, an international center for bibliographical research and service in the interests of botany and horticulture, as well as a center for the study of all aspects of the history of the plant sciences. By 1971 the Library's activities had so diversified that the name was changed to Hunt Institute for Botanical Documentation. Growth in collections and research projects led to the establishment of four programmatic departments: Archives, Art, Bibliography and the Library.

L 2 cells 100
W max 12
W pole 9
I 9±

Groenbladia inflata
Sc. + Grönb.



20x44

Nucleus →

Chloroplast laminae

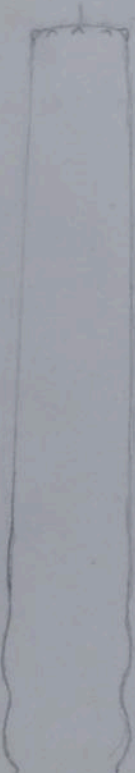
Sierra Leone 2

June 20/60

L unicell 128 = 256
W base 21
W pole 18
I 16

Pl. ehrenbergii (Brit) de Bary

II-28 x1200



(x1200)

15x44

S. lanceolatus

July 7/60

L semiell 134 = 268

W base 22

W pole 18

I 17 ±

Pl. ehrenbergii

v. undulatum Schaarschum?
OKHC

II-30 x1200



15x44

About 6 granules
visible

Faintly undulate
almost entire length

Sierra Leone

Feb 12/60

L. semicell 162

Pl. subcoronulatum var. *detum* MW.
14c

W base 22

W pole 24

I 19±

11:31

[x975]

5 21

12½ x 44



20 x 44

Sierra Leone!

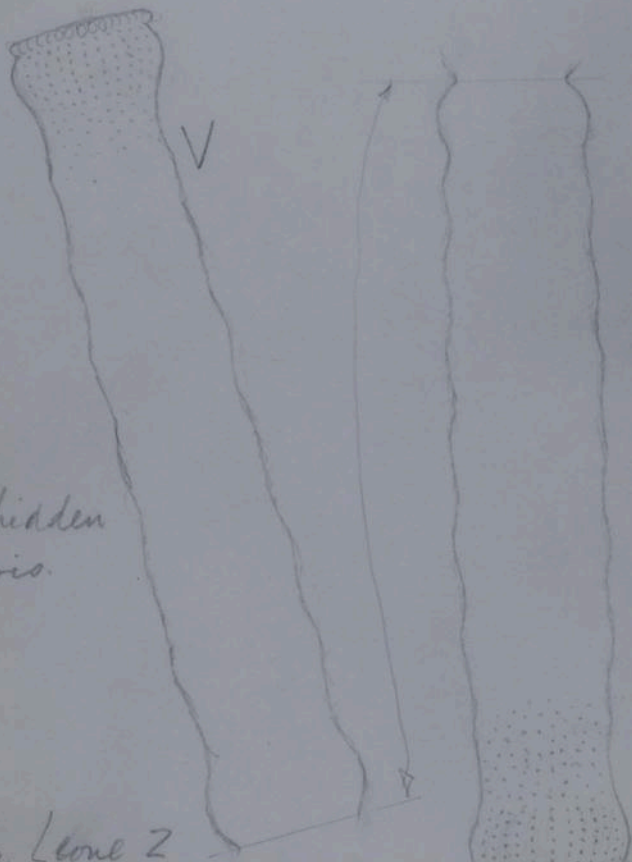
Apr 2/60

L 381
W base 36 ±
W pole 39
I 28-30 ±

Pl. caldense Nordst
= *Pl. ruberombrata* f

(A)

[x566]



10 x 44

Partly hidden
by debris.

Sierra Leone 2

May 4/60

Chain of 4 attached cells

L 428-386-358-414

W base 36

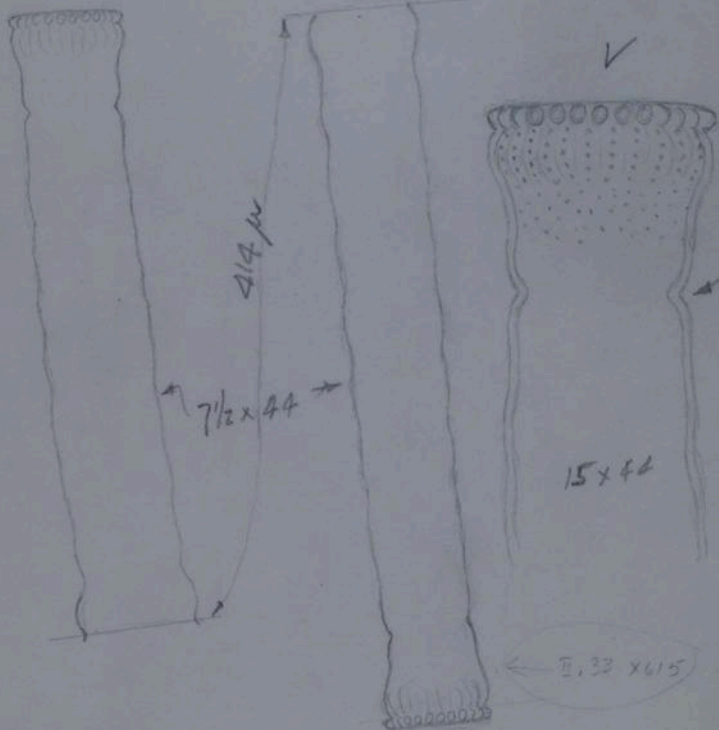
W pole 59

I 31

[x615]

Pl. caldense Nordst
= *Pl. subcromulata*
v. *detumida* F (H) (B)

Constriction especially prominent in this cell, less so in others



Sierra Leone 2

June 21/60

L 278
W center 10
W pole 2

Cl. setaceum Ehrbg. n

[I:19 x 10]

[615
T
Mount 290X
B:12]

7½ x 44



Wall colorless
Striae not
visible

Sierra Leone 2

May 6/60

L 252
W center 20
W pole 5

Cl. dianae v. *pseudodianae* n.
(Roy) Krieg.

[1:17 x 440]

[66°]
[615]

7½ x 44



20 x 44

Wall colorless.
Smooth?

Sierra Leone 2

May 5/60

L 318

W center 18

W pole 5

[520
T]

Cl. rostratum Ehrbg.
#2

[II:21 x530]



6x44

Wall pale straw color
finely striate

Sierra Leone 2

June 21/60

L 339
W center 30
W pole 9

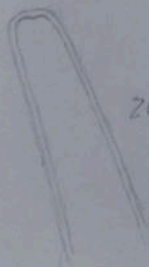
Cl. attenuatum ? Ehrbg.
HC

[x500]

[II: 22 x520]

6 x 44

Wall yellowish
Very finely striate
Chloroplast decayed



20 x 44

Sinns leave 2

July 23/60

L 9 cells 78 = 9 average

W 7

I 4.5-5.0

Sph. excavatum Ralfs

152

20x44

x1600



Sierraleone

Feb 21/60

L to depressed apex 12

L csp 18

W ssp 12

CSP 21

I 6

A. incus

VIII-112

Cf. var. *perforatus* Schum.



Mucous threads
Number + position
uncertain

20x60

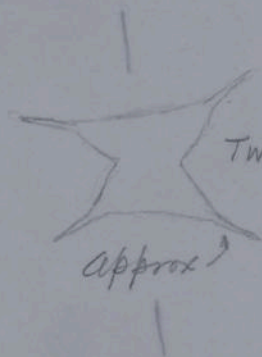
Sierra Leone 2

May 12/60

L to depressed apex 11
CSP
W SSP
CSP 22
I 5.5
T 6.5

A. incus fa

113



Twisted at isthmus

approx

56.7
91.4

Sierra Leone 2

May 6/60

L ssp 18
csp 23
W ssp 19
csp 24
I 11

St dejectum ?

118

26
// : IIIA

20x44



Sierra Leone 2

May 12/60

L 19
Wssp 18
CSP 27

St. cuspidatum Bréb

I



20x44



118

Sierra Leone Z

June 22/60

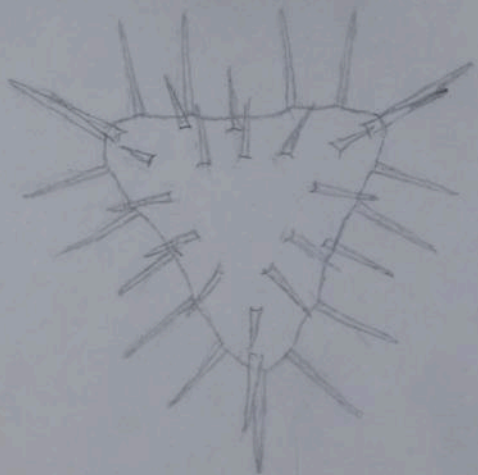
L

St. setigerum Cleve

120

Wssp 34
Csp 57

I 10



20 x 44

63.6
43.9

2 semi cells seen

Sierra Leone 1

Apr 9/60

L ssp senicell 18
csp 24

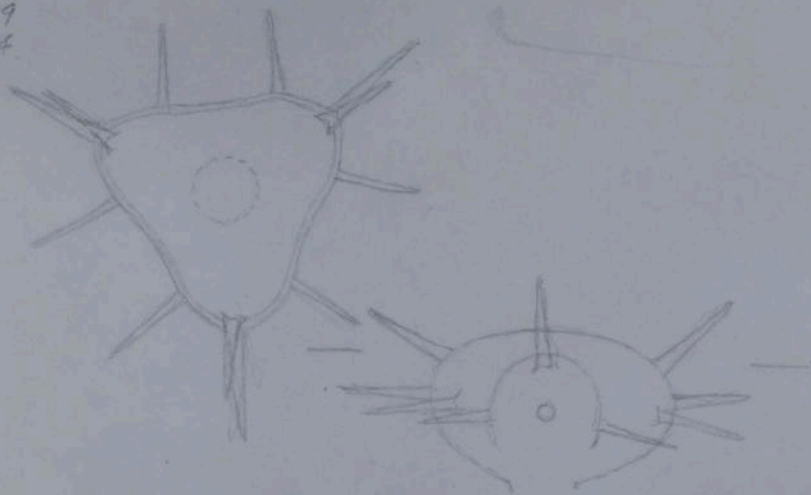
S. setigerum var.

121

W ssp 29
csp 44

I 9

20x44



Sierra Leone 1

Feb 19/60

L 25

W 25

I 8

St. orbiculare v. *depressum*
Roy & Biss

123
2



20 x 44

Sierra Leone 2

June 16/60

L semicell 12

W 23

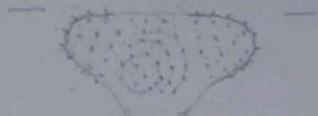
I 6-7 ±

St. punctulatum ?

[*oblatatum*]

viii-124

20x44



Tilted



Sierra Leone

apl 5/60

L

S. wildemanii var. *majus* Scott & Presc., fa.

W ssp 60
csp 120

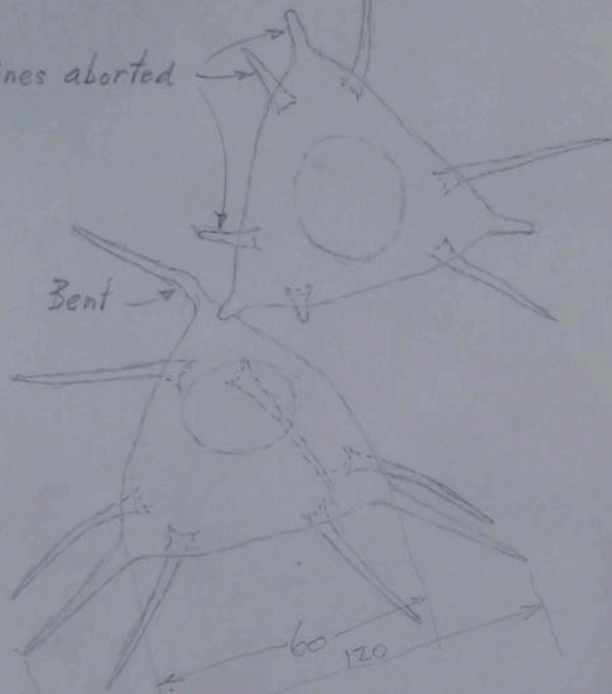
I 28 ±

Spines aborted

Bent

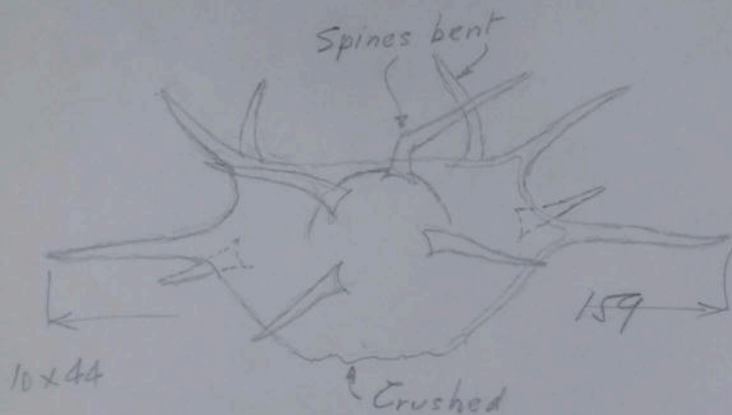
10 x 44
scale varies with 2 narrow
w. closed 6.295 8.90

Crushed by cover-glass



Sierra Leone 1

9/60 9/60



Specimen #3

Sierra Leone 1

Apr 12/60

10 x 44



Specimen #3

61.4
97.5

61.3
94.3

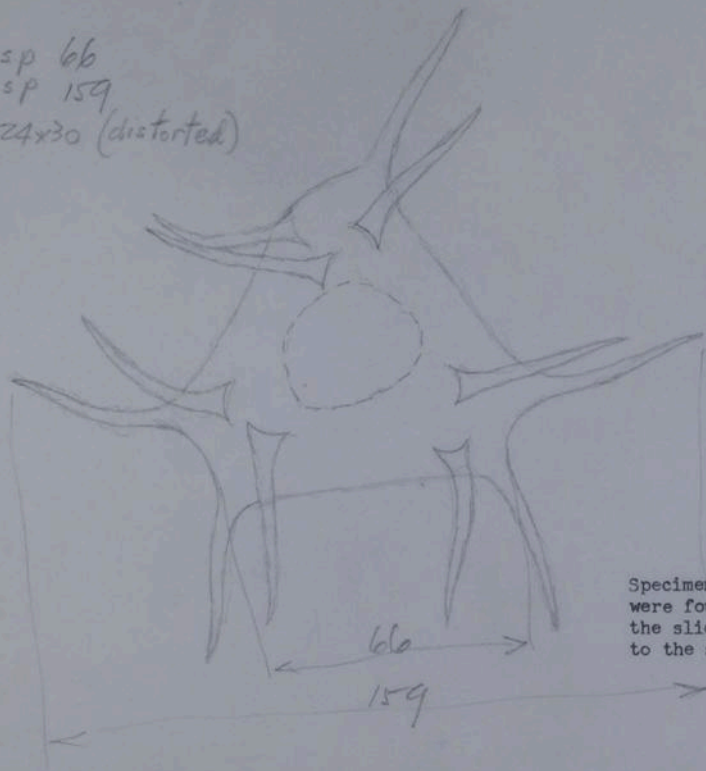
Sierra Leone

CPL 11/60

L

Wssp 66
csp 159

I 24x30 (distorted)



Specimen No. 3. Nos. 2 & 3
were found close together on
the slide, and probably belong
to the same cell.

Sida leucomela

Apr 10/60

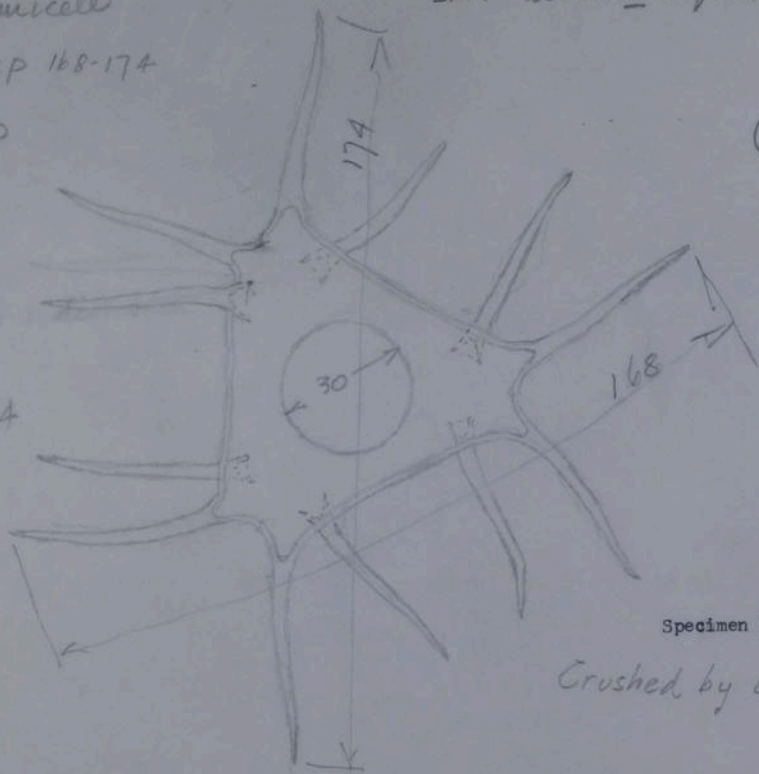
L semicell

W CSP 168-174

I 30

St. wildemanii v. *quadrispiniferum*¹²¹
v. nov

10x44



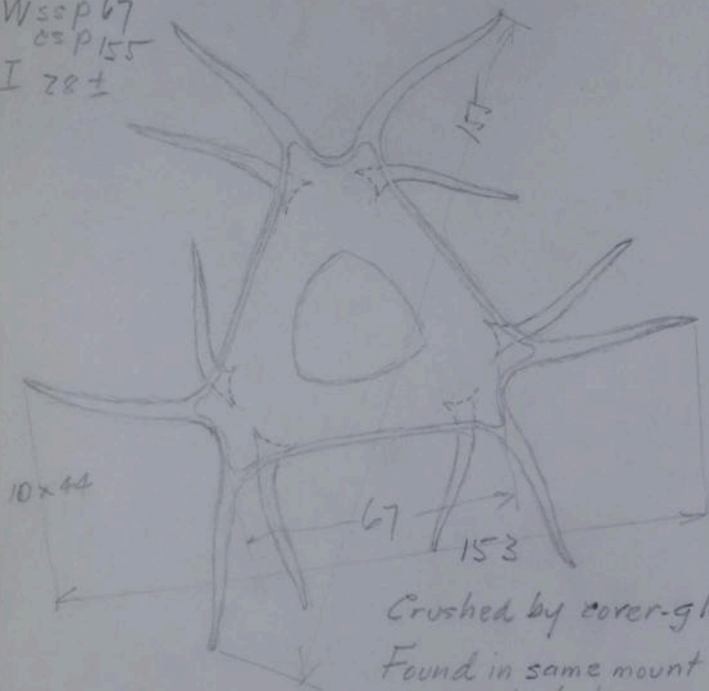
Specimen No. 1

Crushed by cover-glass.

Sigma Lema 1

Apr 5/60

L
Wsep 67
osp 155
I 28 ±



Specimen No. 2.

Crushed by cover-glass

Found in same mount as
semicell sketched on Apl. 5/60

Sierra Leone

Apl 10/60

L semicell $ssp\ 15\pm$
csp $24\pm$

W ssp

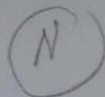
csp square 42
diagonal 54

I $12\pm$

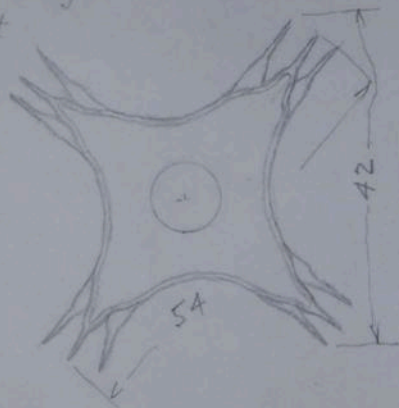
St. contectum Turw

? var. *concarum* var. nov.

132



20x44



Only 1 semicell seen

Sierra Leone
~~Sierra Leone~~

131

July 6/60



Sierra Leone

July 6/60

L

St. leptopus fac-3

135

Wepr 76

Base
Approx



15x60

x1200

Only 1 seen

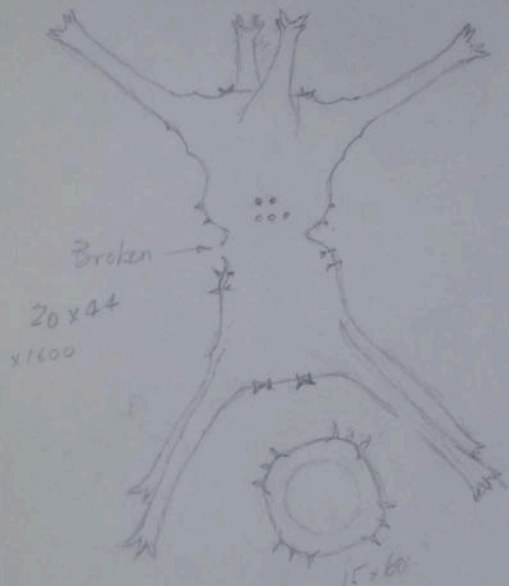
Sierra Leone 1

Apr 10/60

L spr 36
cpr 57
W base 15
W cpr 54 diag
I 12

St. leptopus Krieg. fac.-4

136



Sierra Leone

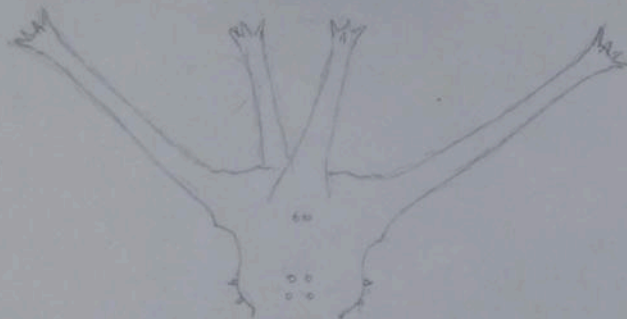
135

L semicell spr 18
cpr 3b

W base 15
cpr 76

I lot

St. leptopus Krieg. fac-4.



X1104

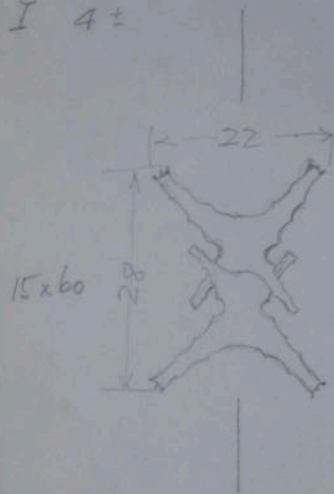
Sierra Leone 1

Apr 20/60

L
W
I 4±

St. tetramerum

141



Sierra Leone 2

May 6/61

L semicell spr 6
apr 15

W apr 34

I 4

20x44



1

Sierra Leone 1

Feb 21/60

L semicell 27

W cpr 79

W base 11

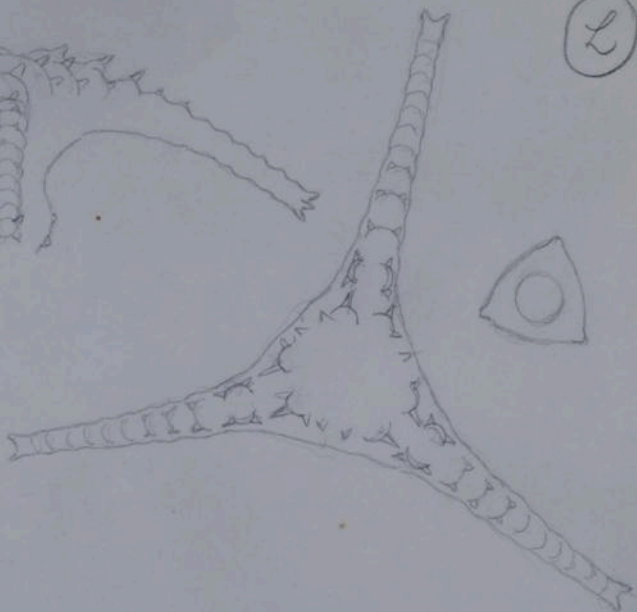
I 9±

St. cerastes v. *coronatum* Krieg.fa. *inflatum* Scott & Presc. 1958

L



20x44



Sierra Leone

Feb 12/60

L semicell with apical spines 16
with processes 25

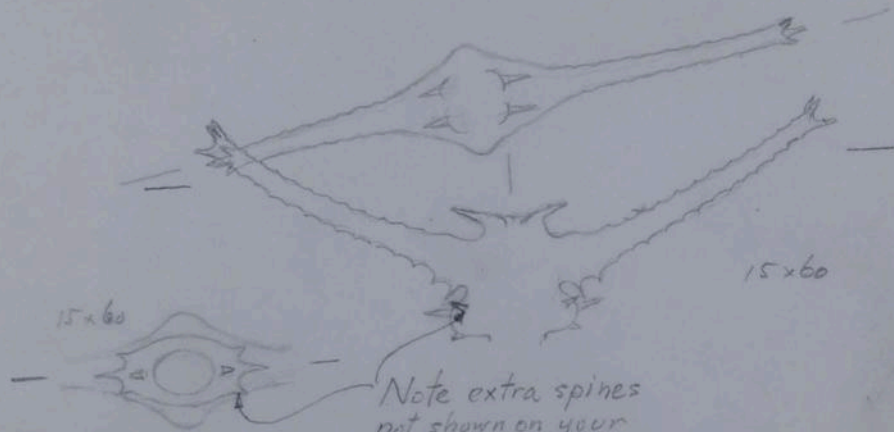
W cpr 78-83

W basal ssp 15
csp 23

I 9

T 14

St. triundulatum var. *sierra-leonense*
V. nov.



Note extra spines
not shown on your
drawings.

Sierra Leone

Feb 19/60

St. longibrachiatum var

145

L semicell 21
W cpr 88-102
W base 16
I 8
T 17

15x60
x1650



145a

Basal view of another specimen. T=17μ

Sierra Leone 1

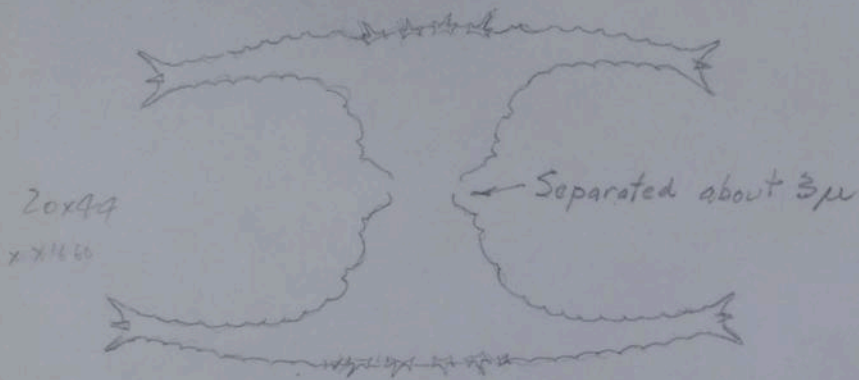
Feb 19/60

L 45-3 = 42

St. longebraehiatum var.

Wcpr 75

I 9



Sierra Leone

Apr 18/60

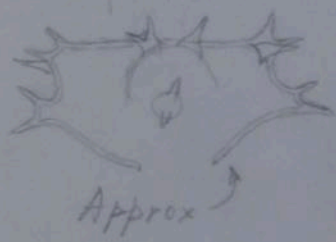
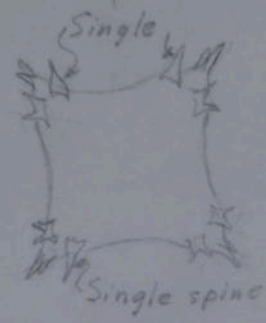
St. contectum fa
[uncat. v. aryan]

L semicell }
ssp 15 }
csp 20 } +

W csp square 30
diagonal 41

I 10

20x44



Sierra Leone

Apr 12/60

L ssp 27
CSP 40
W csp diag. 41
I 9 [11]

St. contectum fa
[fasciat. v. asymm]

148

1896

Cf W₂W. Notmer

p 257-58

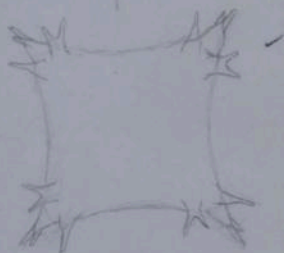
and XVI 16-18
19

20+44



147

especially f. 18 and 16
cannot be reported
from S quadrangle



Sierra Leone 1

III
Apr 19/60

L semicell ssp 14
csp 24

W ssp 29
csp 42

I 8±

St. forficulatum var.

149



20x40



Sierra Leone 1

Mch 31/60

L 36
W 28
I 15

St. turgescens ?

omit
too much
uncertain or
approximate



20x44

Number & position
of apical granules
uncertain



approx

Sierra Leone 2

June 21/60

L.
W 27
I
T 18
20.45



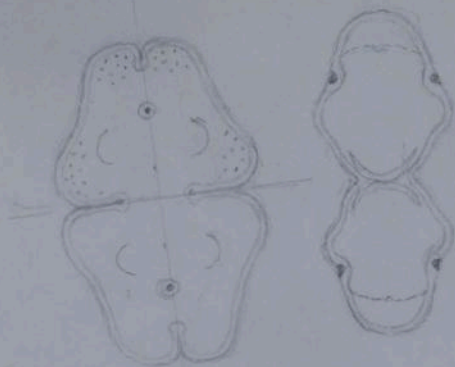
III:36

Sierra Leone

Feb 11/60

L 41
W 27
I 9
T 18

E. subhexalobum v. *scrobiculatum* ^{7/4}
Grönb. 1945
cf. *v. poriferum* Presc & Scott 1945



III 36

20x44

Sierra Leone 1

Feb 20/60

L 18
W 15
I 6
T 9 ±

E. denticulatum ?^{HC}



20x60

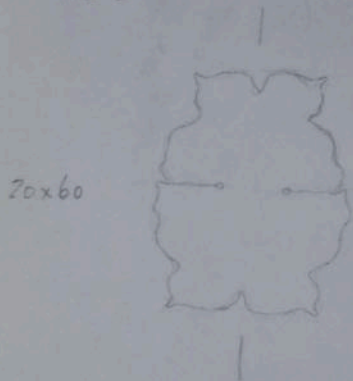
Details not visible

15 4

Sierra Leone 2

June 21/60

L 23
W 18
I 5
T 12 ±



Markings concealed
by chloroplast

III. 46

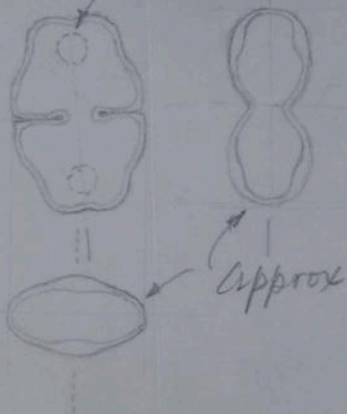
Sierra Leone 2

May 6/60

L 19 → *E. sublobatum* v. *incrassatum* (HC)
W 12
I 3.5
T 9±

Refractive spot

20x60



56.9
28.6

48

- ? -
Common?
(Length?)

Sierra Leone 1

July 7/60

L 18

W 13

I 3.5

T 9

E. sublobatum Boeb. var (HC)

49

cf. *E. insulare* v. *silesiacum* Grönbl.

20 x 60



II:49

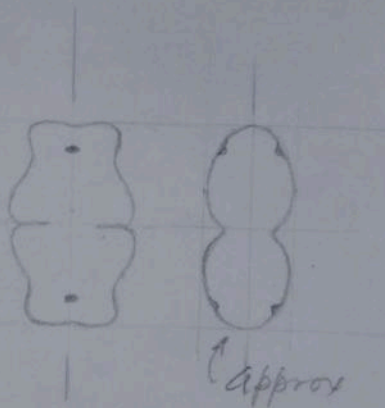
Sierra Leone 2

May 15/60

L 27
W 16
I 6
T 12

E. luetkemulleri var *camolicum* f. (Hc)

20x44



Sierra Leone 1

Apr 19/60

L 32 (partly separated)

W 19

I 6±

T 13

E. validum W & W var.
*v. subrotundif. (n)*Probably the same as shown
by Bourrelly 1957

20x44



Teeth asymmetrical

Approx

E-51

Sierra Leone 1

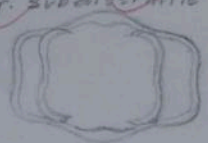
Feb 22/60

L 36
W 25
I 10
T 18

E. sublobatum Brib. var. nov.

55

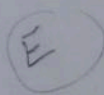
~~Gl. var. dissimile (Mortlet) W & W
and var. subdissimile W & W. (Mon. II, Pl. XL, Fig. 20)~~



Shape in front view is different
+ lobing

E. humbertii Boufford
Madagascar 1946

20 x 44



IV 55

Sierra Leone 1

Mo. h 26/60

28 E.
(64)



IV 58

L 36

W 26

I ~~7-8±~~

T 18



20x44



Markings concealed
by chloroplast.

Seems to be scrobiculate
on lobes.

Approx 1

Sierra Leone 1

Feb 12/60

L 23
W 17
I 7
T 14

20x44



omitted

Sierra Leone 1

Mar 25/60

L. semicell spr 56
apr 72

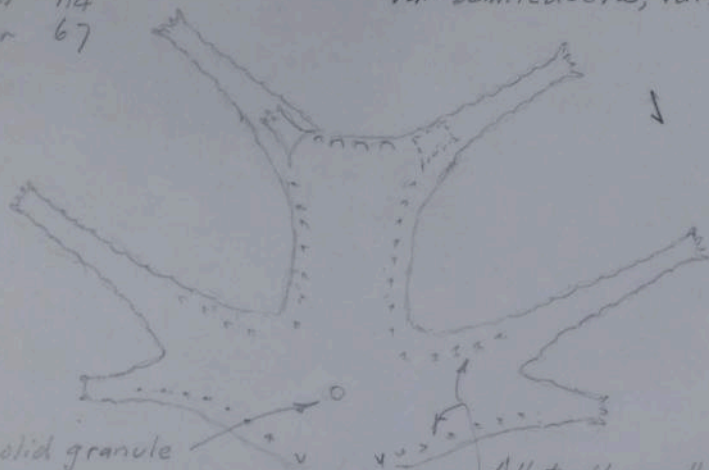
M. mahabuleshwariensis

W max cpr 114

W pale cpr 67

I ?

var *semireducta*, var. nov.



All teeth small and poorly developed

IV:59

2 semicells
seen

Sierra Leone

Mar 24/60

L semicell spr 51
cpr 76

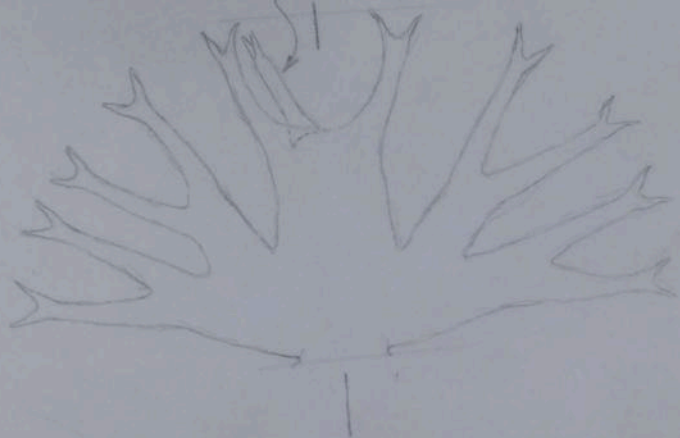
M. radiata Hc

65

W cpr 151

I 18

Extra process on underside



10x44
(x100)

Fig 65

Sierra Leone 1

Apr 10/60

L semicell 76

M. radians var. (radiata - 40)

W 138 - 147

I 17 - 18 ±

T 28



15x44
[x1200]

Basal view of
another specimen
15x44



Sierra Leone 1

Feb 12/60

L 24 26

W 16

I 15

~~C. cucurbita~~ ?

66

Act. cucurbita (Brit) Teil

fa. *rotundatum* Krieg.

→ *Act. subglobosa* Kc



20 x 44

Wall markings
not visible

2:59 24

Sierra Leone 2

July 3/60

Act. subglobosum (Nordst.) Teil.
uc 67

L 29
W 18
I 16

X1600



Wall punctate
pattern not visible

of the
occulta
f. rotundata

65-67

Sierra Leone

Mich 25/60

L 40

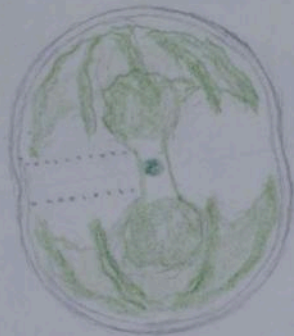
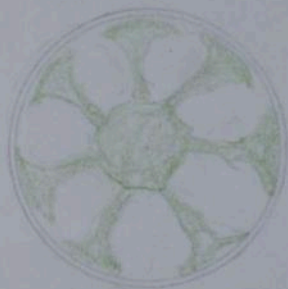
W 35

I 34

Act. wollei (Grönbd.) Teil.
V. Cateiss 112

70

20x44



62.8

97.9

196

96.6

V 70

Sierra Leone 1, also 2.

Apr 11/60

L 42

W 36

I 34

~~C. pseudocornutum~~

A. Waller v. later 4c

20x94



Top view circular

Chloroplast in
6 or 7 radial parts.

Sierra Leone 2

June 21/60

L semicell 21 ±

~~C. pseudosomatum?~~

71

W 39

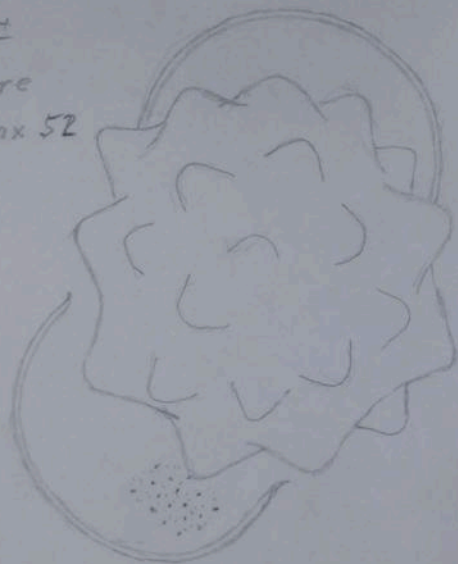
I 36 ±

Zygosporangium

Diam max 52

A. Wallii v. latum etc

20x44



71

Sierra Leone 1

Feb 22/60

L
W 28
I
T 18

20740

lef. *C. trachydermum* W & W Madagascar
which they say has a granulate wall



L 27
W 27
I 16
T 18



approx

Wall scribbulate
Margin faintly crenulate

Sierra Leone

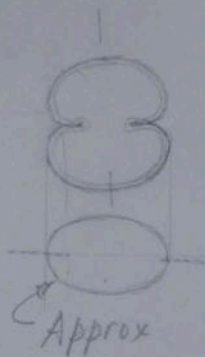
Feb 19/60

L 13
W 11
I 4
T 6

C. tenuis Arch ?

v-79

20 x 60
(r2140)



No markings visible
Apparently smooth

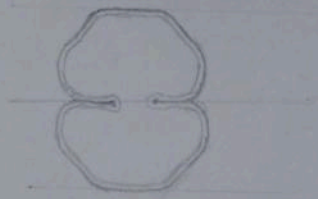
Sierra Leone 2

June 16/60

L 24
W 19
I 6
T 9-10±

~~C. hammeri var. ?~~
C. trilobulatum Reinsch. fa

20x44



Sierra Leone 2

June 17/60

C. pseudopyramidatum

83

L 43
W 26
I 10
T 18



20x44



Empty cell
Wall finely porose

Sierra Leone 1

Feb 21/60

L 25
W 17
I 7
T 12

C. exiguum? fa.

82



15x60



Wall finely porose

Slight thickening

Sierra Leone

Feb 18/60

L 41
W 24
I 9

VI-55
Perhaps *C. zonatum* v. *subcirculare*
Scott & Griseb.
or *C. moniliforme*
HC

(view?)



Top view circular. |
Wall seems to be forose
but pattern not visible

Sierra Leone 2

June 23/60

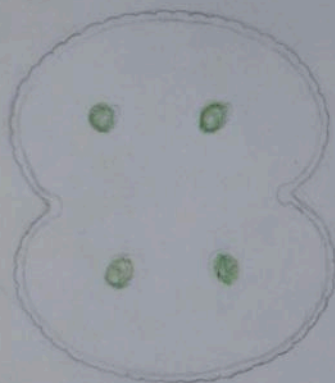
L 45
W 40
I 29
T 31

(K)⁹²

C. zonarium W & W var. *latius* Bernard

1908 Fig 118, p 89
1909 Fig. 56, p 40

20x44



Wall scrobiculate, but
pattern not visible
Only 1 seen

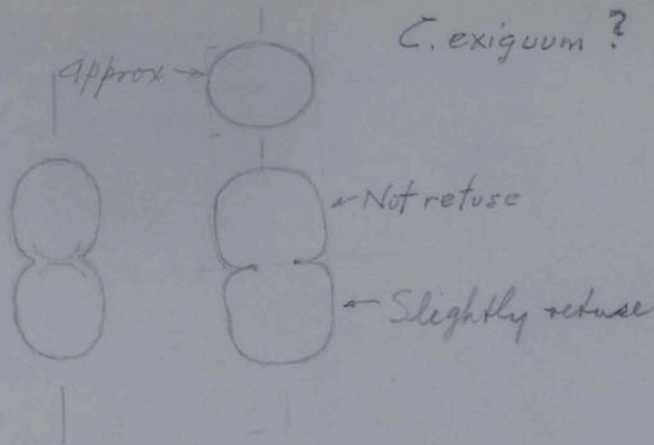
Sierra Leone 2

June 21/60

L 25
W 15
I 6
T 12

C. exiguum ?

88



20x44

Empty cell
no markings

87

Sierra Leone 1

apl 1/60

L 20
W 12
I 4-7
T 10



20x44

cf. *C. inane* Turm.

FW Alg. E. Ind. p 57, Pl. VIII: 41

which is only $\frac{2}{3}$ this size.

Sierra Leone

Feb 22/60

L 18
W 12
I 4
T

20x44



?

Sierra Leone 2

May 12/60

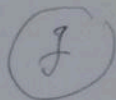
L 51
W 24
I 9.11

C. zonatum v. *subcirculare* fa. *cylindricum*
Scott & Gröubl.

92



15x60



Top view circular

91

Sierra Leone

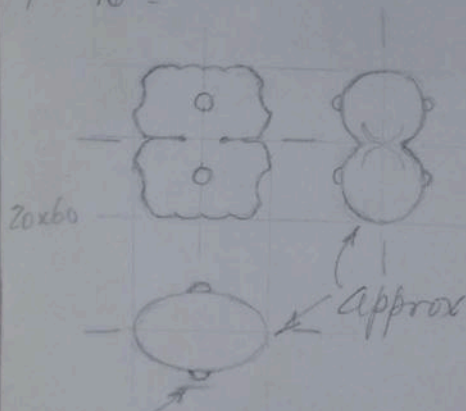
Mar 26/60

L 14
 W 13
 I 4
 T 10 ±

= humile (H.C.)

cf *C. abruptum* Lund var *granulatum* WTN

Madagascar p. 65
 Pl. VII Fig 32



Granules seem to be
 flattened in top view

Details concealed by chloroplast
 Believe these may be some granules

Sierra Leone 2

May 14/60

This differs greatly from *C. ceratophorum* v. *africanum* Bourrelly, and from his var. *madagascariense*. I do not have Lütke Müller's original figure of *C. ceratophorum*, so cannot tell whether it should be assigned to this species of *ceratophorum*. It might be made a new variety, or better a new species.

There is little resemblance to *C. transvaalense* or to *C. multituberculatum*.

Cf. *C. freemanii* v. *ocellatum* Krieg., Sunda, XI:10, which differs greatly from W&W's Ceylon plant, and should not have been assigned to that species. (*I think*).

L semicell 18 : 36

W 31

I 9

T 21

Sp. nov. ?

97



20x44



Sierra Leone

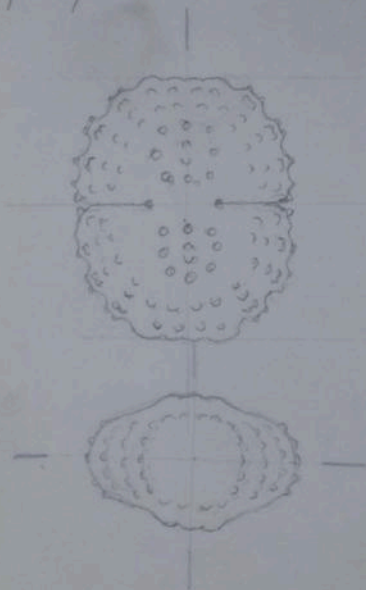
Feb 12/60

L 32
W 27
I 8
T 17

C. subprotumidum v. *gregorii* (Ry & Biss)¹⁶³ Wr W

Wr W Mon. p. 232 Pl 86: 23-25

Krieg. Sunda. p. 187, Pl 12: 13



Sierra Leone 2

July 3/60

1932

L 34
W 26
I 9
T ?

?



15 x 60

Empty cell, but markings
not clearly seen

Sierra Leone 2

106
June 16/60

L 32

W 18

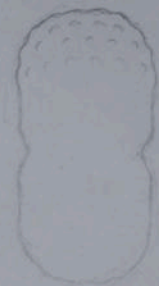
I 15

T 14 ±

C. inornatum Josh

101 - 104

Vide Skuja, Burma, 1949.



?

15x60

Empty cell.

Markings very obscure.

Supraisthmial granules not visible

Top view not quite circular

Lower semicell not fully developed

Only 1 seen

Sierra Leone 1

Mar 28/60

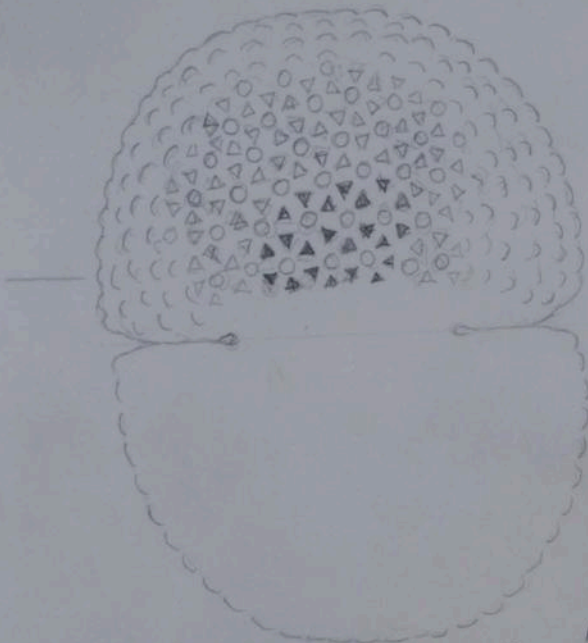
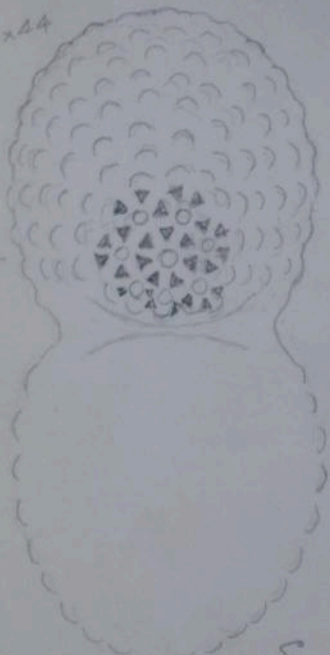
L 81
W 63
I 28
T 40

C. decoratum W. R. W.

106

(5)

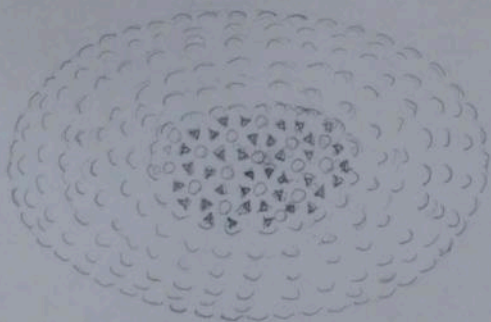
20x44



107

L 81
W 63
I 28
T 40

20x44



I have seen many specimens of a *Cosmarium* from Indonesia, which I identified as *C. decoratum*, in which the pattern of triangular pits surrounding the granules was confined to the central part of the face in front view. Proceeding outward from the centre the pits gradually became smaller, and in the side and vertical view they appeared merely as pores.

This specimen from Sierra Leone 2 is the first one in which the pattern of triangular pits is visible over the entire surface of the cell, including the side and vertical views. It was a completely empty cell, but nevertheless it required extremely careful lighting and focussing to distinguish the pits in side view, and in the apical view the pattern was very faint and barely distinguishable.

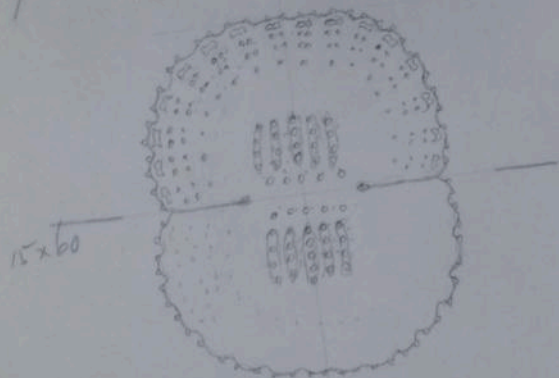
Sierra Leone 2

June 22/60

L 45
W 37
T 13-14 ±
+

C. binum Nordst

171-160



Sierra Leone 2

107 May 12/60

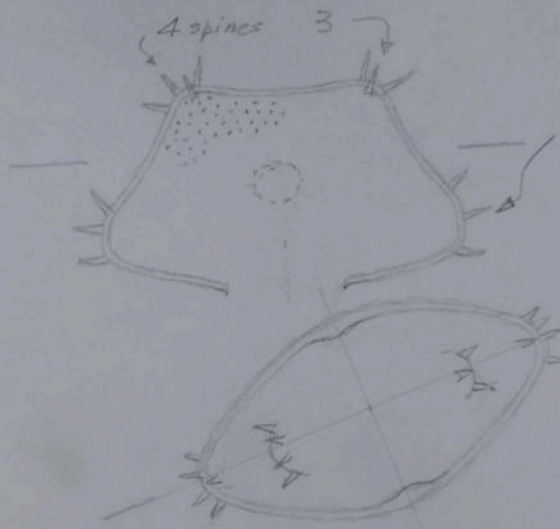
L senicell ssp 24
csp 27

W ssp 45
csp 51

I 16±

T 25

20x44



Number of lateral
spines varies from
3 to 5

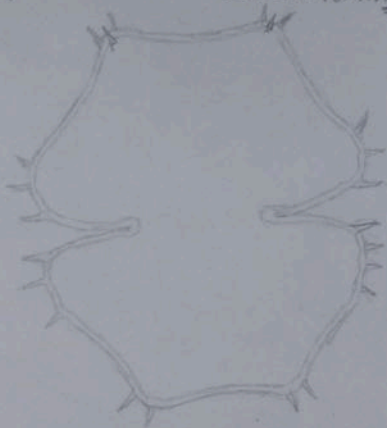
Sierra Leone 1

Feb 19/60

L ssp 48
csp 51
W ssp 42
csp 48
I 19
T

Xanthidium urniforme (W+V) Grönb. & Scott
Comb. nov

- = *Micr. urniformis* W+V. Ceylon, March 1902
- = *X. raciborskii* Gutw. Java November 1902
- = *Eu. urniformis* (W+V) Okada 1953



20 x 44

Sierra Leone

McLw 24/60

L. semicell ssp 6?
csp 15?

A. octocornis

W ssp 9
csp 21

I 4±



20 x 44

Sierra Leone 1

Feb 22/60

L 94
W center 15
W pole 5 ±

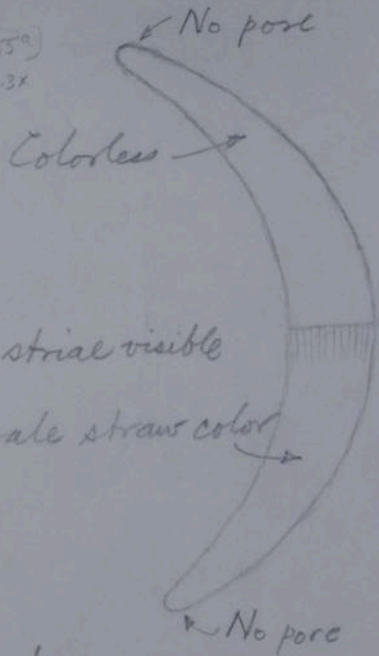
Cl. cynthia de Not.

II:27 (x 800)

$\frac{1200}{1}$ (1550)
6.3x

striae 12 in 15, 8 in 10

J:27



15 x 44

About 12 striae visible

Very pale straw color

Sierra Leone 2

June 16/60

L 148
W center 11
W pole 4 ±

$\frac{566}{1}$

10 x 44

Wall smooth
colorless
Empty cell



C. dianae Ehrbg.

= *Cl. sp. 11c*

[c 70°]

[II: 24 x 40]

S. ...

May 4/60

L 142
W center 14
W pole 5 ±

$\frac{5.6}{1}$

Cl. dianae ?

= *Cl. sp.* (HC)
[II: 23 x 890]

20 x 44

[c 104°]

10 x 44

Wall smooth



Sierra Leone 1

Feb 22/60

L 112
W center 16
W pole 6

Cl. cynthia de Not.

no

[II-26x890]

[c 130°]
7x

[186°]
7x

Striae 10 within
6.5 in 100

10 x 44

Wall colorless
Striate



Sierra Leone 2

May 5/60

L 105
W center 37

N. digitus v. *parvum* Forge

[v. *digitus* because true
length not shown

[omit]

15 x 44



Sierra Leone 2

July 3/60

L 47
W 15

Cyl. brebissonii Menegh

I:1 x970

x1500



20x44

Sierra Leone 2

May 6/60

L 24
W max 10
W pole 6
I 9

Cl. infractum Messik.
var. *rotundatum* Grönbl. ?

20 x 44

[1600
T]



107
130
Stalk

Sierra Leone 1

Feb 21/60

L 147
W center 32
W pole 15 ±

Zl. libellula v. *intermedium* (Roy + Bisco)
" GS West

I: 10 x 890

Others: L 146
W 40

[566
1]

10x44



Sierra Leone 2

May 5/60