

# Diagram

3.

Randhawa's Notes on Botany

by

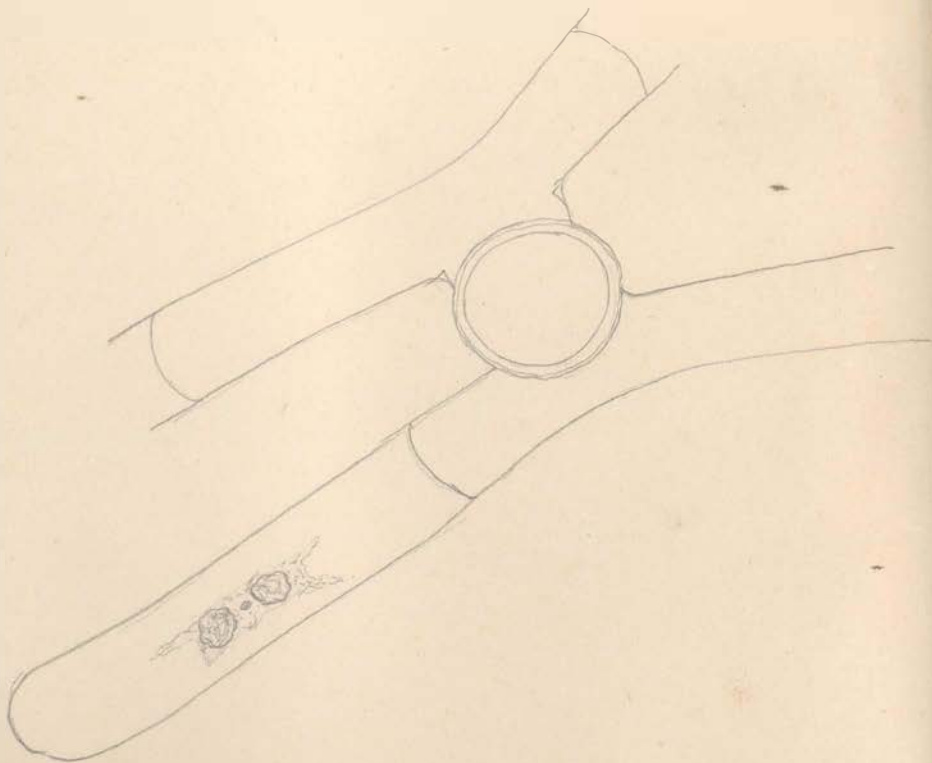
Dr. M. S. Randhawa.

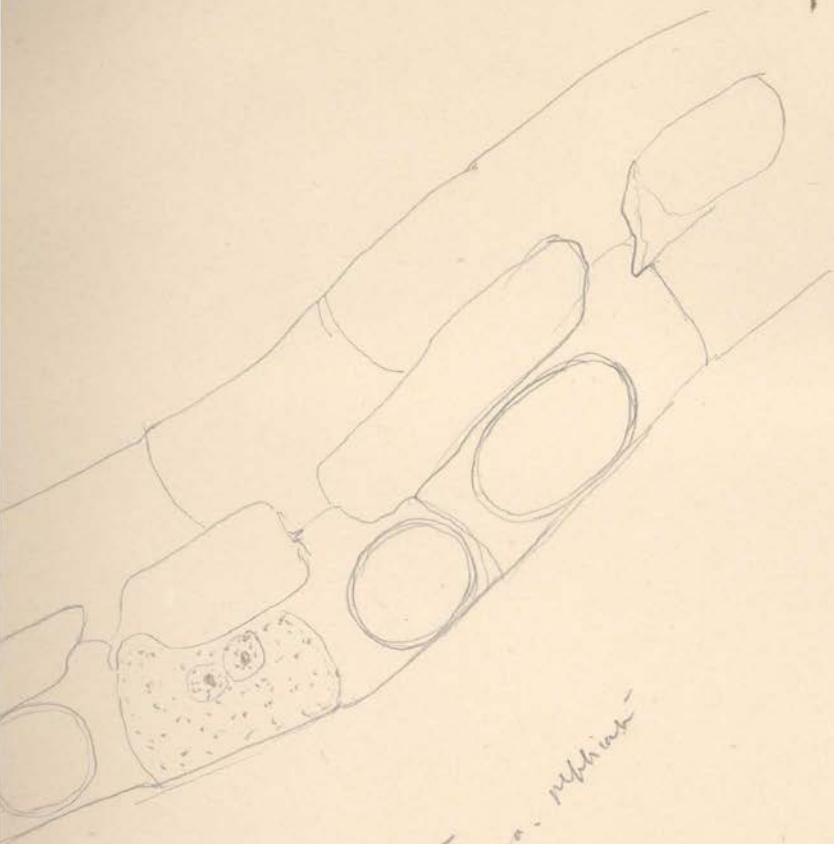


9 R<sup>17</sup>R  
22422

split and film in center

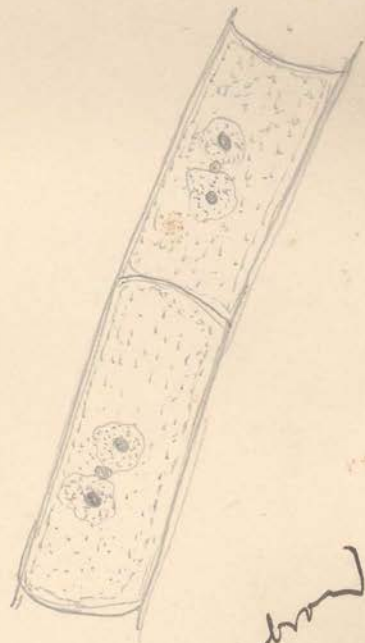
Botany





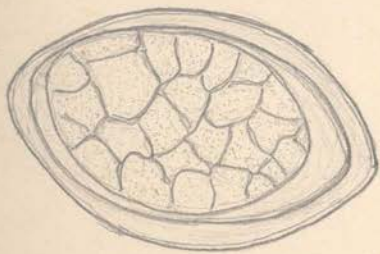
Rhizoids near base -  
 spores - brown -  
 Rhizoids -  
 with 7-8 -  
 Rhizoids -  
 all over -  
 granules under  
 base - brown  
 irregularly  
 smooth

vegetative cells  
 smooth



vegetative cells 26 - 28 μ brown  
 58 - 78 μ long  
 spores - globular & ovoid  
 24 μ brown  
 124 - 164 μ long

5 pms are yellowish brown  
Exoskeleton striated by sun  
free from endoskeleton.



Spiriferella

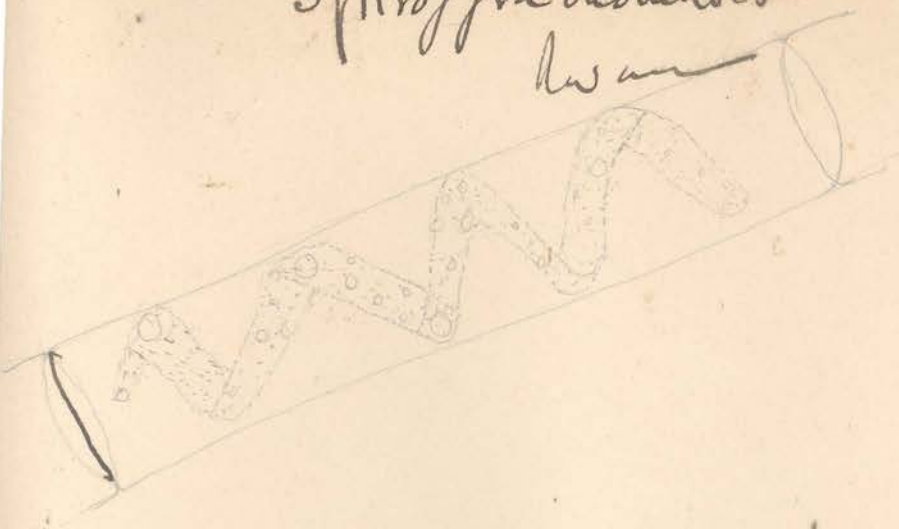
exoskeleton



4780



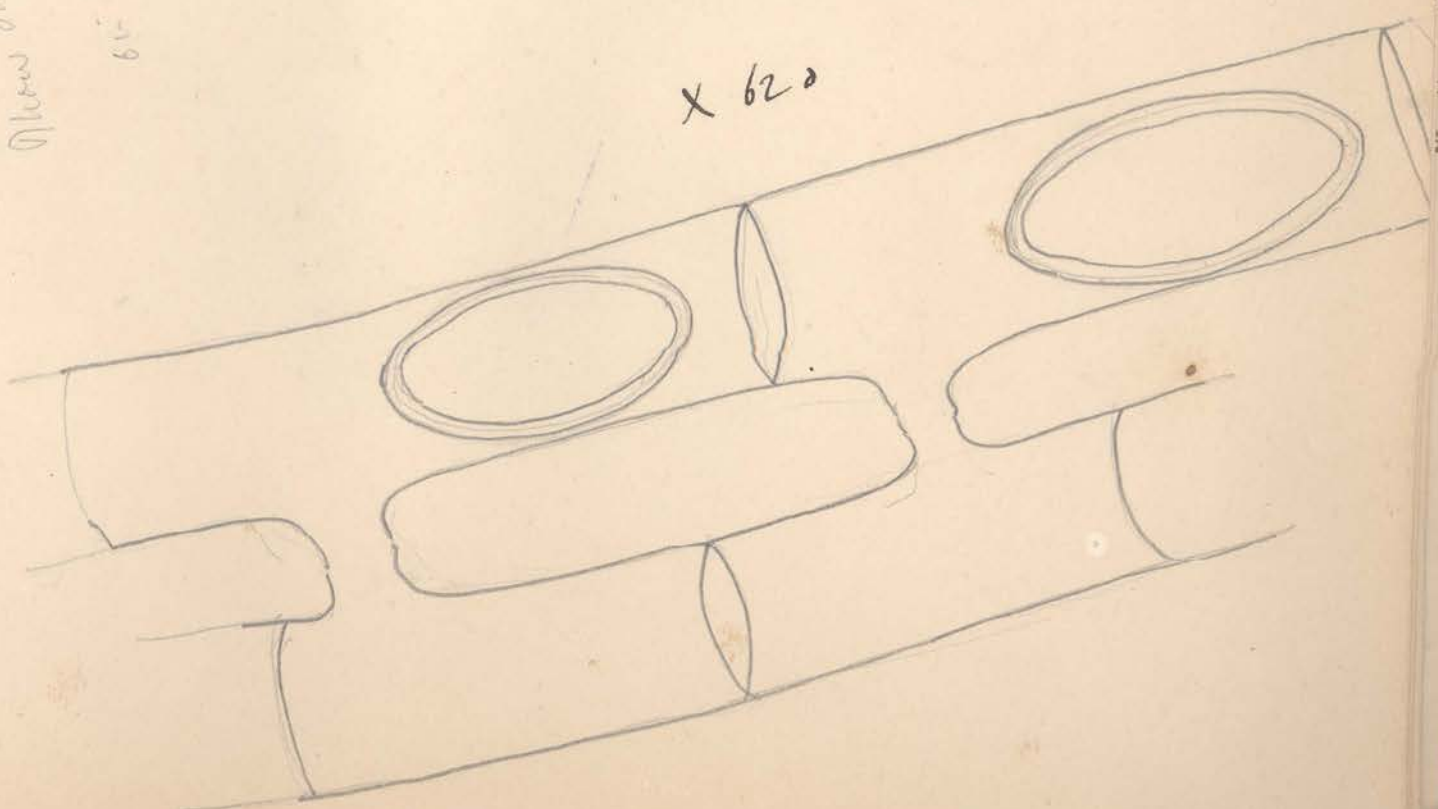
*Spirogyra ovaloides*  
Lew. var.



Microscopic view of *Spirogyra ovaloides*

Algae  
Shimoda  
Nov. 3  
60  
V.U.

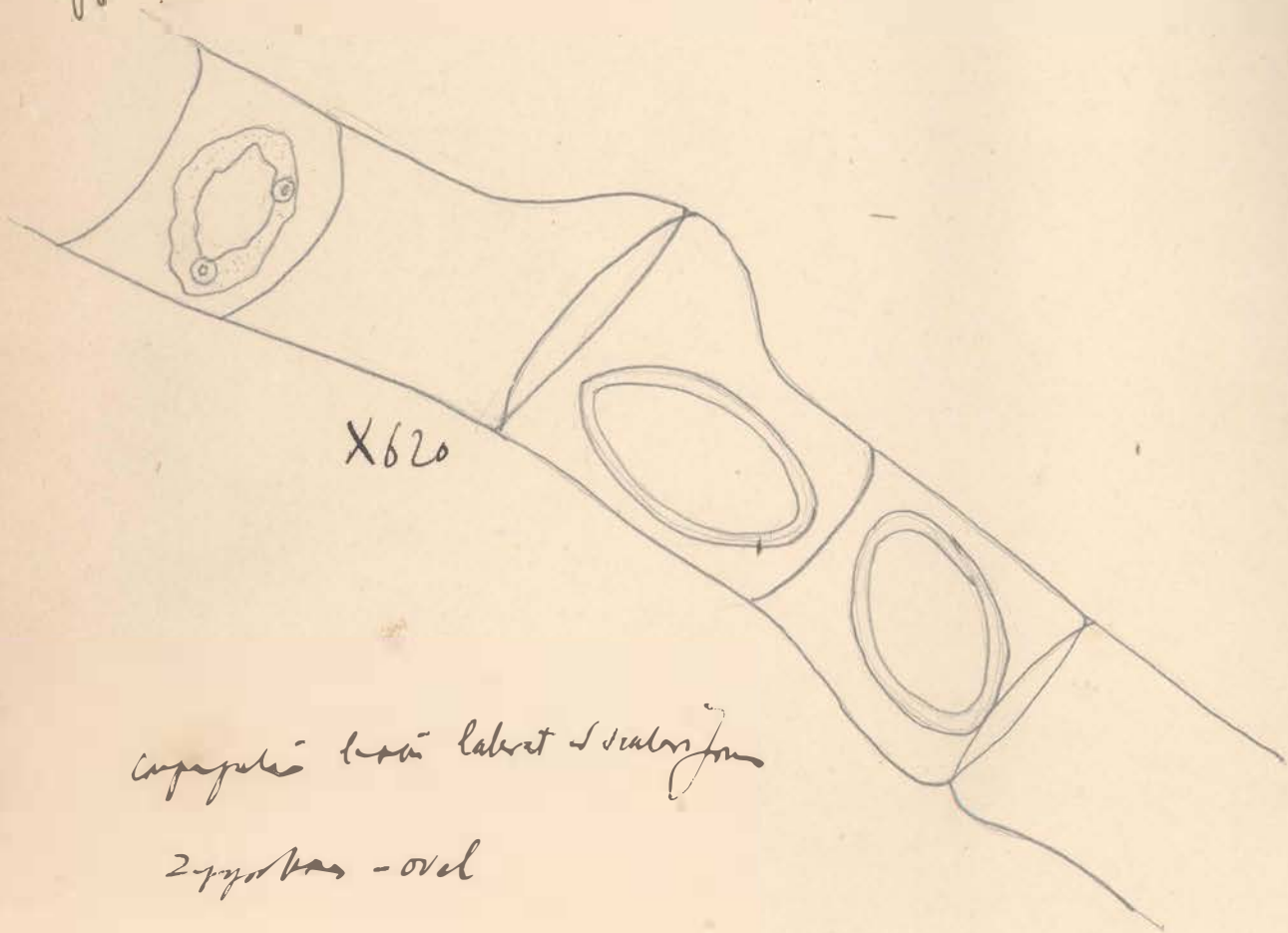
X 620



*Spirogyra* *Quahensis*  
sp. nov.

Found in pond at Abow Shuwala in  
Oct. Nov. 87. proflores.

Resembles *S. daedalea* but - Vegetative cells 56M broad,  
differs from it in having thick walls each cell with  
single chloroplast 3-4 1/2 lens



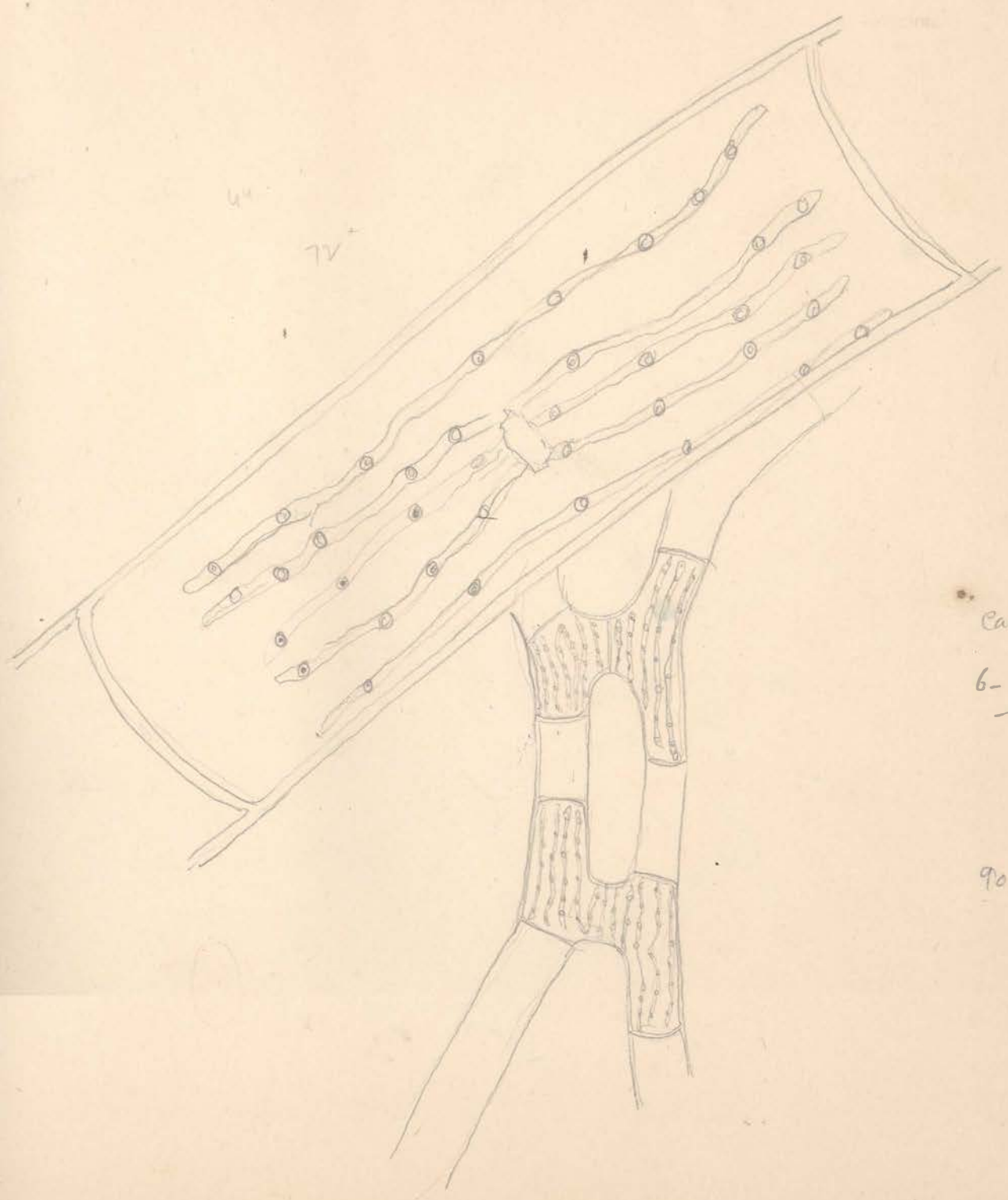
Conjugation from lateral & scalariform

Zygotes - oval

30-40 M broad.

55-86 M long spores with reticulate

*Sirogonium ventersicum* Trans.  
Var. *melanos* Penn.



Each cell wall

6-8 chloroph

-9 "

90% ...



*Sirogystrum venustum*  
Var. *melanospum*  
Var. n.v.

Spines w all densely verrucose  
exospore. hyaline

Alnus Shivvata

Spines - dark black in colour

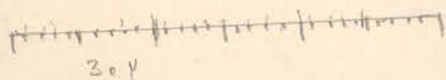
20 Feb. 37

Vegetative cells -

*S. venustum*  
Var. *melanospum*



Vegetative cells = 80μ - 170μ L



30μ

Spines 100μ L - 110μ L  
100μ long

frambles 2-3μ diam.

x 620

H.P. = 1 = 34

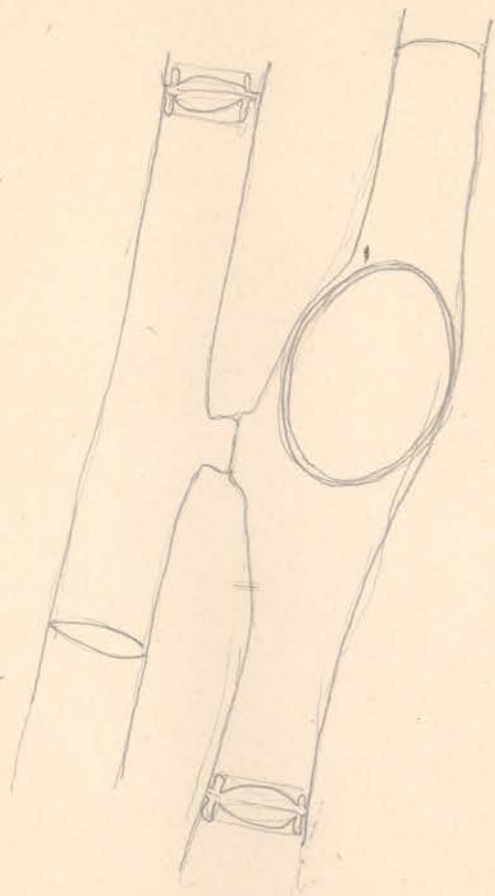


Richardson

12/13/35

*Sphaerocystis*

*Sphaerocystis*





X 880

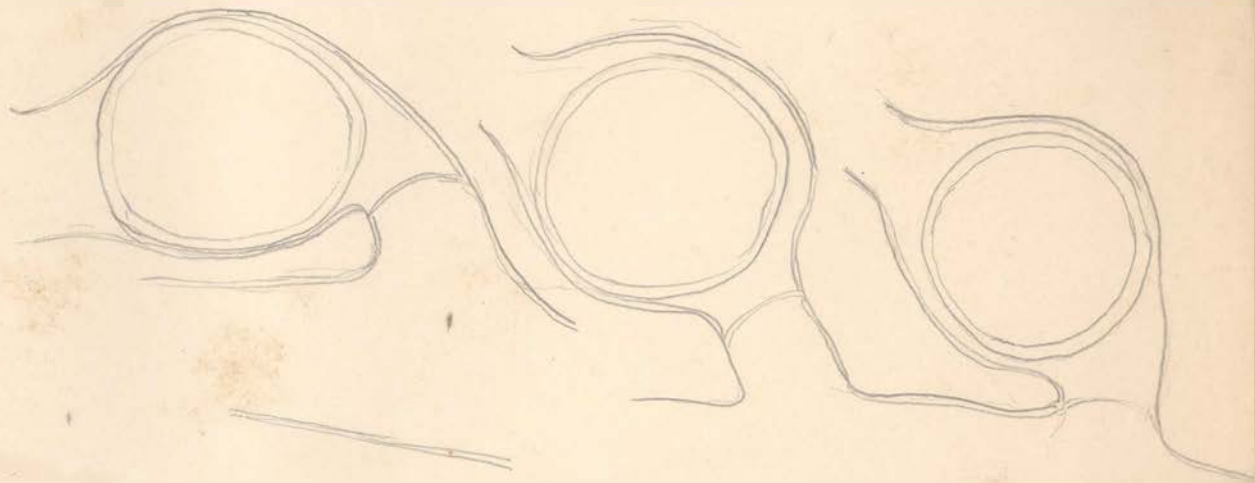
*Cylindrocapsa*

Granda

Feb 38



X 880



mitin miti Rangosin  
~ 244 mensur per.

Aukorahiper  
105 Feb. 3



Reiser's eggs  
in the jar  
Kelp



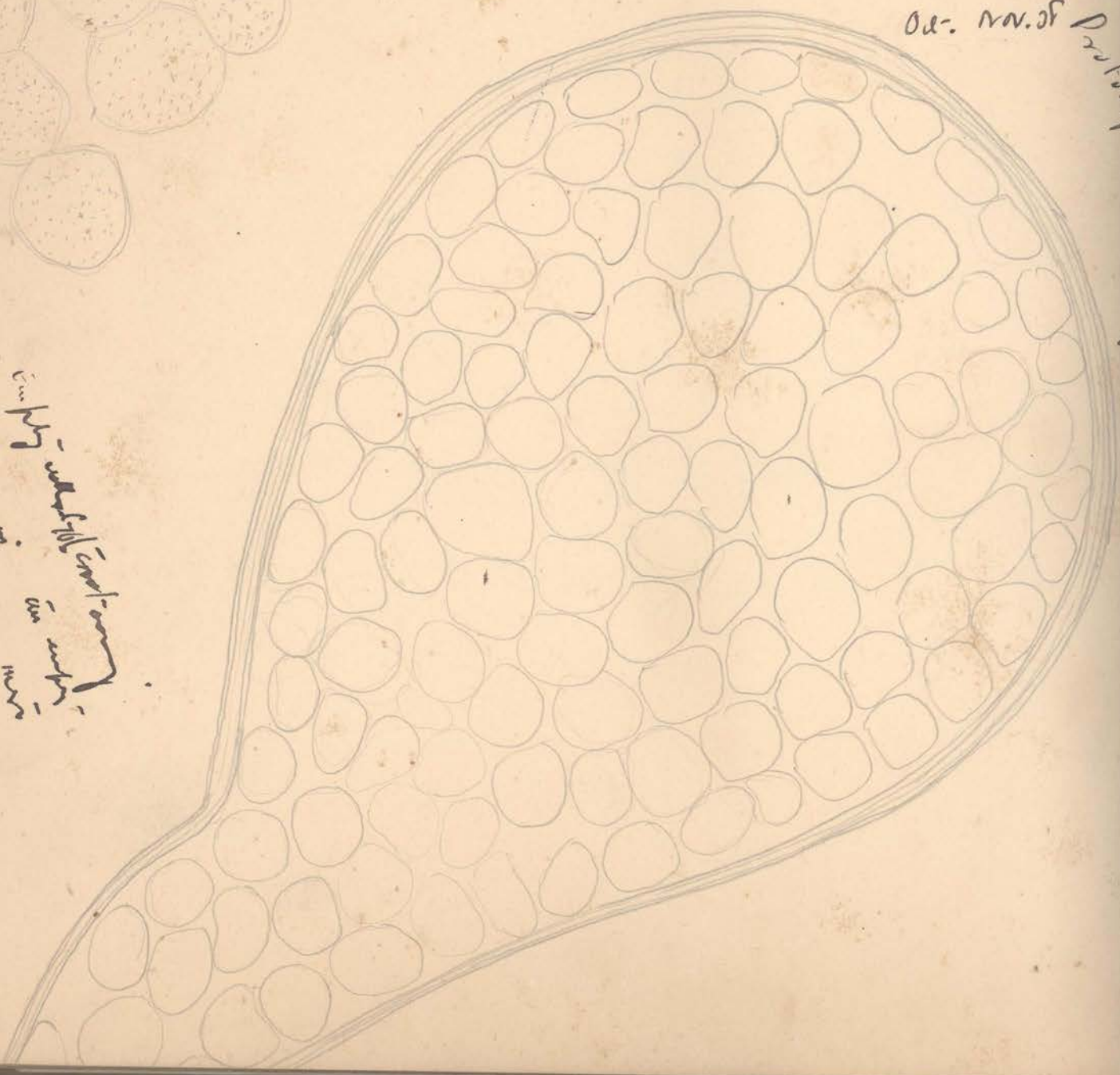
1/2 in diameter

*P. botryoides*.

Large new tide.

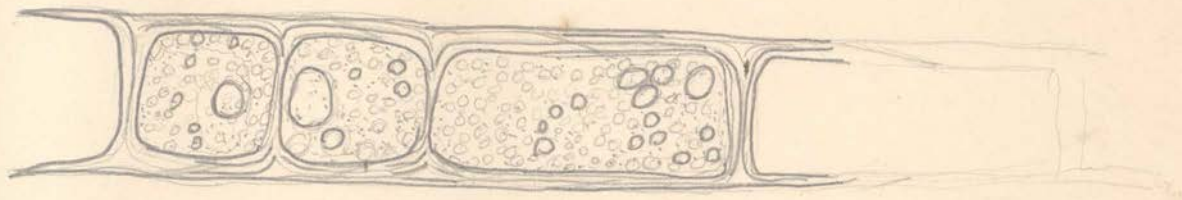
Low. water. Gravelly beach

Oct. Nov. of 1881



Development of  
the embryo  
in the egg  
cell  
in the  
egg  
cell  
in the  
egg  
cell

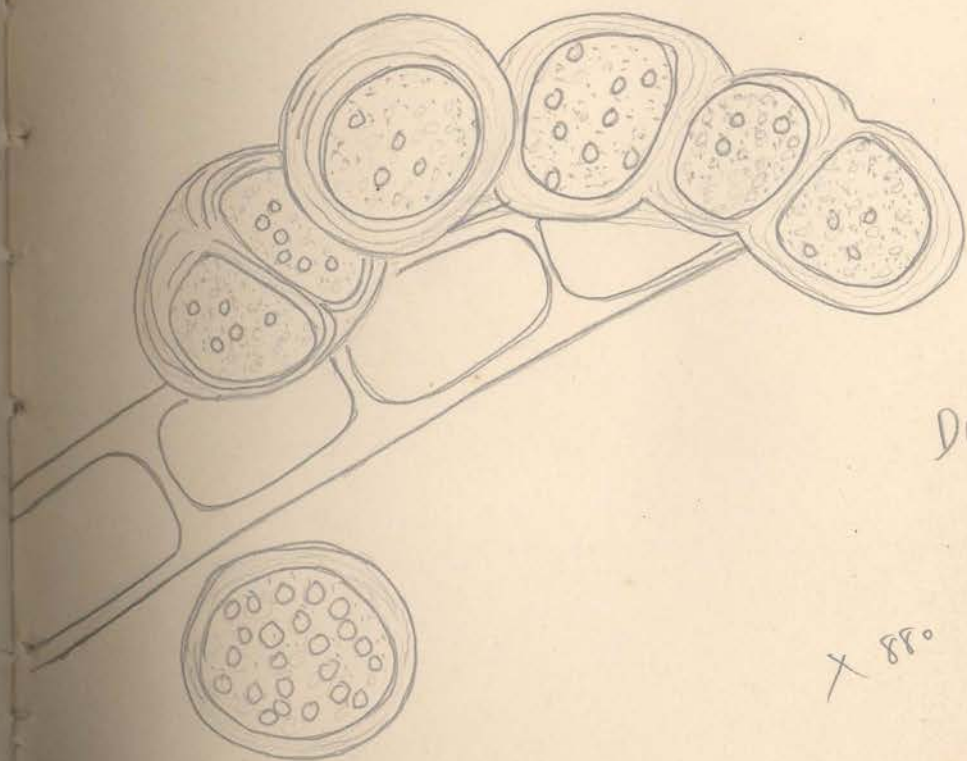
Nymphaea



x 880



stains blue with iodine



Dinoketox on

Microspora indica

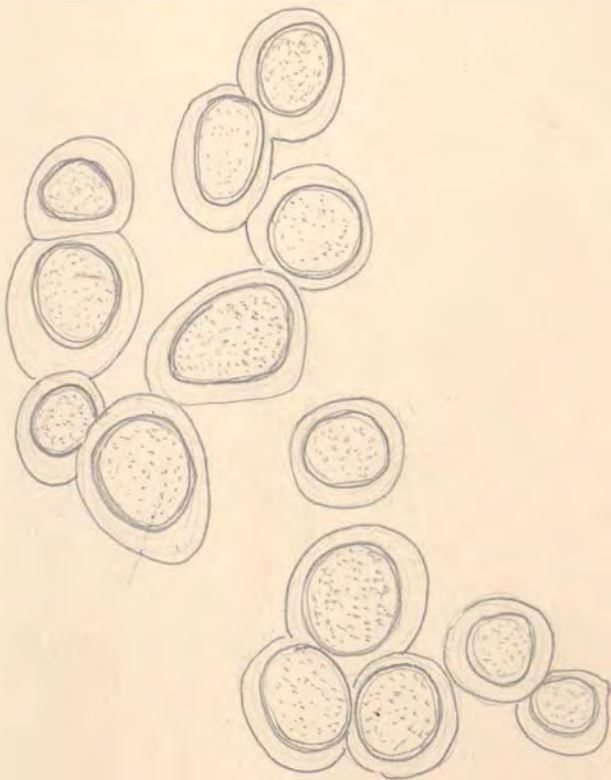
x 88°



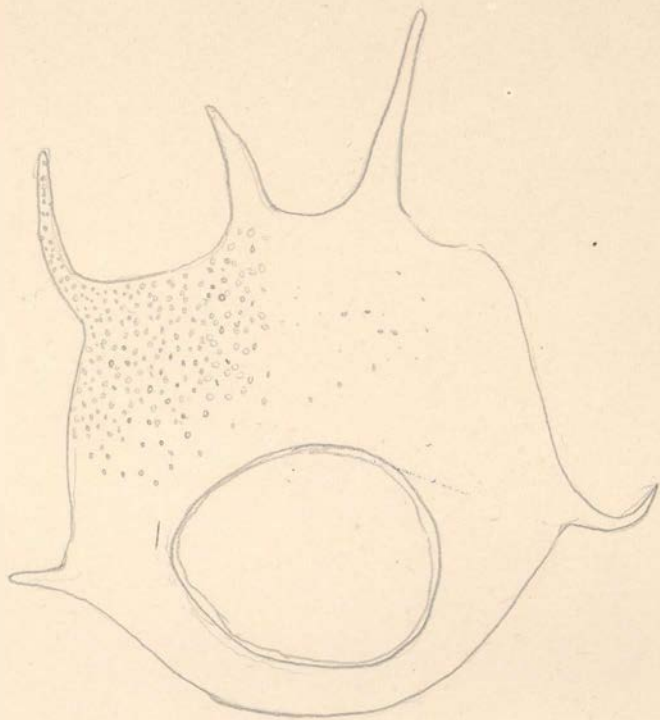
x 880



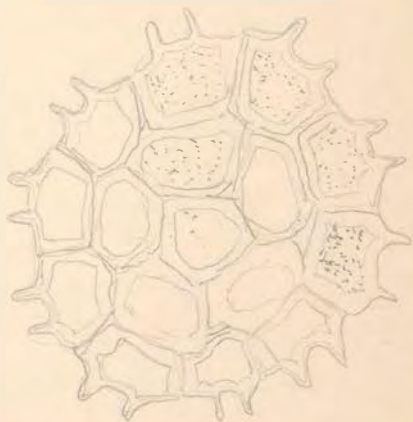
x 800

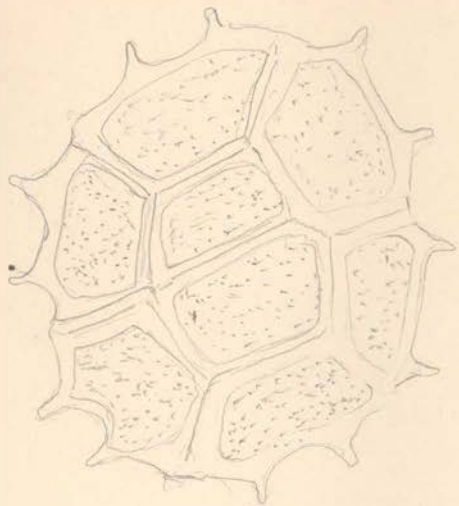




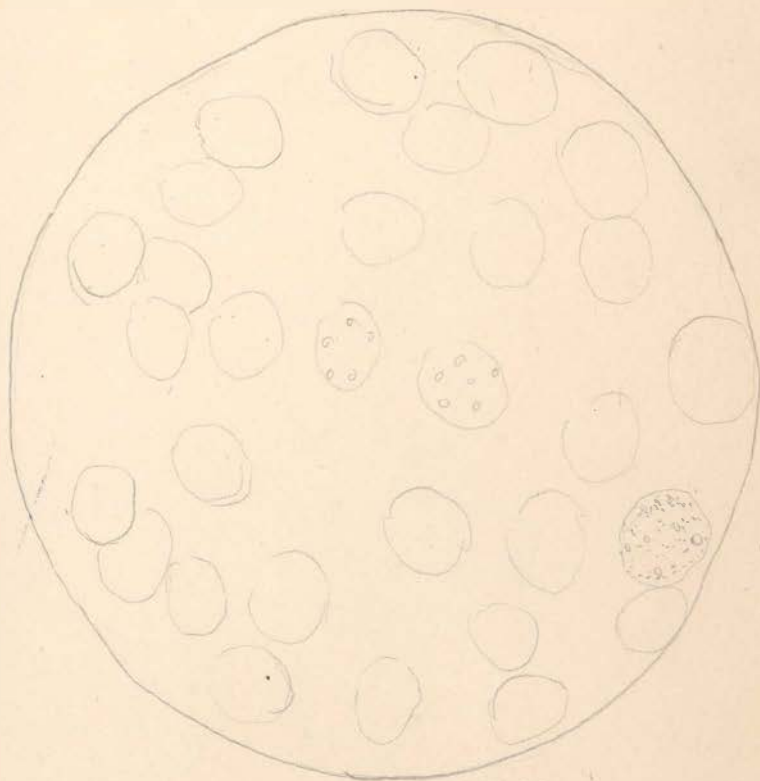
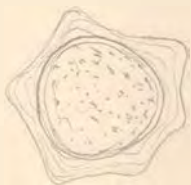


*Fungi form*



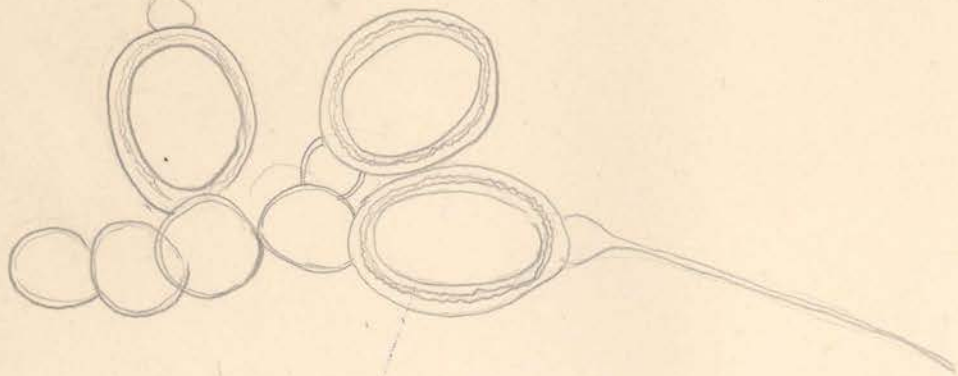


x 850

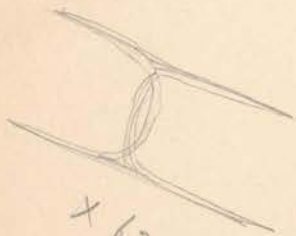


x 850

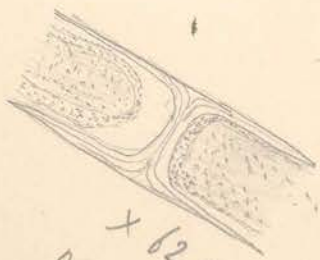
x 88



x 88

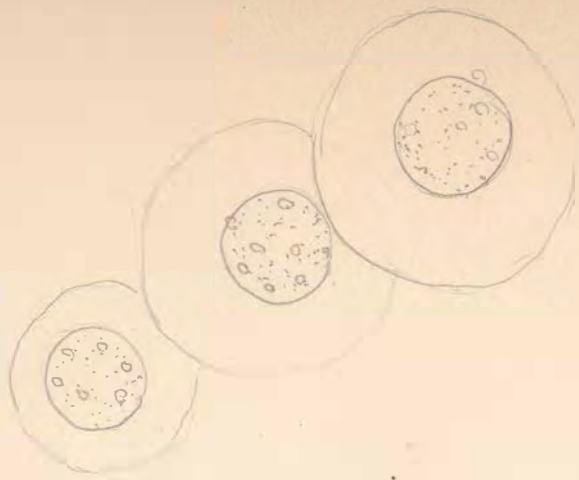


x 620



x 620  
No hyphae

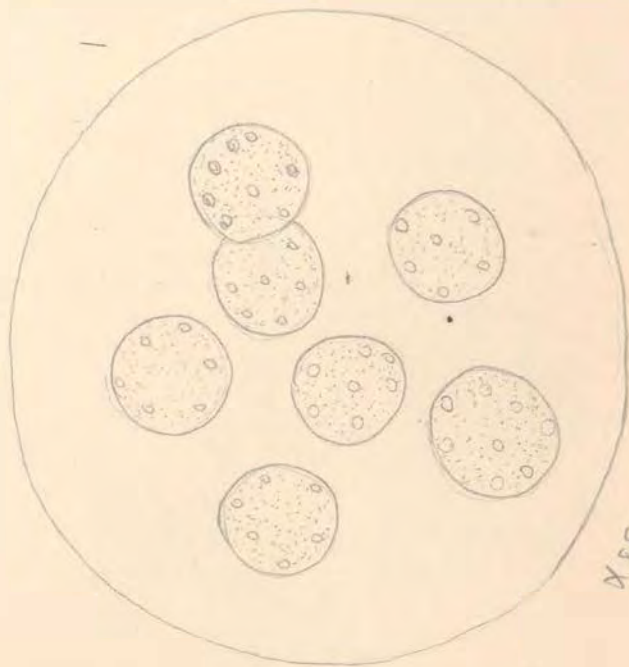




X850



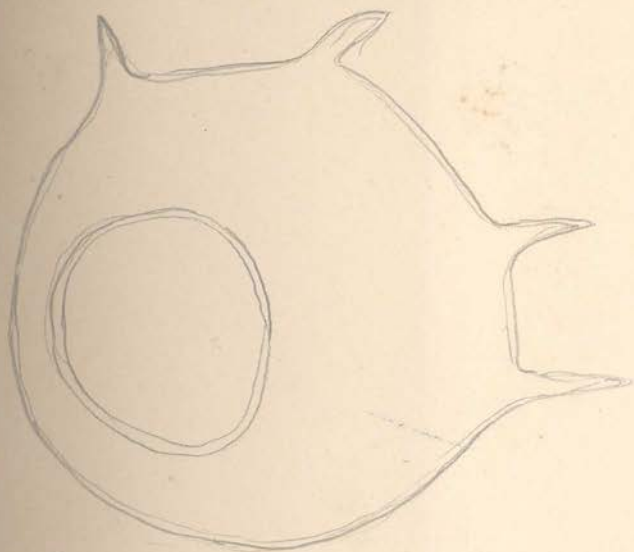
X800



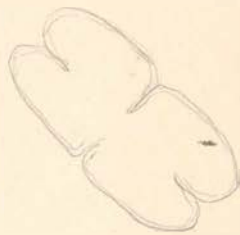
X800



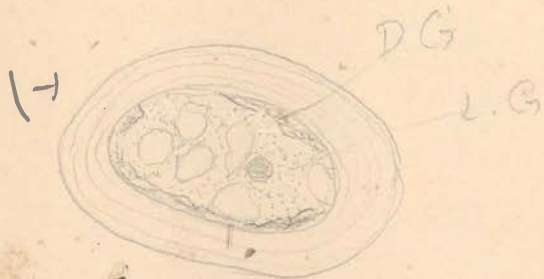
8 cells



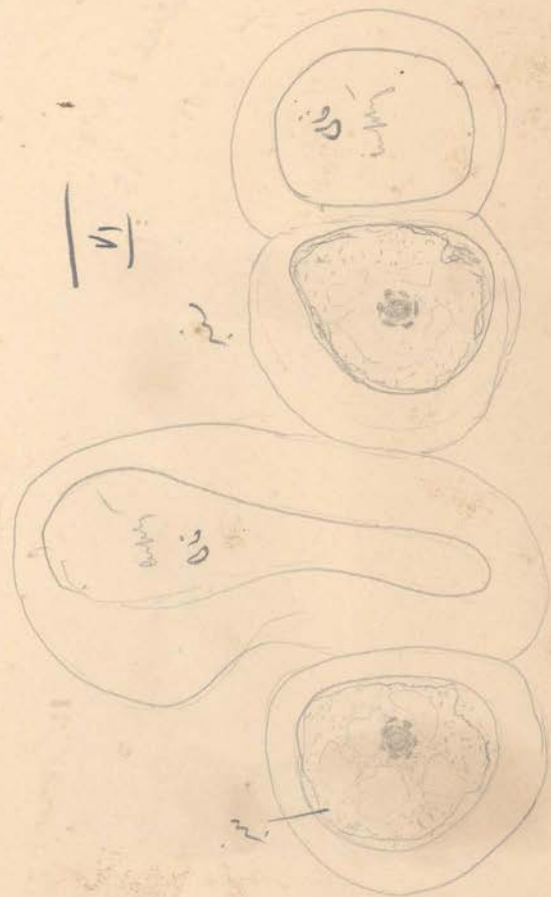
x100



*Dronni color*



Chloroplasts  
reticulati  
some cases  
(in long cells)



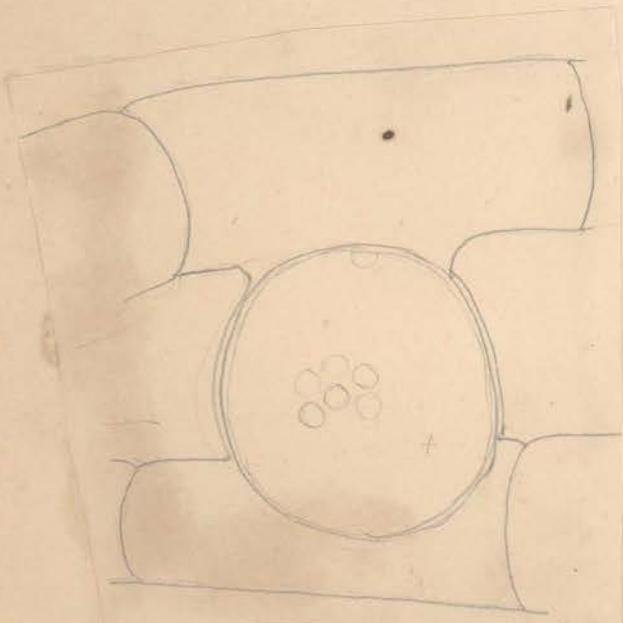
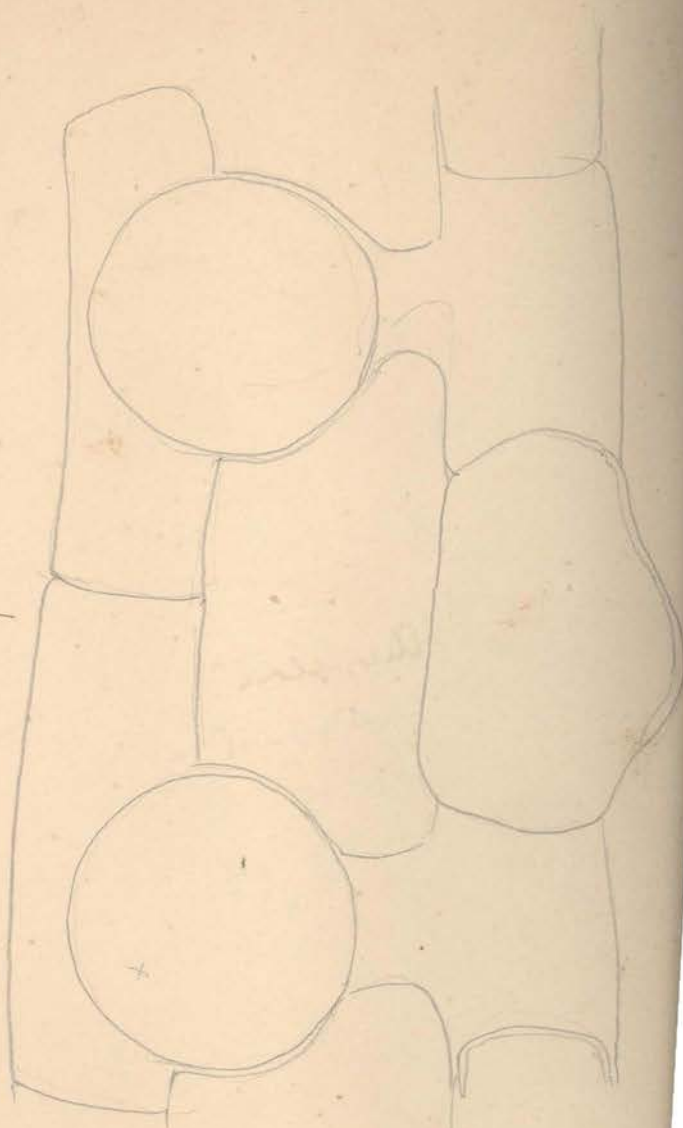
088 X

Stems heavily in air canopy. (at least 1 hole)  
in a young tree

Pits 34 in diameter  
24 apart.  
12 rows.

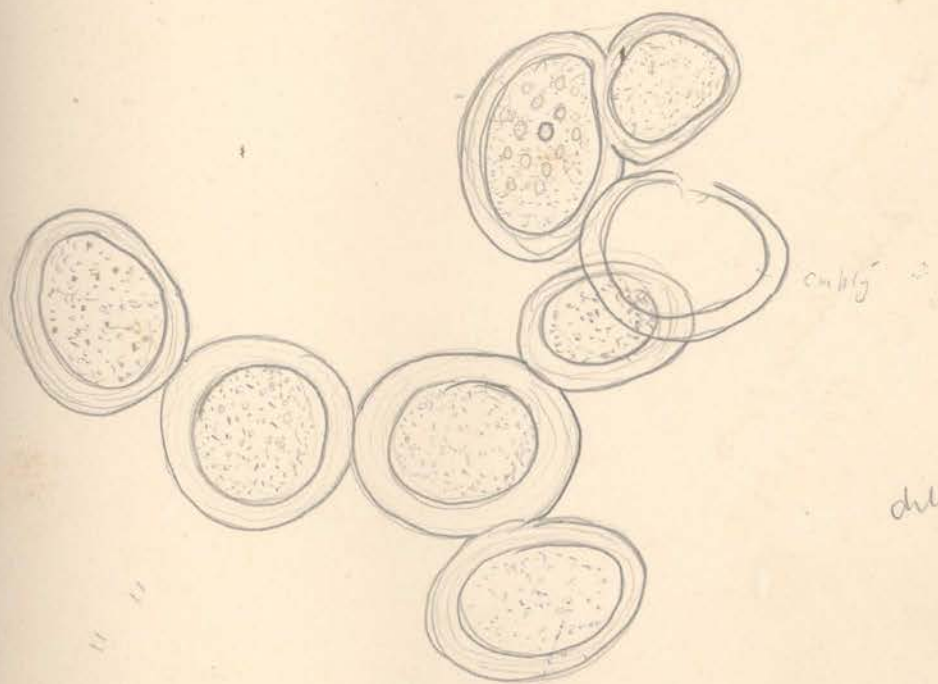
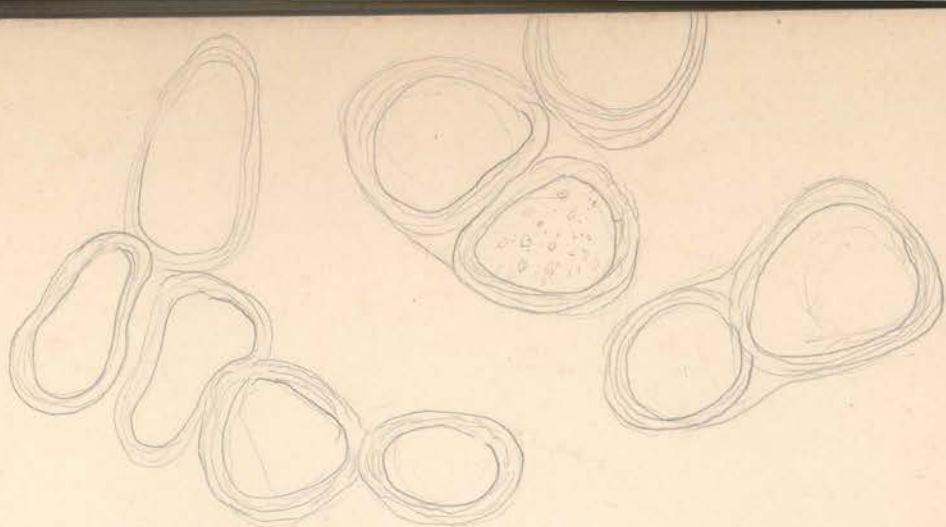
Zygomorpha -

Tarital - dark blue stems  
Gundam - 20 in Nov. 1936



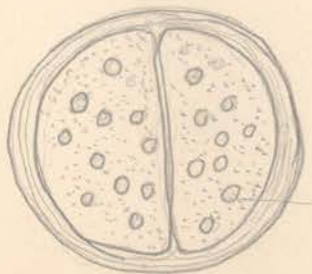
12 rows of pits





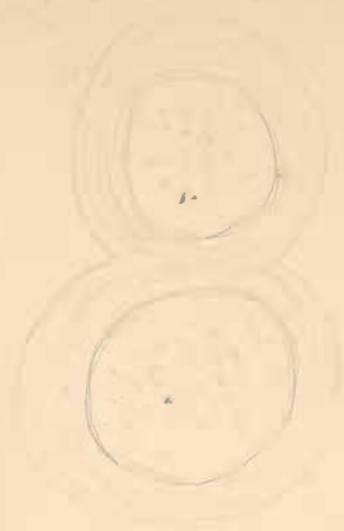
embry

chlorella 24 h den



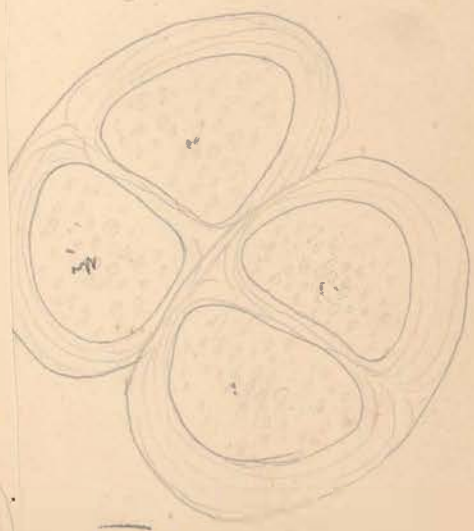
chlorella'

082x



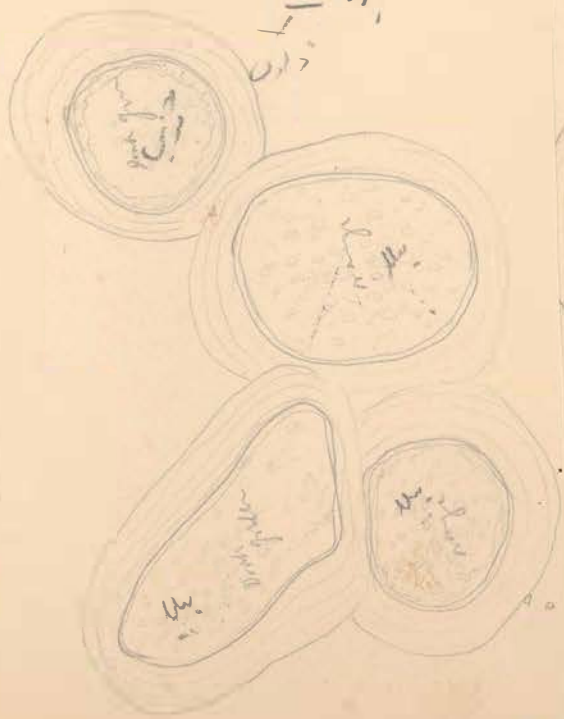
II

083x



III

I A



II



084x



III



IV



V



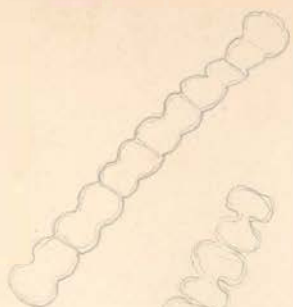
x/20

VI



VII



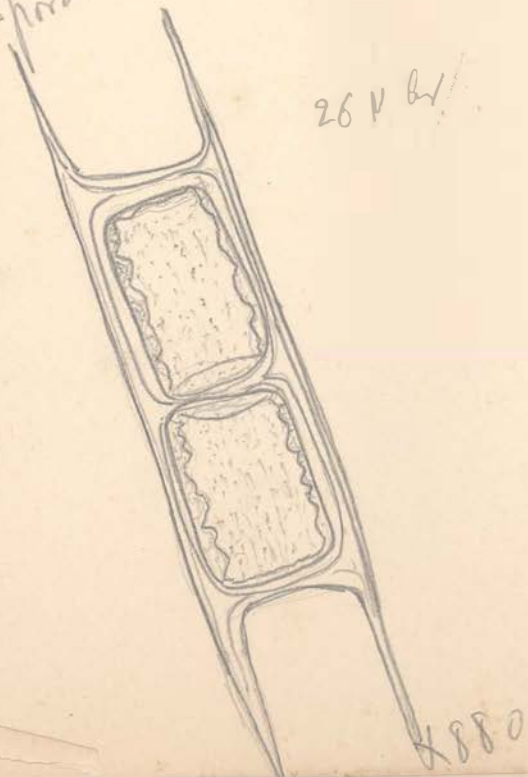


X880



3-4

*Micospira*



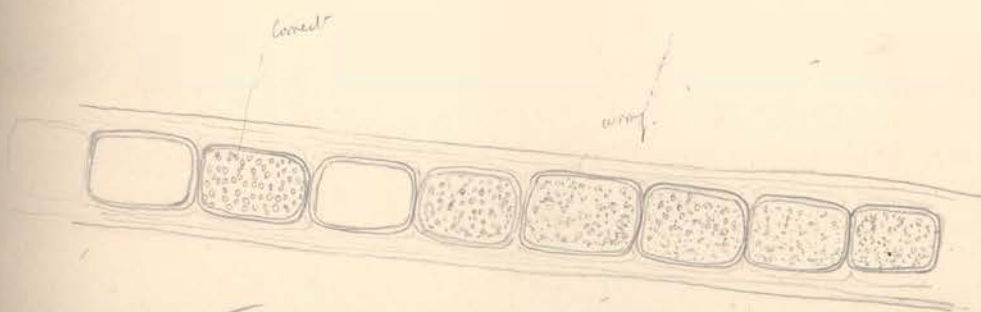
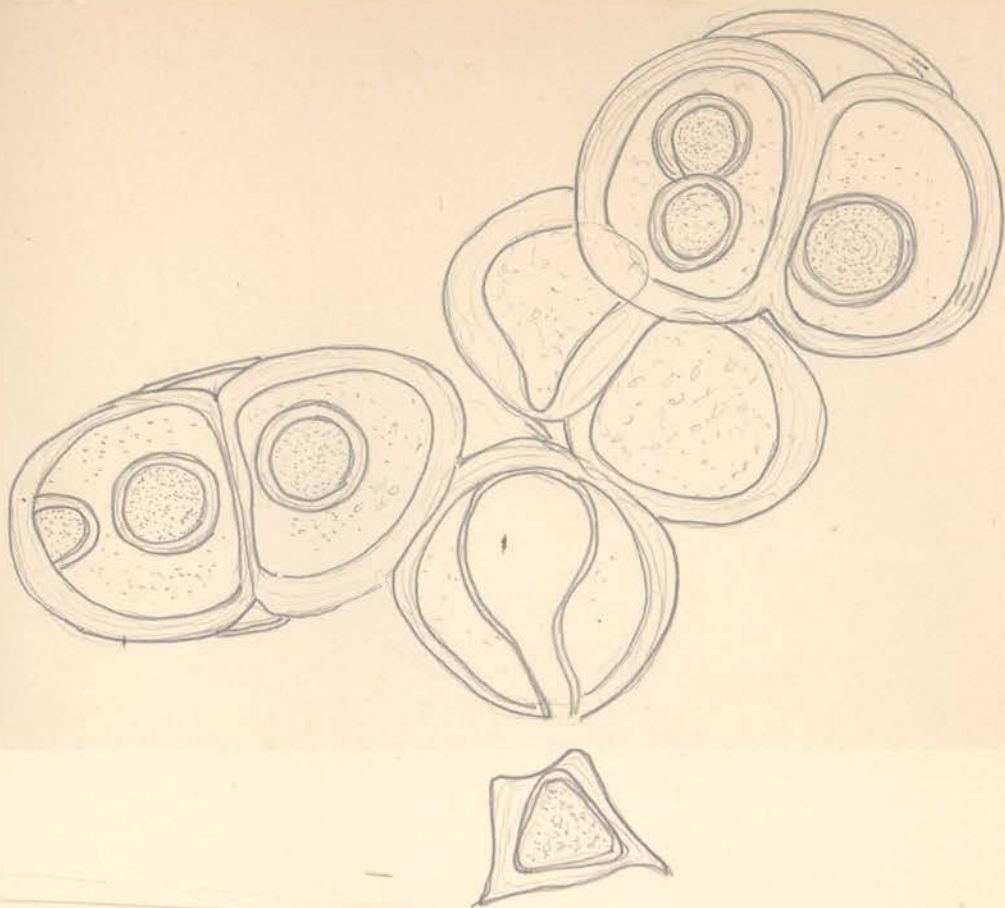
26 μ by

X880



X880





X 850

- 3-4 μ thick  
lamellose

spines = 12-14 μ br.  
15-20 μ long

in dusty sheath - full amount me  
21 μ br.

Taxial Glands  
65 Dec 35

620

$$= \frac{44}{88} = \frac{620}{31}$$

44  
88  
31

1/2

$$18 = \frac{18}{11} \times 2$$

2-3

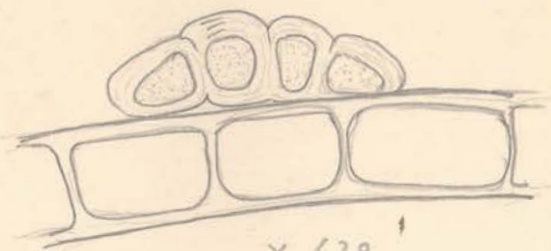
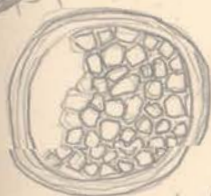
54

36

$$33 \times 5$$

Dinobrix

32 p  
top view



x 620

abundant  
in Microspora

spores

stains purple with iodine

Microspora

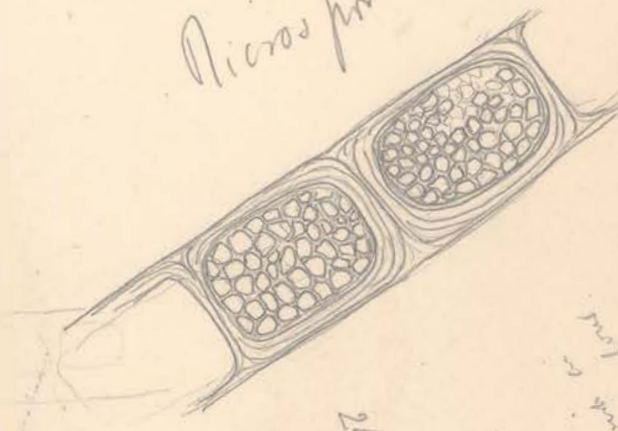
(see network)

as in Microspora

Microspora

Aplanospora

Microspora



Aplanospora

microspore

$$11 = \frac{18}{11} \times 15$$

16

$$\frac{15}{16} = \frac{18}{11} \times 24$$

18

42

$$\frac{15}{16} = \frac{18}{11} \times 30$$

$$24 - 25 = 27 \times 11$$

15 - 25

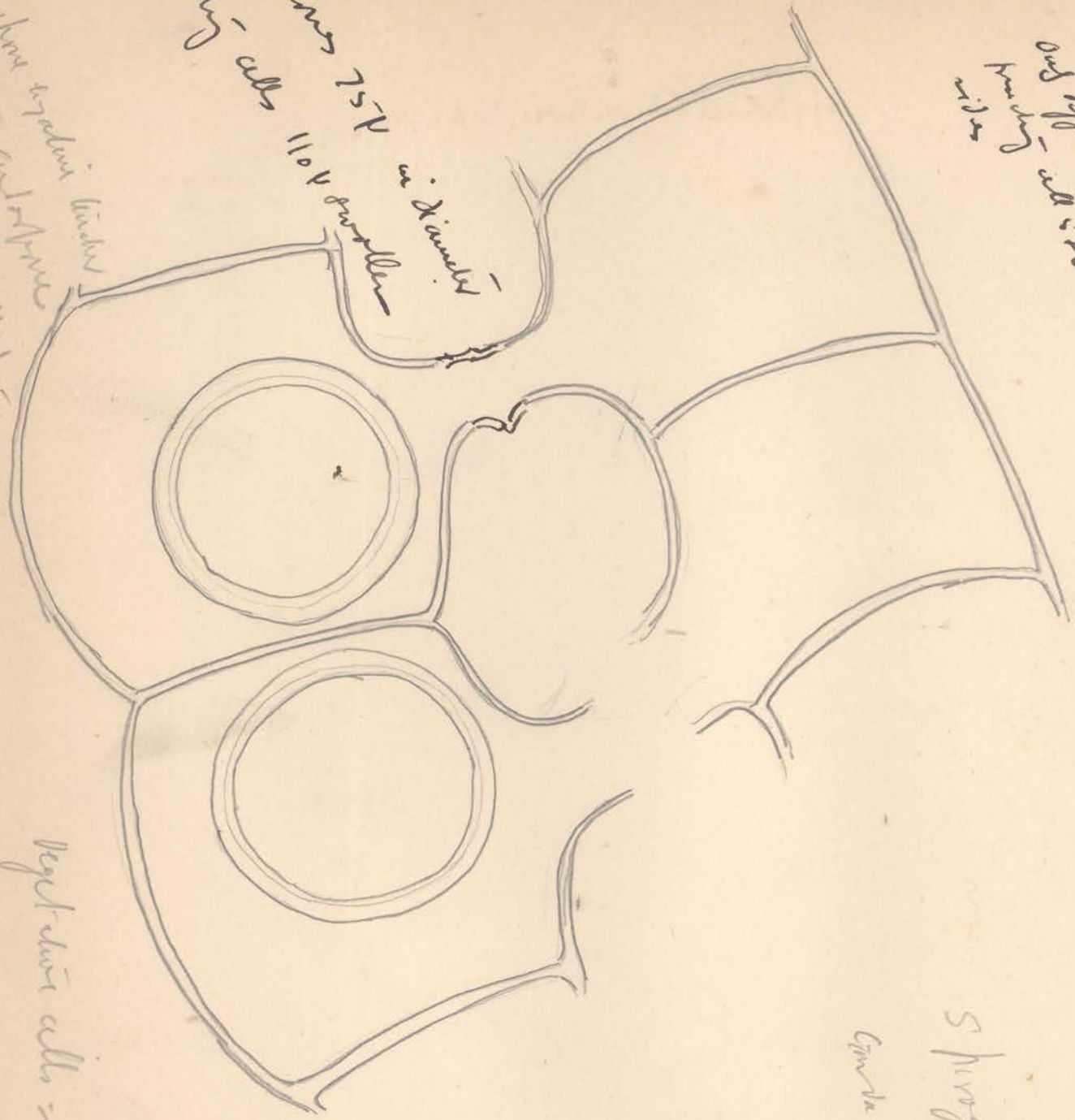
Penicillium

S.

only difference in  
penicillium cell is smaller  
width

spores 75V in diameter  
hanging cells 110V parallel

examine the spores in  
microscope  
brown  
and white



6-8 distal spores

vegetative cells = 80V etc.

= 2-1 lines in brown

spores brown color

20 x

6/2/38

S. purpurea

Spores. Bacterium

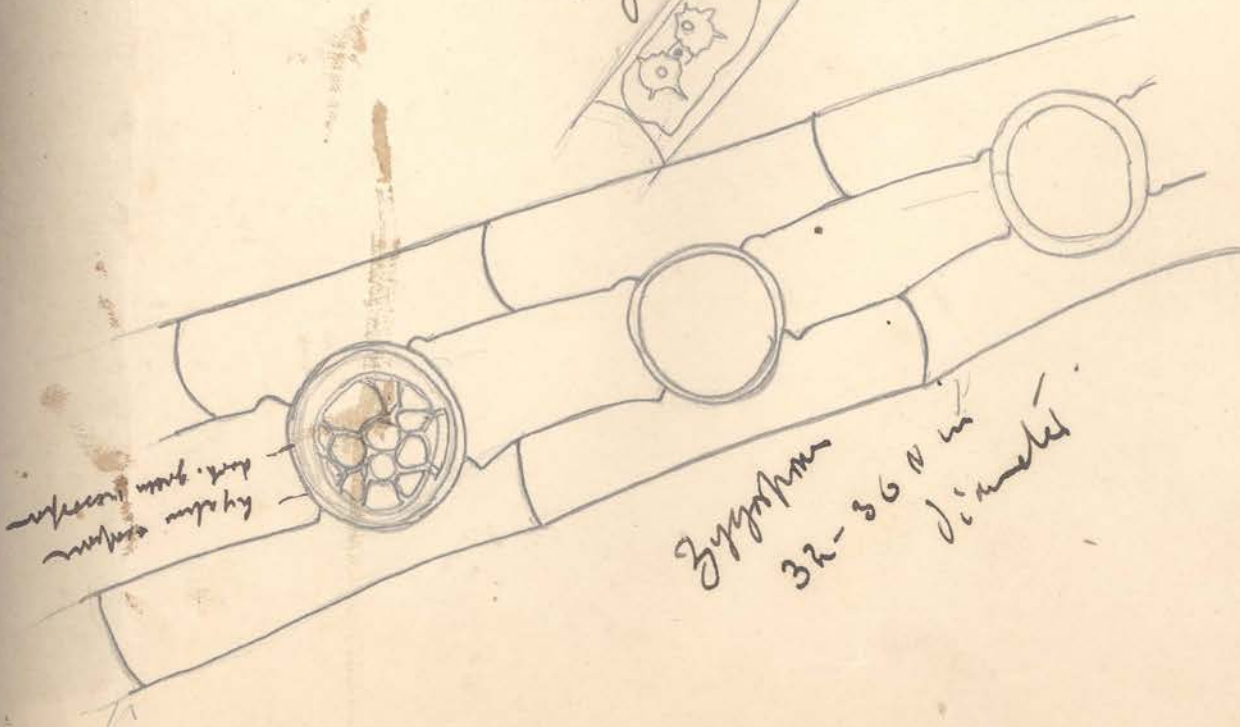
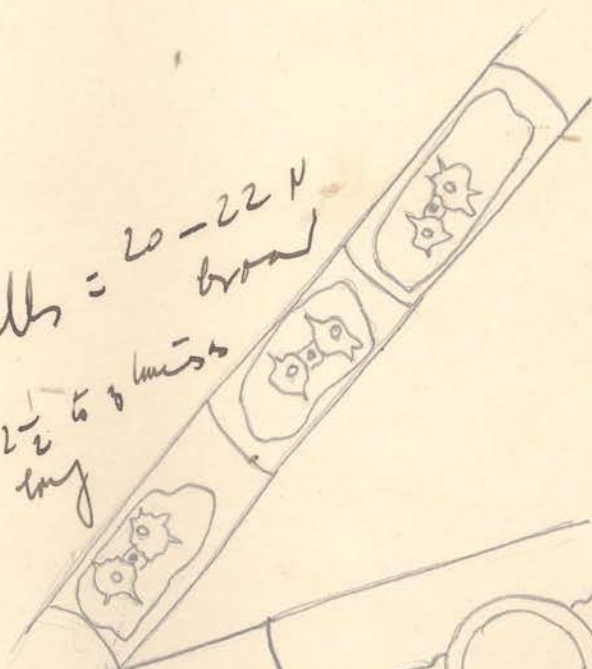


*Zygnema Chowdhrii*, sp. nov.

12 x 18 x 13  
12  
96  
12  
11 | 116 | 20  
11  
46

cells = 20-22  $\mu$   
broad

2-2 to 3  
long



*Zygnema*  
32-36  $\mu$   
diameter

dark green  
hyaline

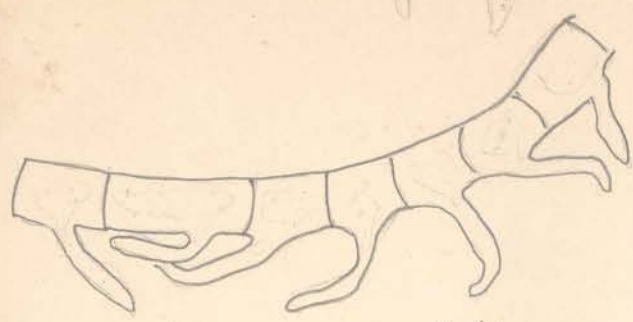
11/11



*spirogyra subm*

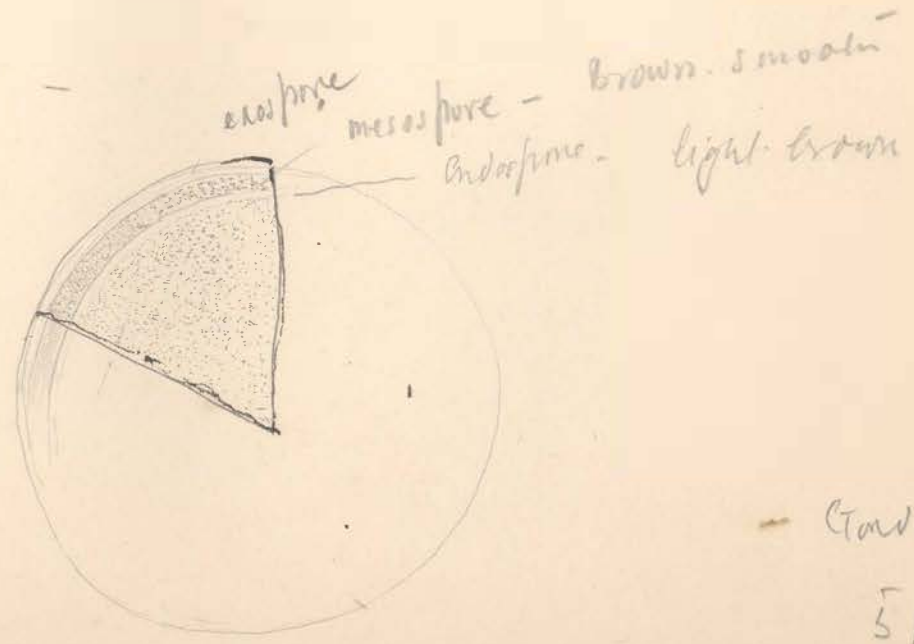


X 100



80-90 YW.

76 YW.



X 880

- Gorda

5/3/3

Nati - 2. Translucida  
 no lamellation in cells being  
 abraded

resembles S. gallica Petit  
 in size of vegetative  
 cells, size of spores, smooth  
 mesopore  
 only difference is in  
 two chromosomes  
 in presence of

54  $\mu$   $\rightarrow$  60  $\mu$  broad

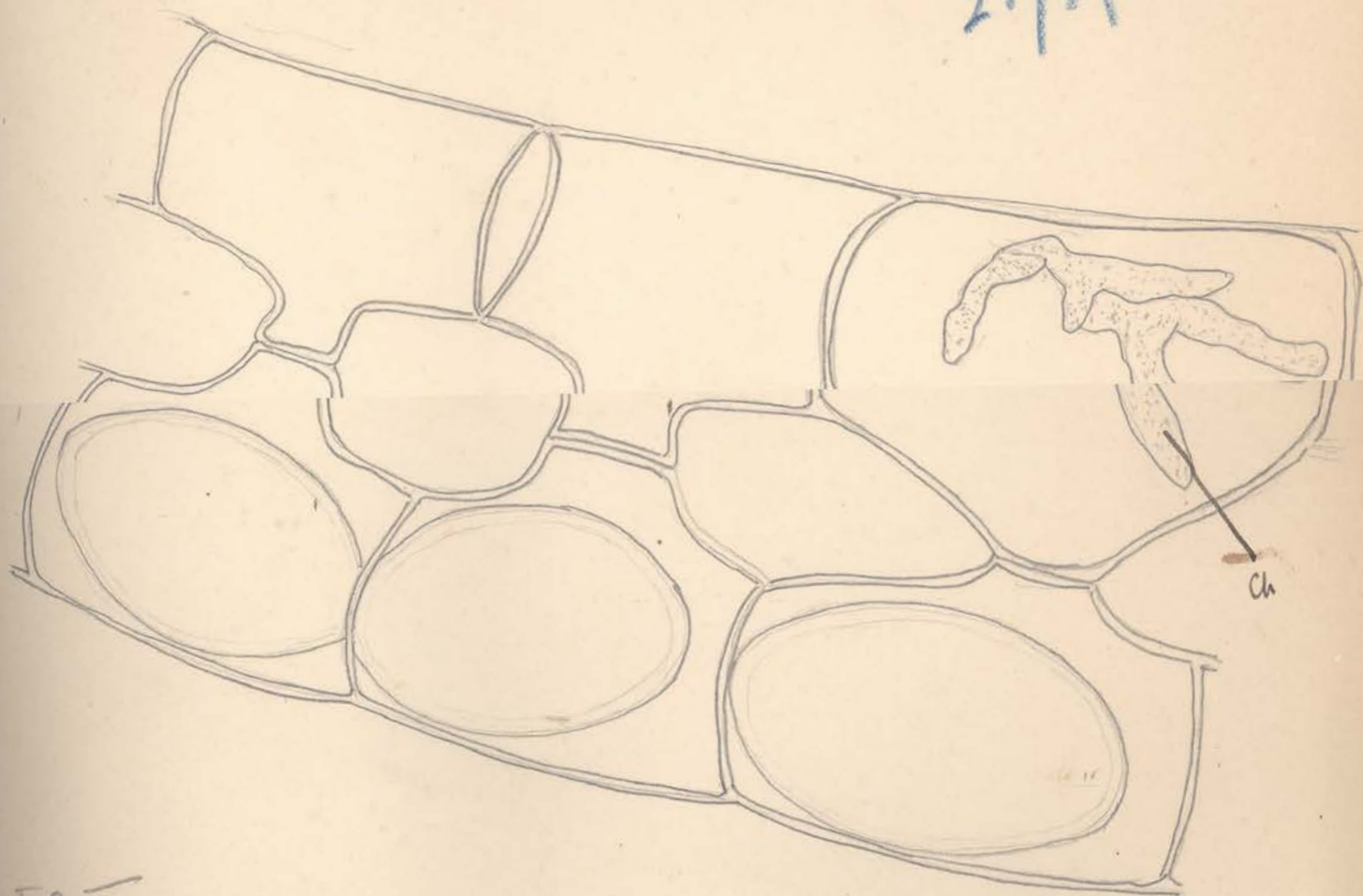
Thruca - radi

Tanda

80  $\mu$  - 90  $\mu$  long

in brown masses

21/5/58



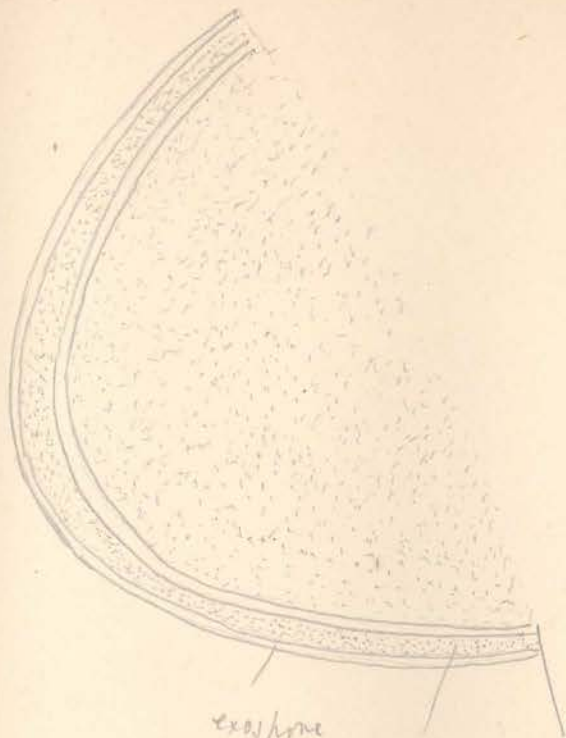
50 -

- Vegetative cells = 60  $\mu$  broad - 72  $\mu$  - - 75

96  $\mu$  long - 160  $\mu$  -

Each with two chloroplasts of 4-6  $\mu$   
rarely with three

Amoeba - smooth



exosperm  
hyaline

mesosperm  
rich in  
chocolate  
brown

endosperm  
light-  
brown

acrotali

spines - brown in color

1730

Amoeba - Tard -

21/5/37





X 1730 with camera lucida

X 1120 without camera lucida

$$39 = \frac{310}{\frac{62}{24} \times 95}$$

95

$$\begin{array}{r} 310 \\ 95 \\ \hline 2790 \\ 17 \overline{) 29450} \quad 1730 \\ \underline{17} \\ 124 \\ \underline{119} \\ 55 \\ \underline{51} \\ 40 \end{array}$$



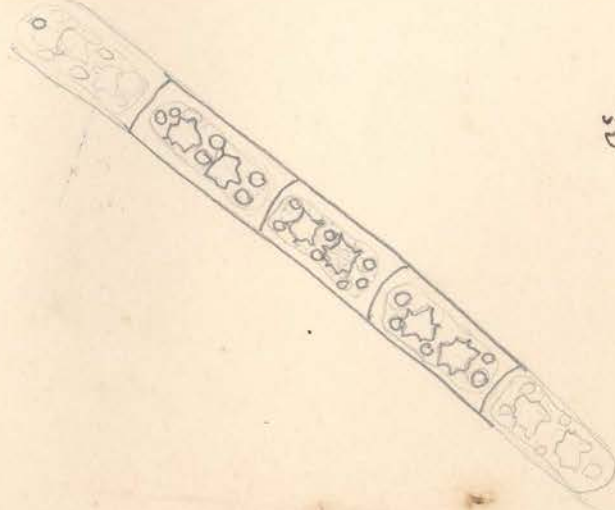
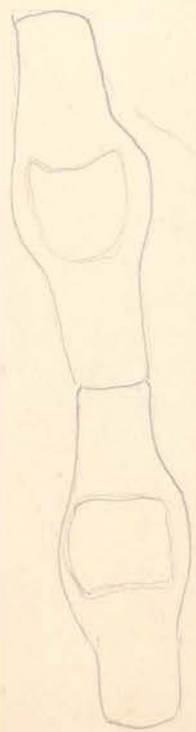
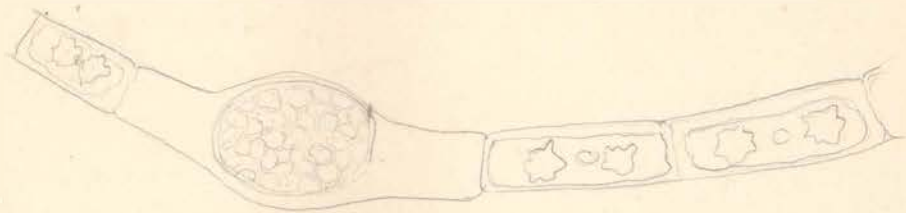
X 1730 with camera lens

X 1120 without camera  
lens

34 =

$\begin{array}{r} 310 \\ 62 \\ \hline 34 \end{array} \times$   
17

No lamellatum articulare  
 Zygnopsis lamellata. Linn<sup>us</sup> reticulati in submicroscopio  
 (widi videtur Zygnopsis reticulatum Haller.  
 Halleri reticulata. Rosenm.



$$11 = \frac{18}{11} \times 9$$

11

$$\frac{11}{11} \frac{162}{52} \frac{14}{14}$$

15 - 18.6 p 21



30  
 28-34 p broad  
 and thin to long



40 x  
 28 x  
 20 x  
 11

— cross section  
 — longitudinal section  
 — cross section  
 — longitudinal section

25 x 15  
 18 x 15  
 11 x 28  
 11 x 15  
 22 x 28  
 28 x 15  
 11 x 15  
 11 x 15  
 11 x 15  
 11 x 15

Porolati type of m...  
 M in sp...  
 Anisogamete conjugate  
 Zygote globular  
 with the side  
 facing the conjugate  
 must have...  
 40-46 p in  
 diam.

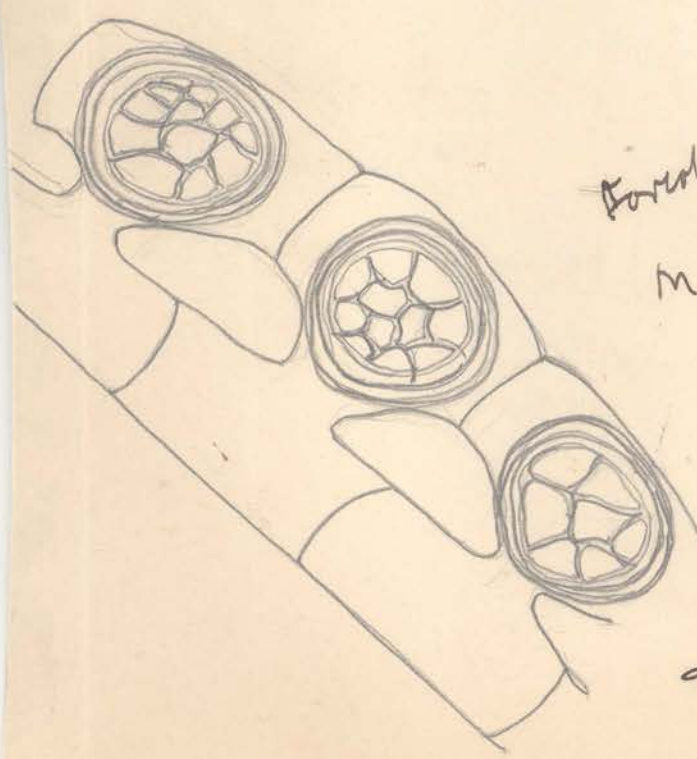
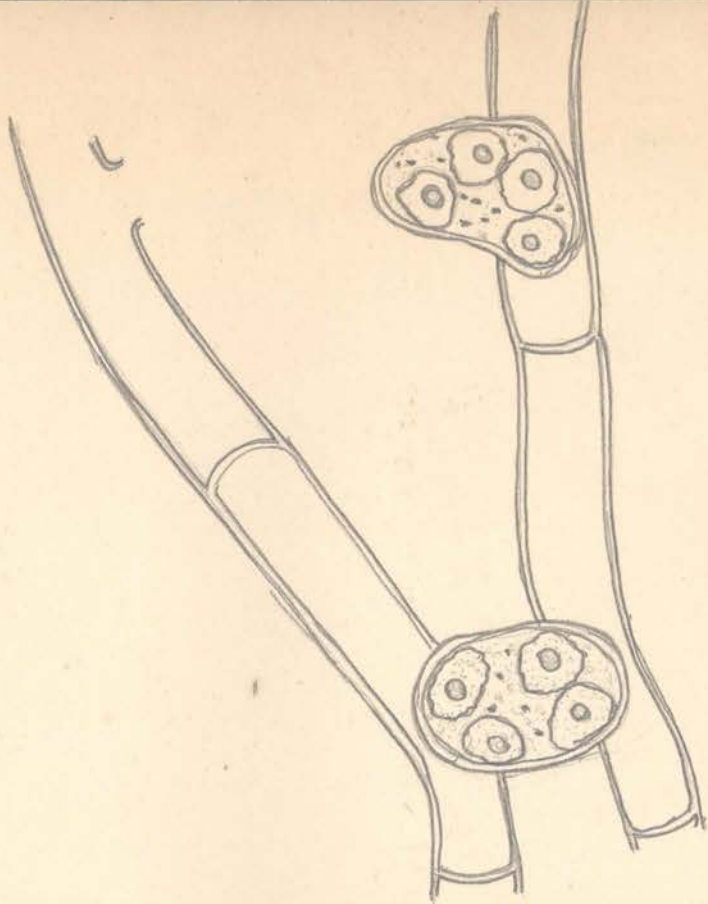


Table B





Handwritten notes in cursive script, likely describing biological observations or experimental results. The text is partially illegible due to the cursive style and some fading.



*Zygogonium terrestris.*

Rand ~~name~~

11. 13

Vegetative cells = 18 - 21  $\mu$

Zygotes = 28 - 38  $\mu$  broad

36 - 54  $\mu$  long.

4

11

$$\begin{array}{r} 17 \times 18 \\ 17 \\ \hline 126 \\ 18 \\ \hline 11 \overline{) 306} \end{array}$$

$$\begin{array}{r} 23 \\ 18 \\ \hline 414 \end{array}$$

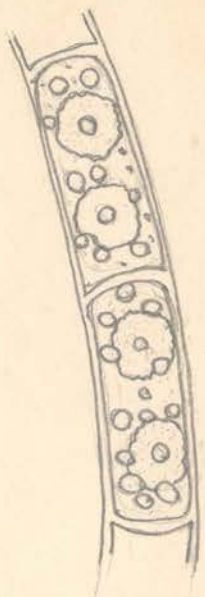
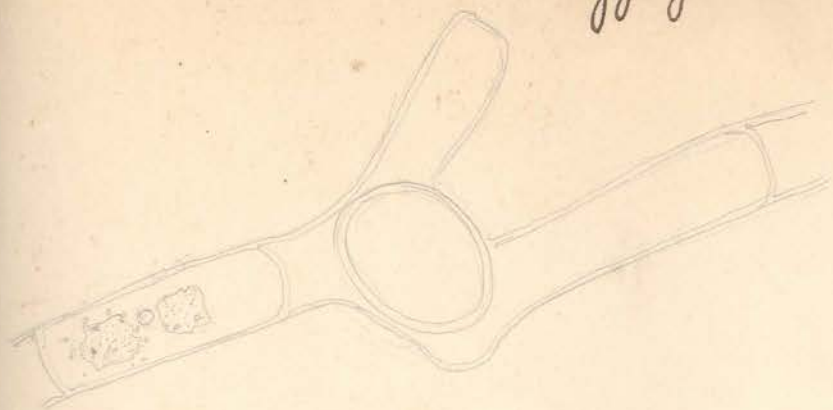
$$\frac{18 \times 13}{11}$$

$$11 \overline{) 234}$$



pectic layer on <sup>an</sup>  
sides of abutments.

Zyggma terrestris



I-1

22-35

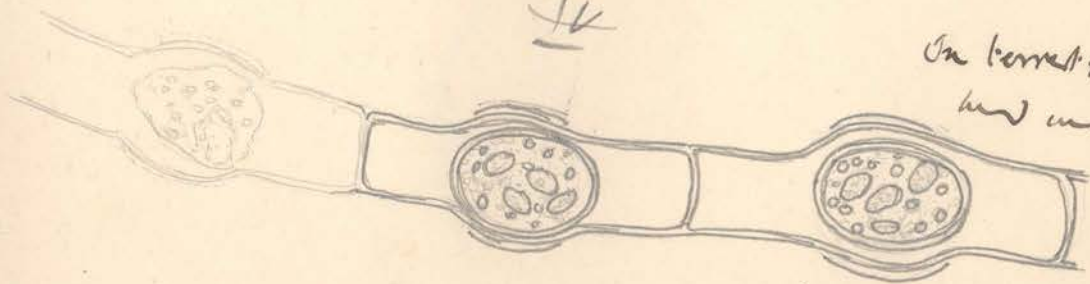
d 22-81

$$\begin{array}{r} 22 \\ 22 \\ \hline 44 \\ 22 \\ \hline 66 \\ 11 \\ \hline 77 \\ 13 \\ \hline 90 \end{array} \quad \parallel$$

51 x  $\frac{11}{81}$

5

IV



Vegetative cells

18-24  $\mu$   
 brown

36-60  $\mu$  long  
 in suberial part.

In terrestrial part - brown  
 and may be as long

108-250  $\mu$  long

$$\begin{array}{r} 18 \\ 15 \\ \hline 33 \\ 18 \\ \hline 51 \\ 27 \\ \hline 78 \\ 22 \\ \hline 100 \end{array} \quad \parallel 2$$

$$\begin{array}{r} 18 \\ 6 \\ \hline 24 \\ 15 \\ \hline 39 \end{array} \quad \text{TOBL}$$

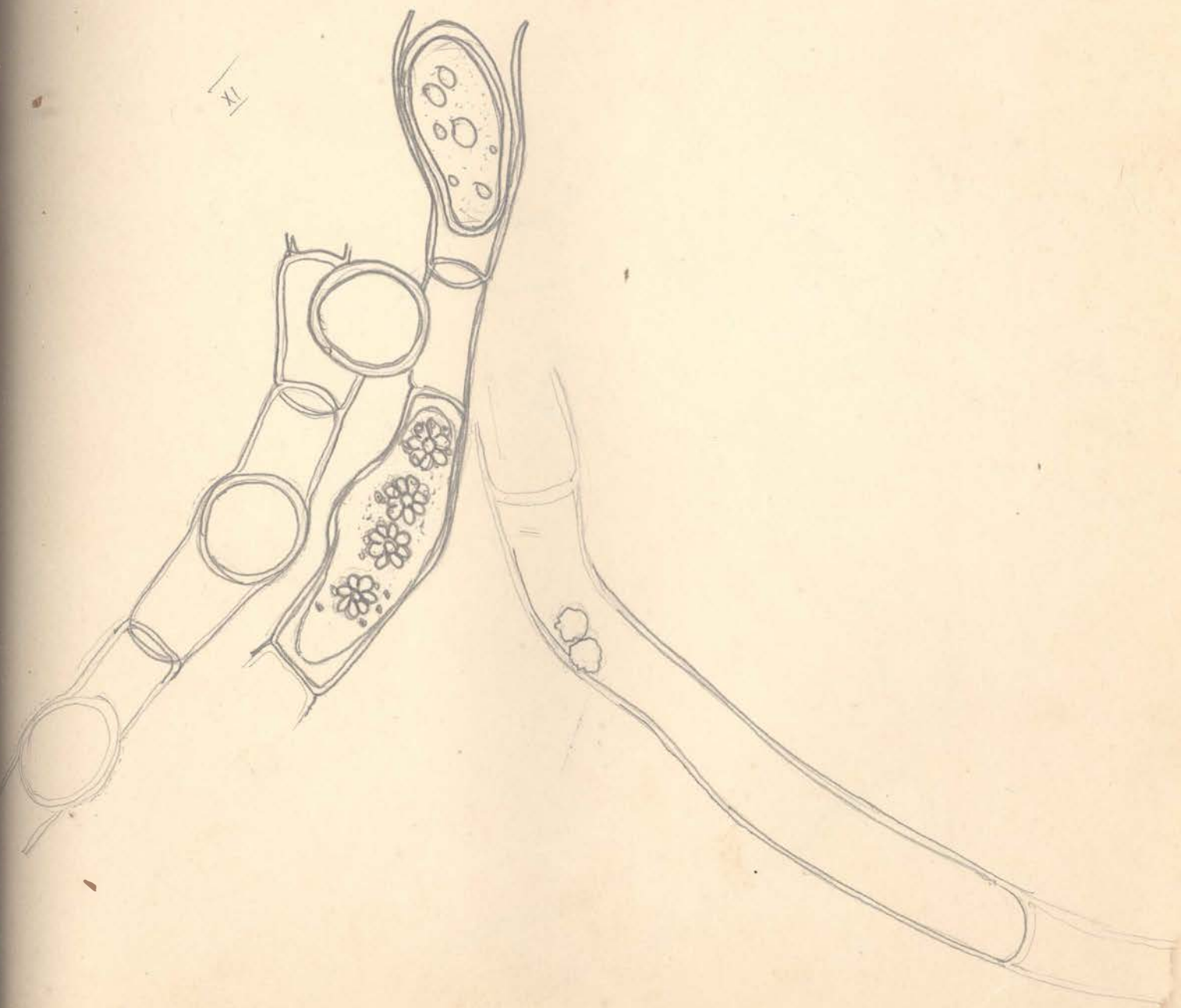
150 x  $\frac{18}{11}$

$$\begin{array}{r} 150 \\ 18 \\ \hline 168 \\ 150 \\ \hline 318 \\ 22 \\ \hline 340 \\ 44 \\ \hline 384 \end{array} \quad \parallel 245$$

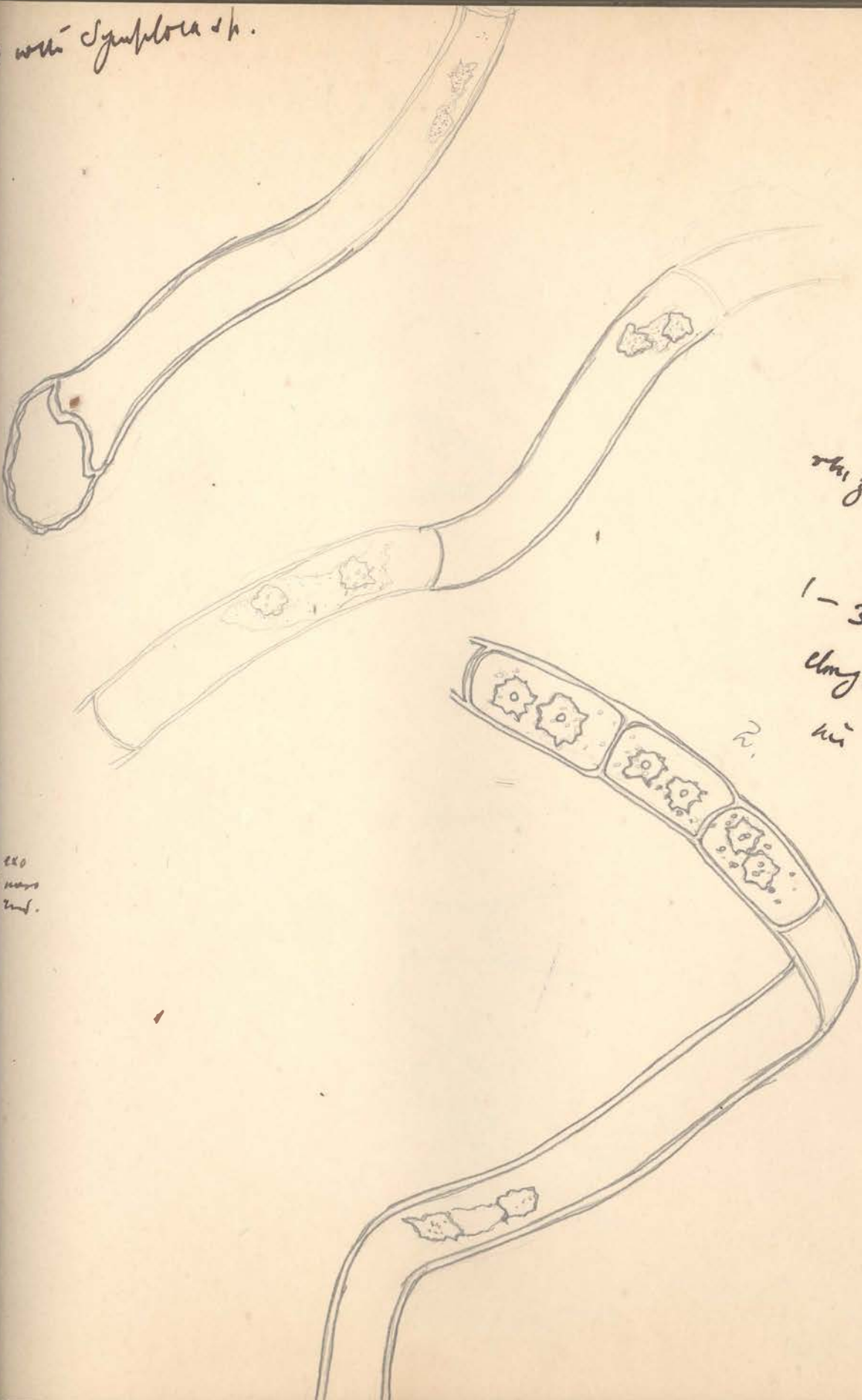


Zygogonium terrestris

1/2



with *Symbiotes* sp.

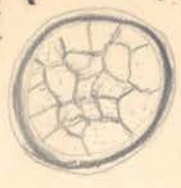


No winding in  
perigonal part seen

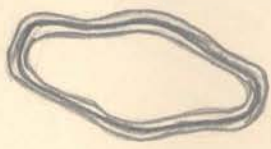
1-3-5 cells  
elongated from  
in perigonal part

220  
magn  
2nd.

Thick dark green  
 when moist  
 thin green  
 when dry  
 thin carbon  
 thin-green



Dark greenish blue (living mass)  
 composed of 3-4 cells  
 showing a cell wall  
 and a central vacuole  
 showing a nucleus



Egg-shaped  
 same size as  
 albumen  
 by number  
 12

no separating wall noticeable.



Albumen  
 identified

Progamete to the female



Aggregat

Aplanospores 95%  
5% zoospores

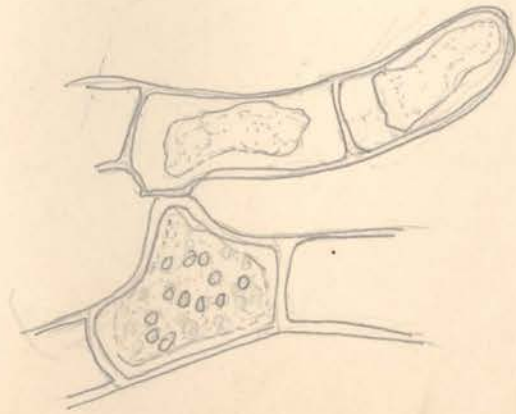
drawing of aplanospores by way of walls.



Ripe aplanospores oval to  
= 30-34  $\mu$  broad  
36-65  $\mu$  long.

Average size is  
36  $\mu$  broad  
46  $\mu$  long.

No flagella



membrane  
thin  
granules

Exo-kone -  
Membran -  
Buckel mit  
Exo-kone -

59/26/11

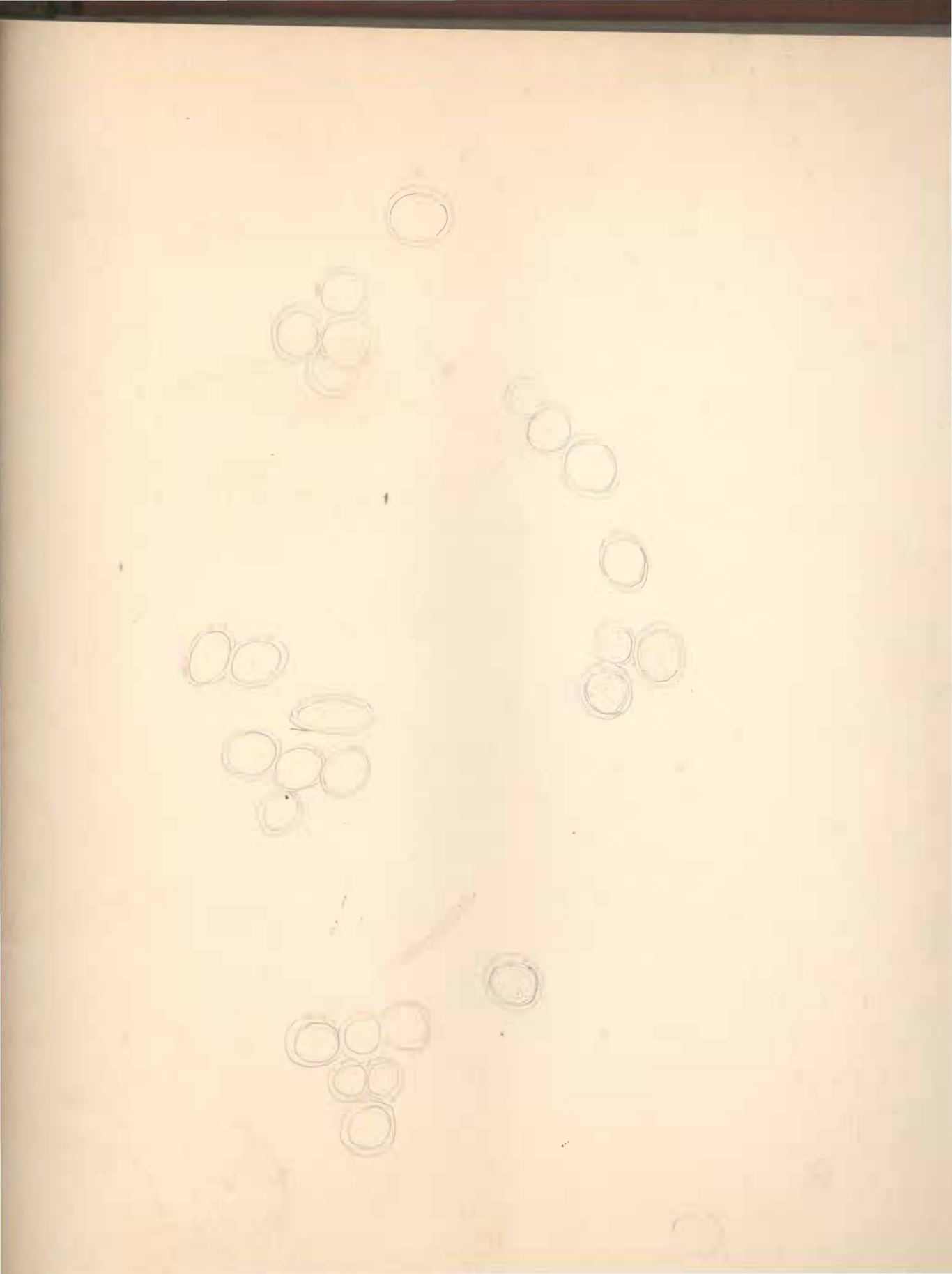
28  
18  
474  
28  
408  
15-20

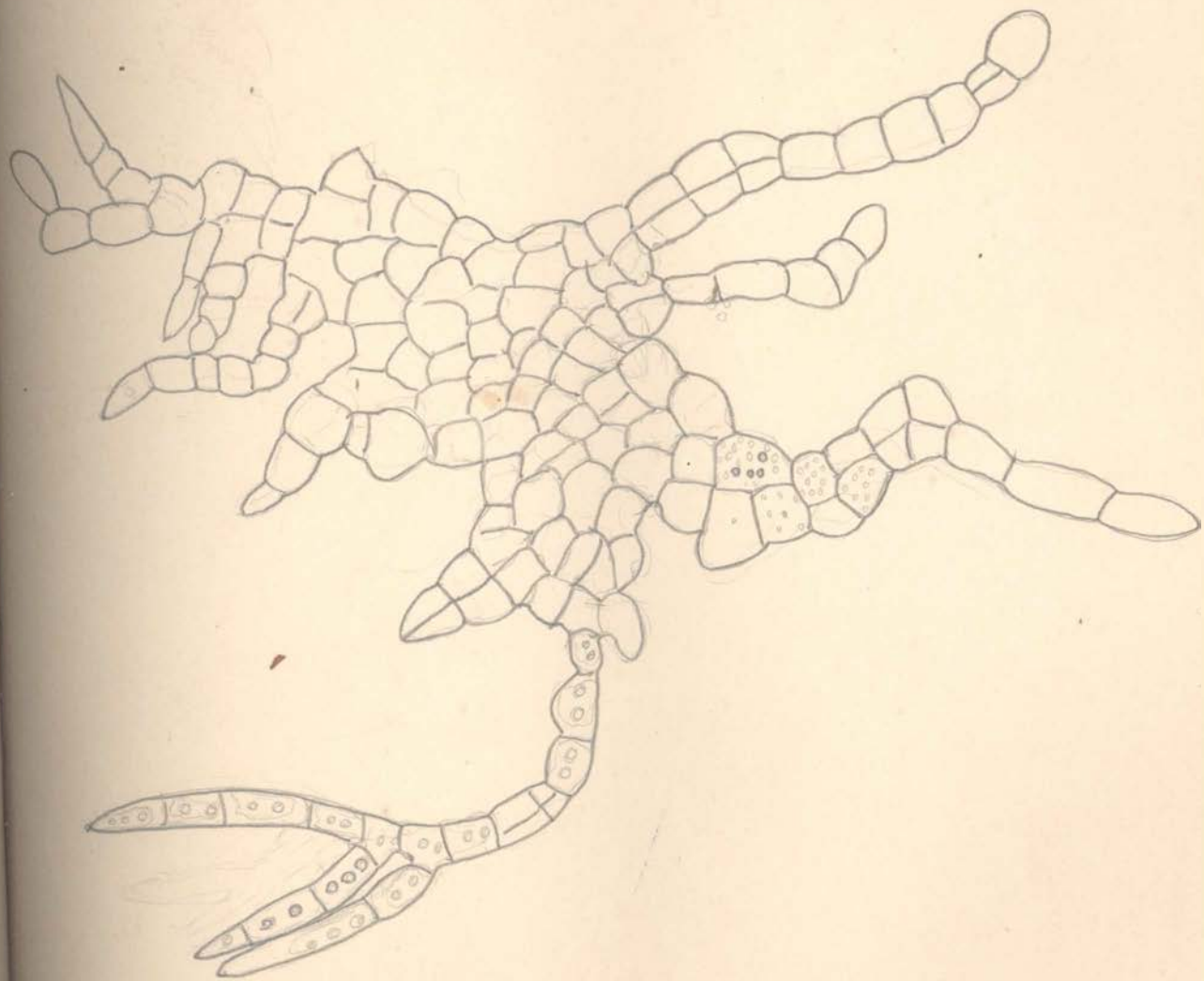
15  
18  
164  
18

324 | 28  
22  
144

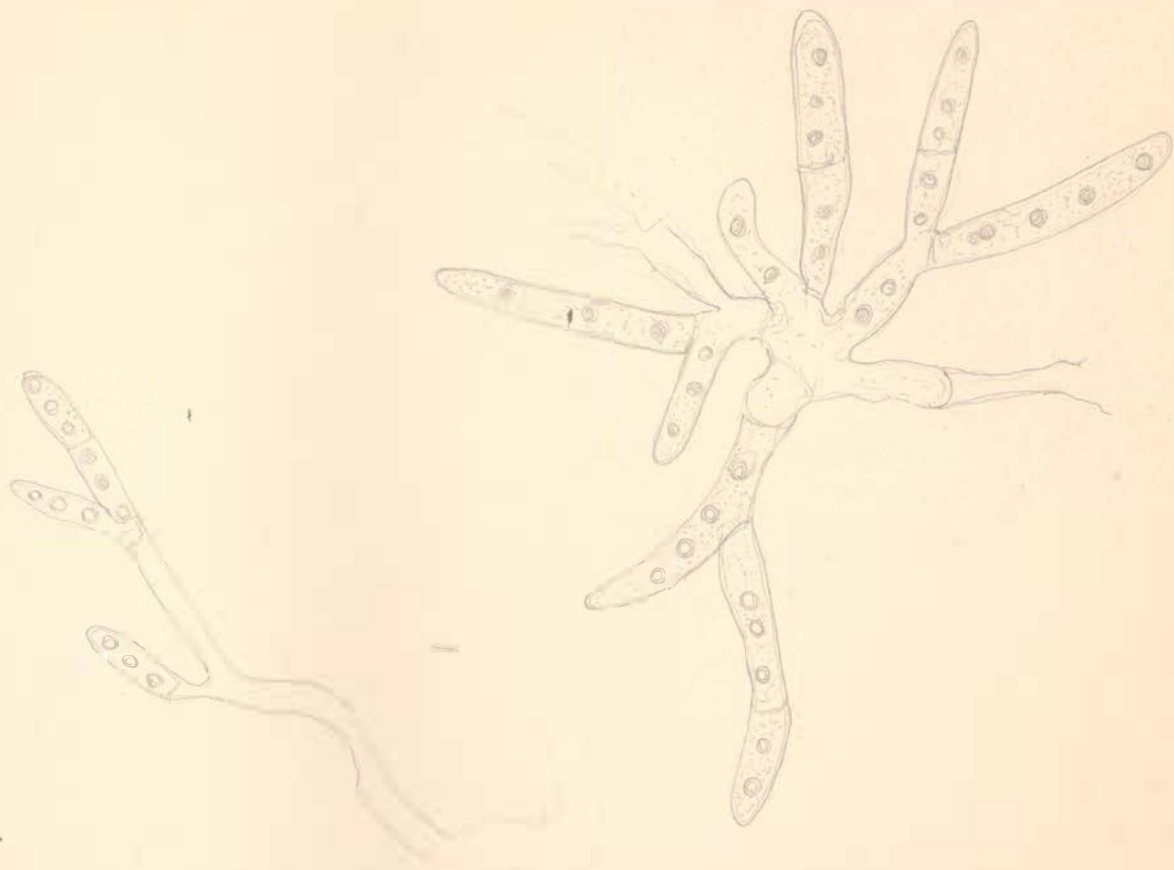
360 | 32  
32  
36





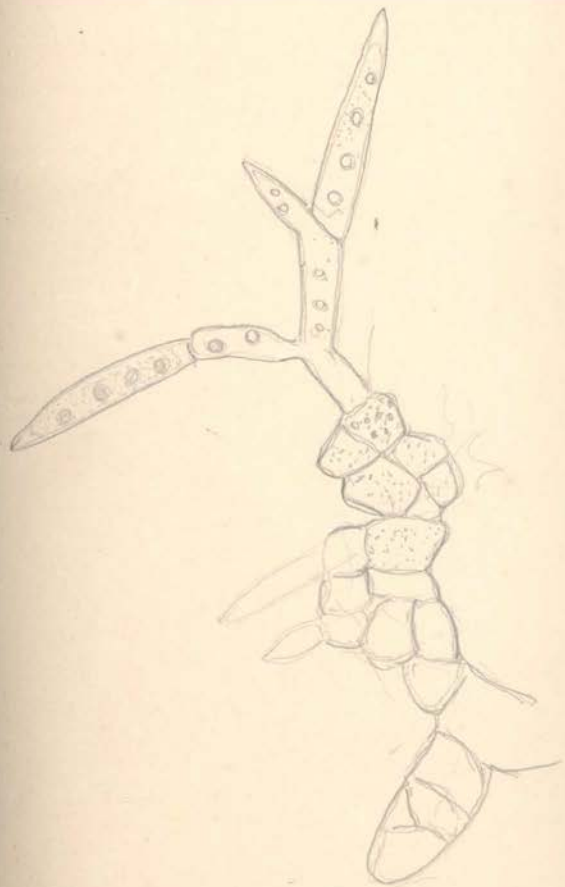






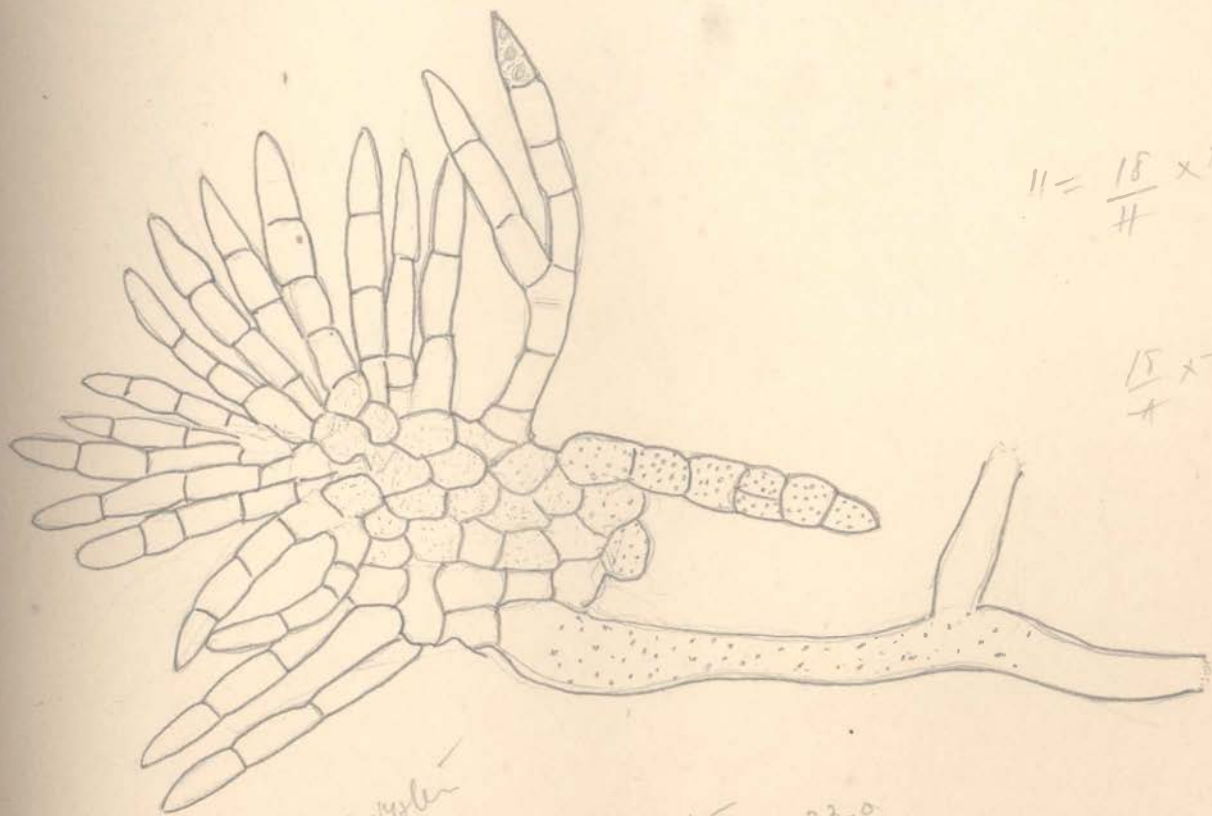






Risibly branched wami  
stems: 3 by number to 5  
in each cell.

Remind of branching



$$11 = \frac{18}{4} \times 19$$

$$\begin{array}{r} 18 \\ 14 \\ \hline 22 \\ 18 \\ \hline 22 \end{array}$$

$$\frac{15}{4} \times 20$$

36°

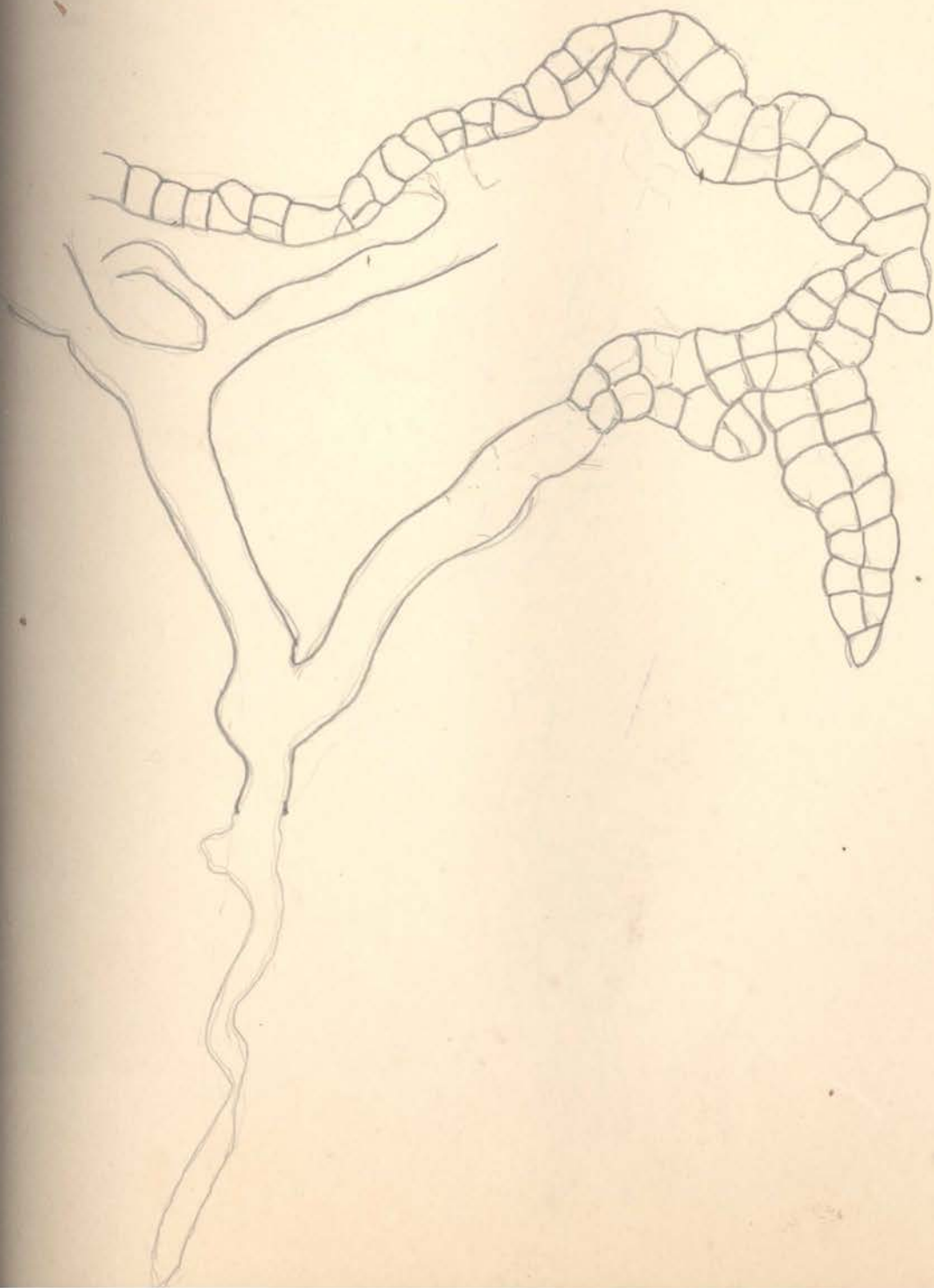
150 - 220

*Protophylla*  
5-90 form  
10-180 long

*Protophylla*  
9-16 y Brown

All tetrades in

*Protrachi polina*







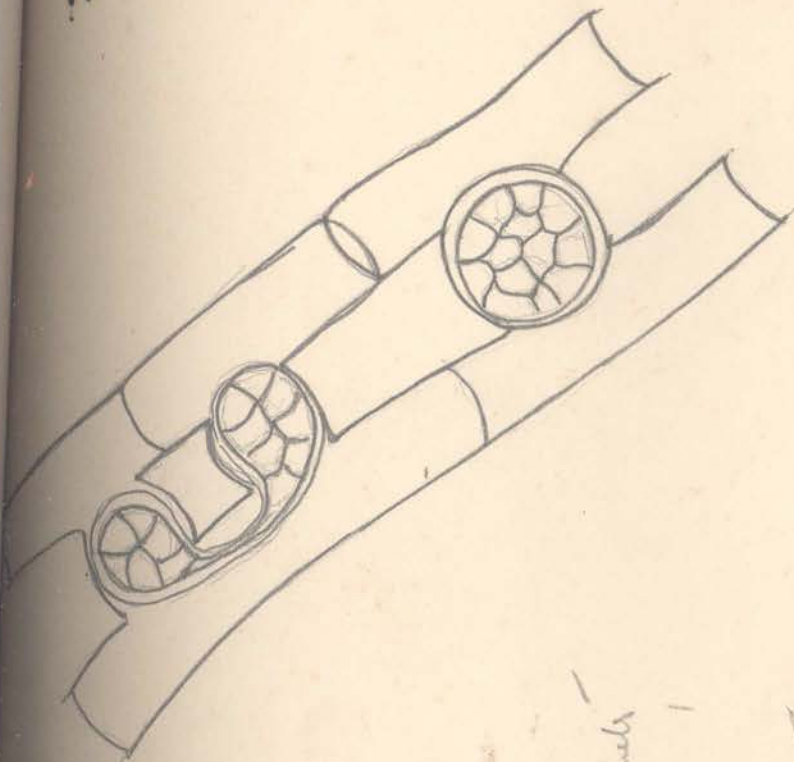
*Zygnema austriaca*  
from Azaogorkh 1923

266, lich. 88 ;

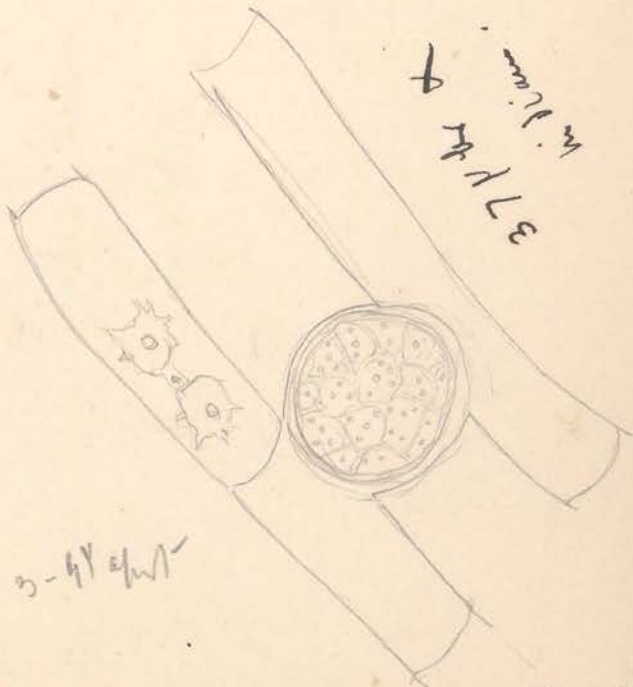
Pils in 2. Oudhensis

spores yellowish-brown  
with blue.

*Zygnema from Pilseneri* also  
abundant in 2. Oudhensis



Pils about 14 in diameter  
3-4 μm

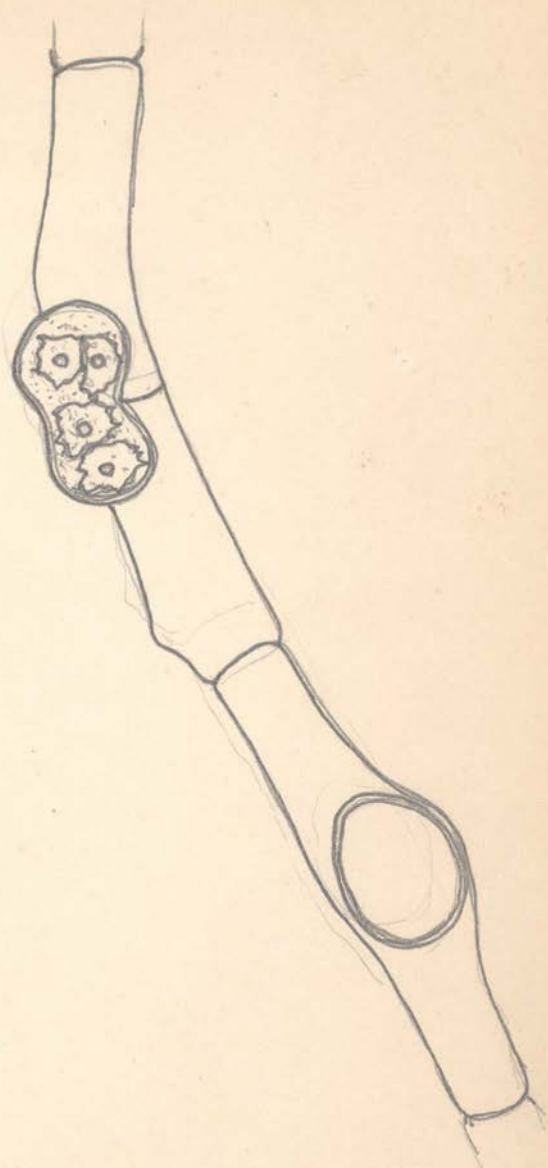
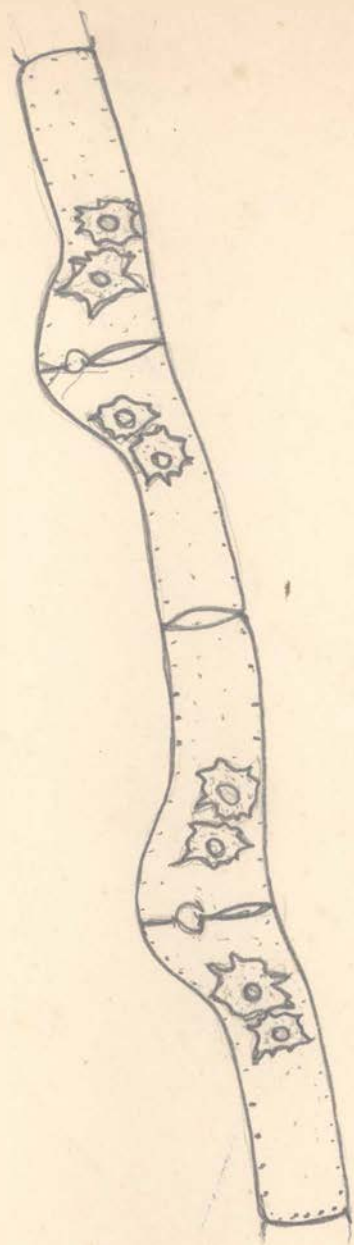


3-4 μm

see the autogamous form also









$$12 \sqrt{16} \begin{matrix} 1.3 \\ 12 \\ \hline 48 \end{matrix}$$

$$15 \sqrt{25} \begin{matrix} 1.5 \\ 15 \\ \hline 75 \end{matrix}$$

$$\frac{23}{15}$$

$$10 = \frac{16}{10} \times 11$$

$$10 \sqrt{176} \begin{matrix} 17 \\ 10 \\ \hline 170 \end{matrix}$$

$$23 = 15$$

$$16 = 12$$

$$16 = 10$$

$$10 \sqrt{16} \begin{matrix} 1.6 \\ 10 \\ \hline 60 \end{matrix}$$

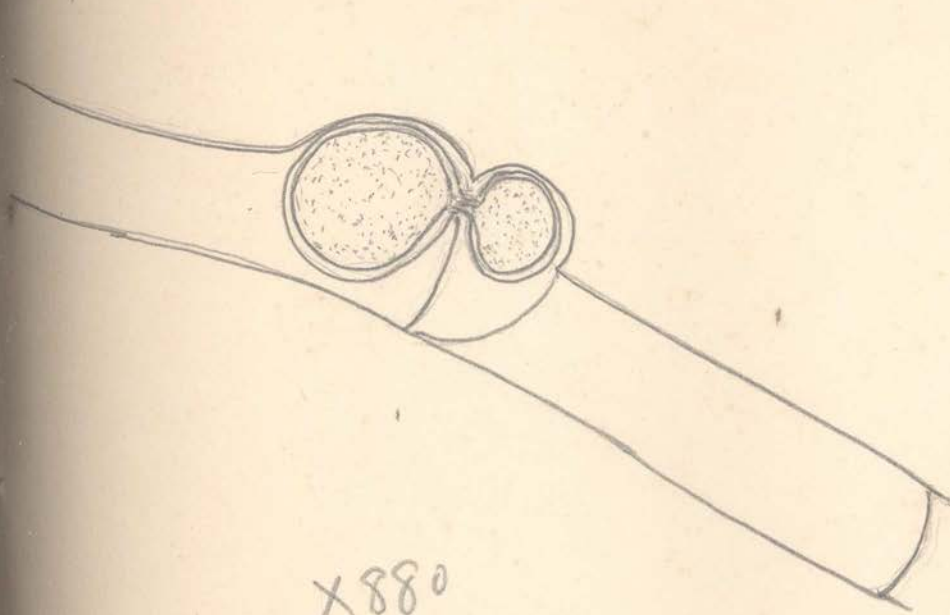
$$\begin{matrix} 1.2 \\ 1.6 \\ 1.5 \\ \hline 4.4 \end{matrix}$$

1.4

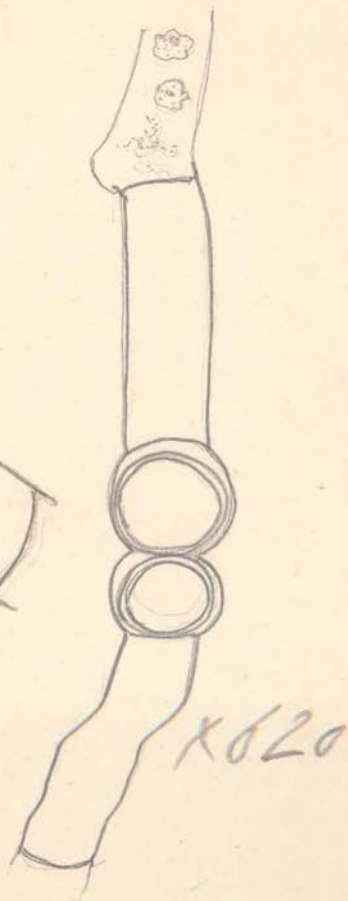
*Zygnema Heydrichii*  
Schmidle.

1.4 x

$$\begin{matrix} 26 \\ 66 \\ \hline 926 \end{matrix}$$



X880



X920

X620

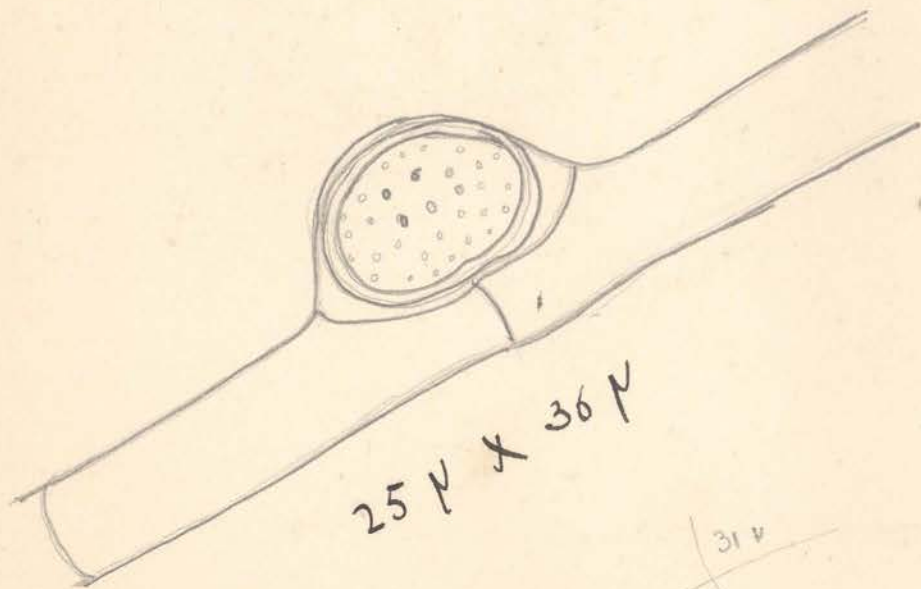
Filaments  
214 cells

174 cells -

$$740 = 18.6$$

Handk. Z. Gedeamm

Zygnema Heydrichii.  
Schmidt.



x 880

31 μ  
20-21 μ

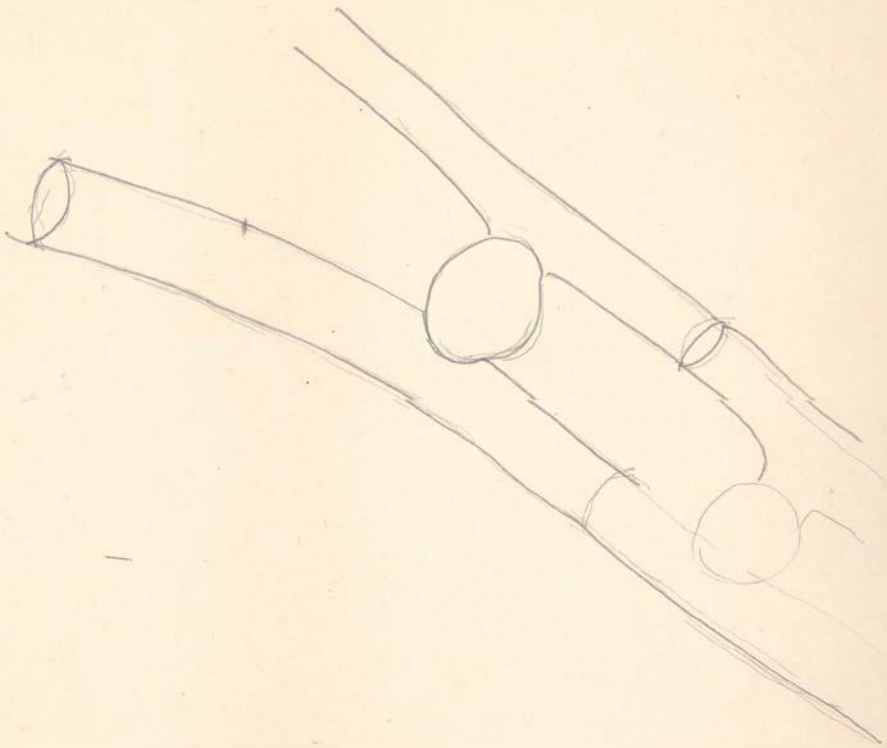
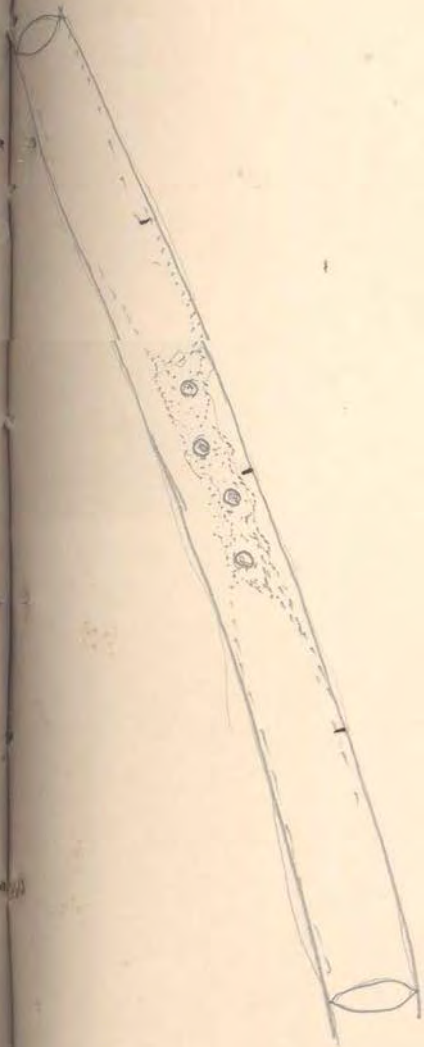


X 880

Spines. like - colors

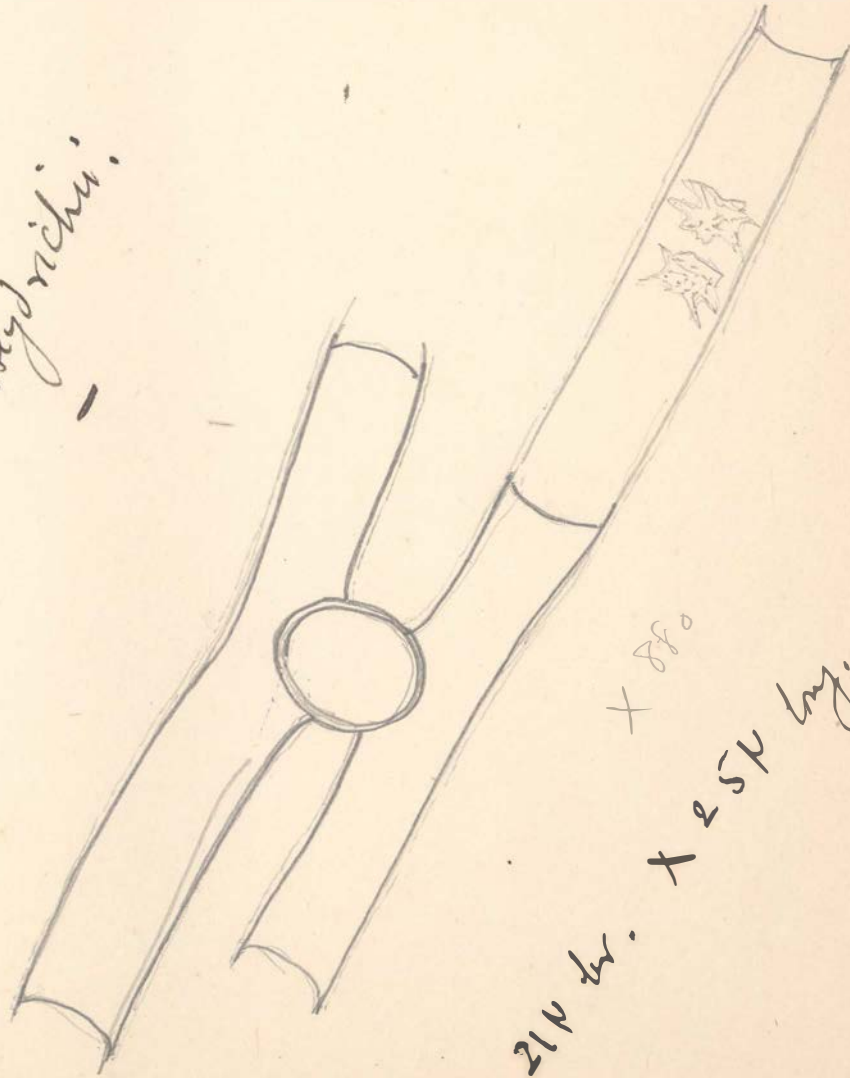
*Nongoltea bicalyptrata*

144



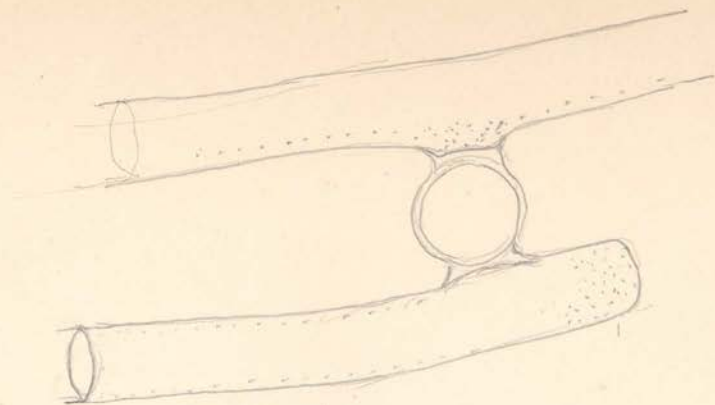


Zygema Hydrichii



21N br. + 25N br. + 88.

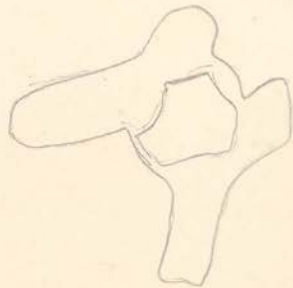
*Longestia bicalyptrata*.



Pyrenoid  
4-6

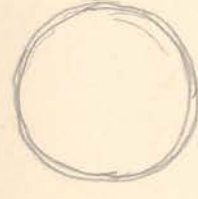


spines - brown in color  
wells numerous

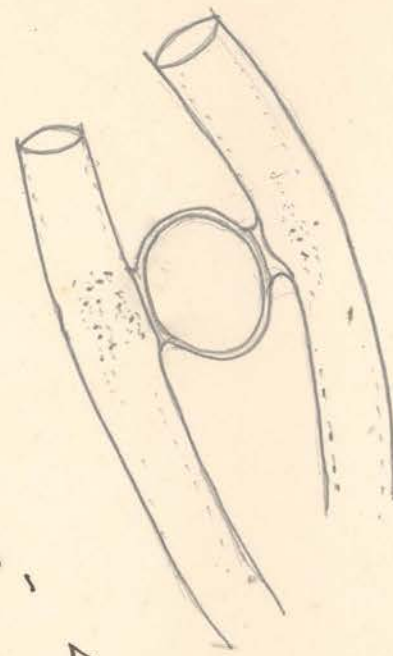


x 620

*Rougeotia bicalyptaria*  
 sp. det. Gyuda. J. S. Wainwright  
 Sept 1 - Nagu. 64



O. 9



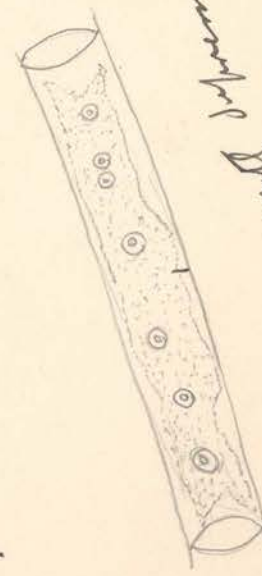
veg. - dist. cells  
 12-14

long  
 66-72  
 - 140  
 - 110  
 - 100

veg. - dist. cells  
 12-14  
 66-72  
 - 140  
 - 110  
 - 100

Sept 35  
 Nagu

veg. - dist. cells  
 12-14  
 66-72  
 - 140  
 - 110  
 - 100



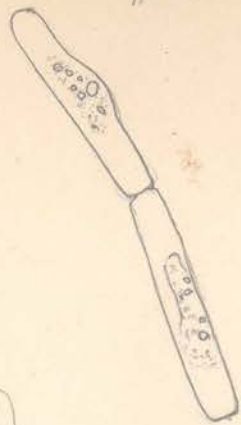
veg. - dist. cells  
 12-14

66-72  
 - 140  
 - 110  
 - 100

skin wall  
 red and white  
 like thin  
 sh. - white  
 brown

*Zygaenopsis gracilis*  
sp. nov.

Subventral  
in Archid.

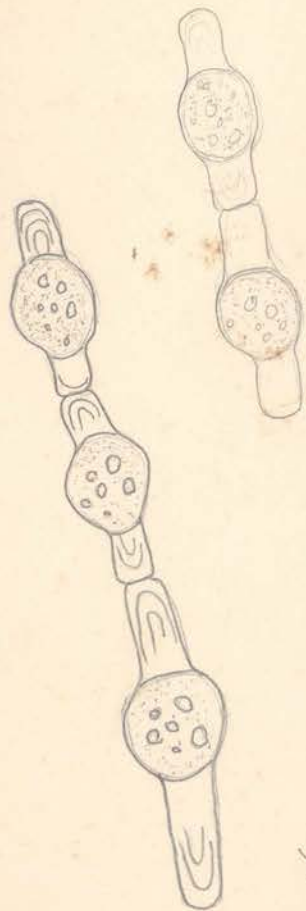


*Zygaenopsis fragilis*.

Alb. M. L. S. 1894

Debarva

*Zygaenopsis aplanospora*



X620

Vegetation - all

6-8 x brown  
44 - 50 x long.

Reproduction by planarians

lamellation very  
slight.



X620

*Aplanospora*

15-16 - 22 x broad

18 - 22 x long

low

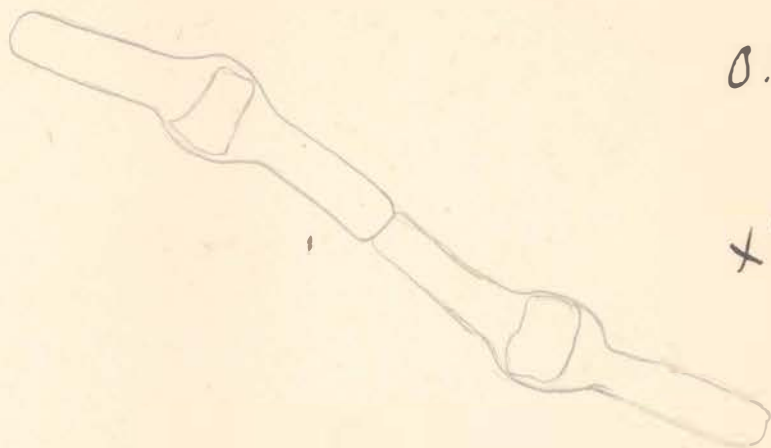


*Zygneura pris gracilis* sp. nov.

Natural

125  $\mu$  35

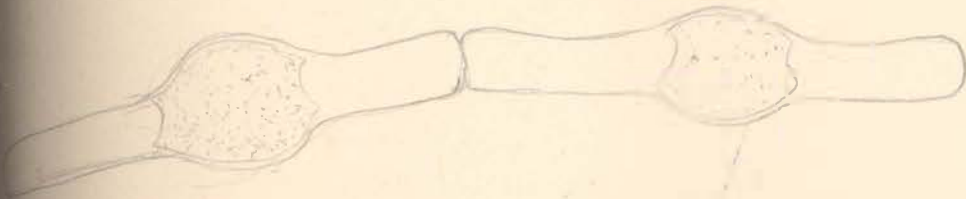
6-7  $\mu$  w.



O. S.

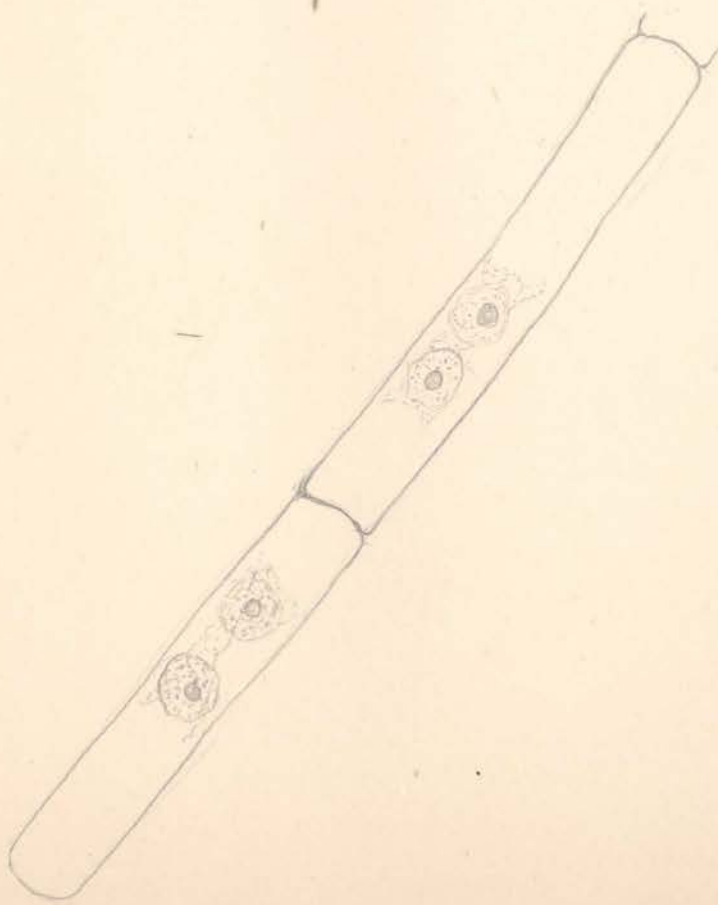
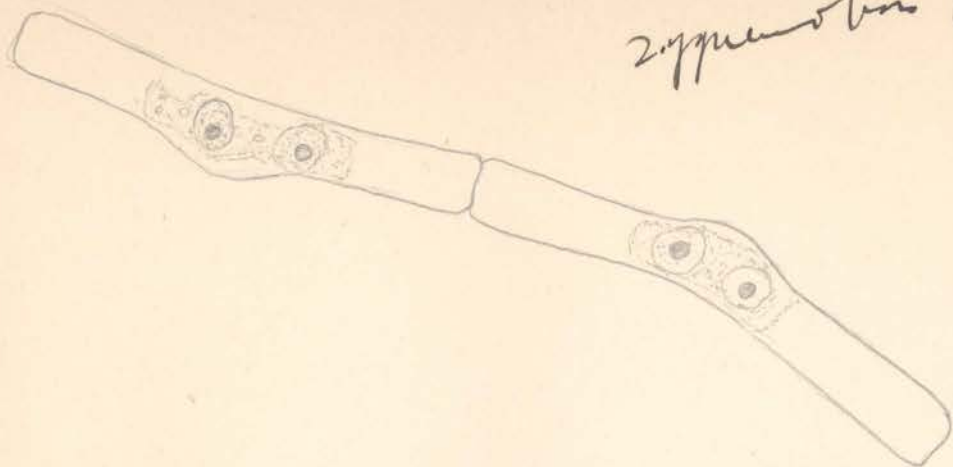
x 880

x 880



*Oil umbra*

*Zygomonas gracilis*

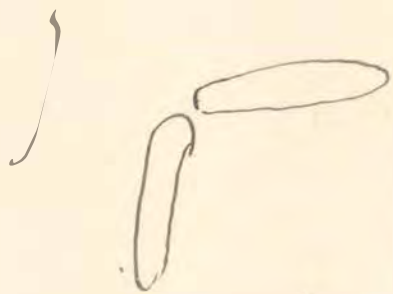


Zygoteles pides J. J.

Ridge on Zygoteles → ablanopora . var. alba alba  
lutea lutea lutea lutea lutea



x 22

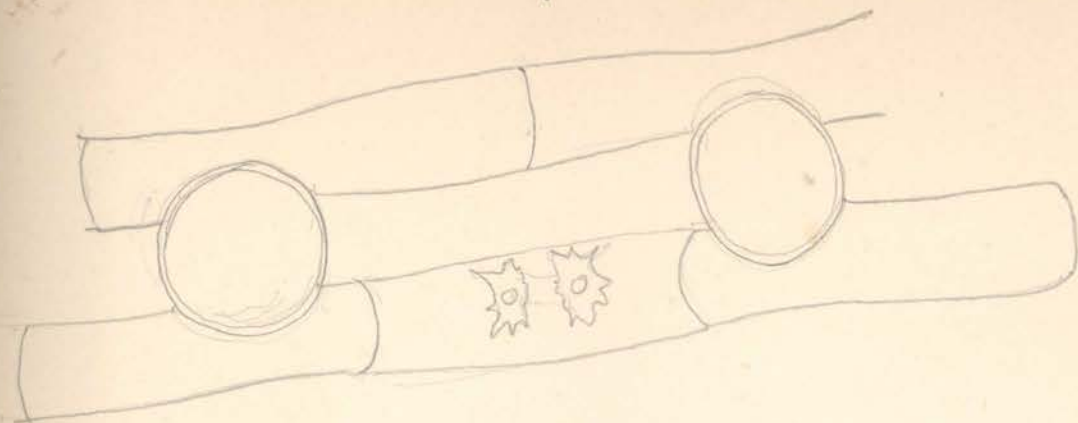


*S. ... ..* i. ... ..

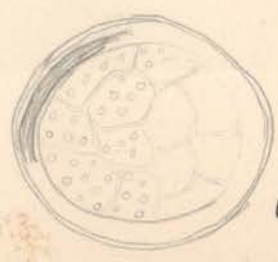




Zygnema Ouchimensis



Nohrechi  
20/2/35



0.5.

22.05 pro-lygalia  
mesopon much dark green  
articulation as well small  
bits on open wall

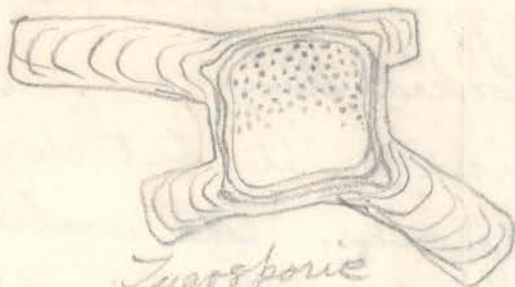
spores in outer part of cell  
but - usually in the middle

study when your material arrived,

I have gone over your lamellata and I believe the aplanosporic material is a different species from the zygosporic form. My drawing made with an oil immersion lens look something like this:



aplanosporic  
"lamellata"



Zygosporic  
"lamellata"



my notion of  
"terrestis"

I think since the most important species characteristic is the spore wall these should be shown on the figures.

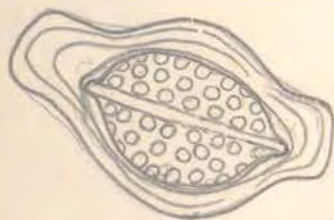
Regarding publication of the paper I will do my best, but these various societies limit publication to members, and to addresses delivered at their meetings. I do not know when the paper would be accepted.

Many thanks for the cushion covers. My daughter thinks the curtains are marvelous and she will probably want some later for her sun porch. With best wishes

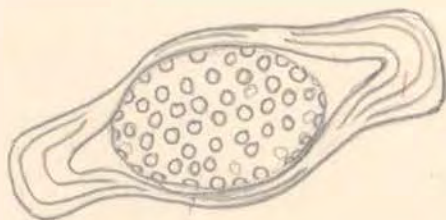
Sincerely, E. N. Mansueti

Zygnemopsis lamellata  
aplousporium form

20 li. Arch. 37



Zygnemopsis <sup>-</sup> transversana



20 - 22  $\mu$  broad

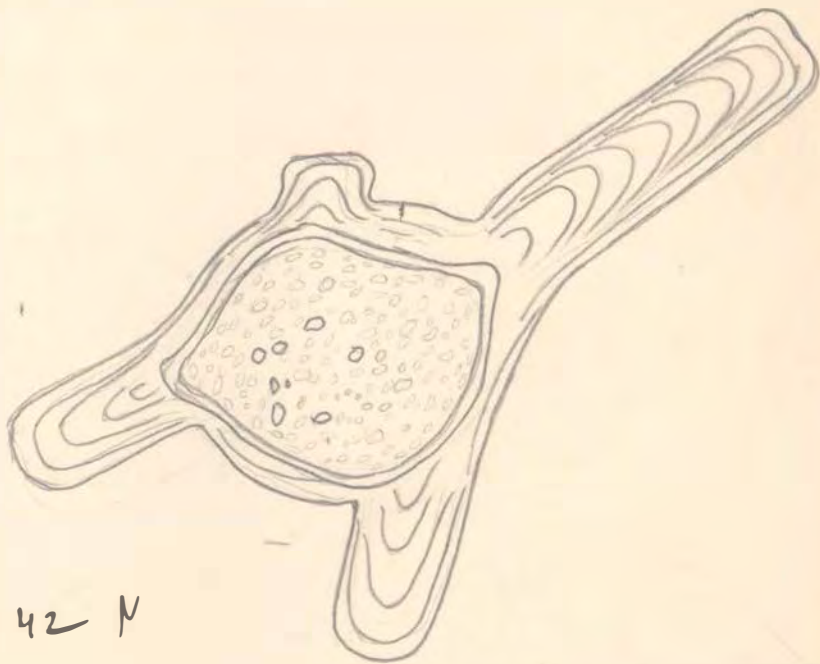
34  $\mu$  long

pts 2  $\mu$  wide

pts 2  $\mu$  in diameter



*Zygnema pinnatifida*

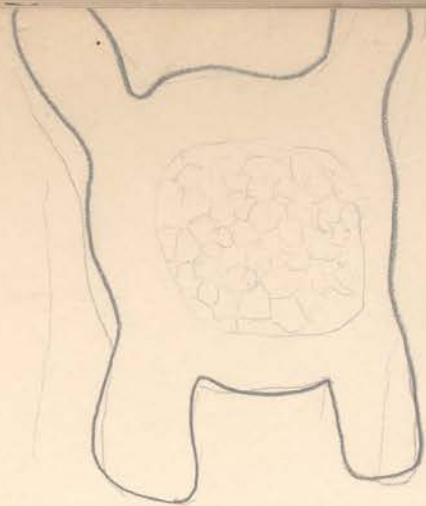


36 x 42  $\mu$

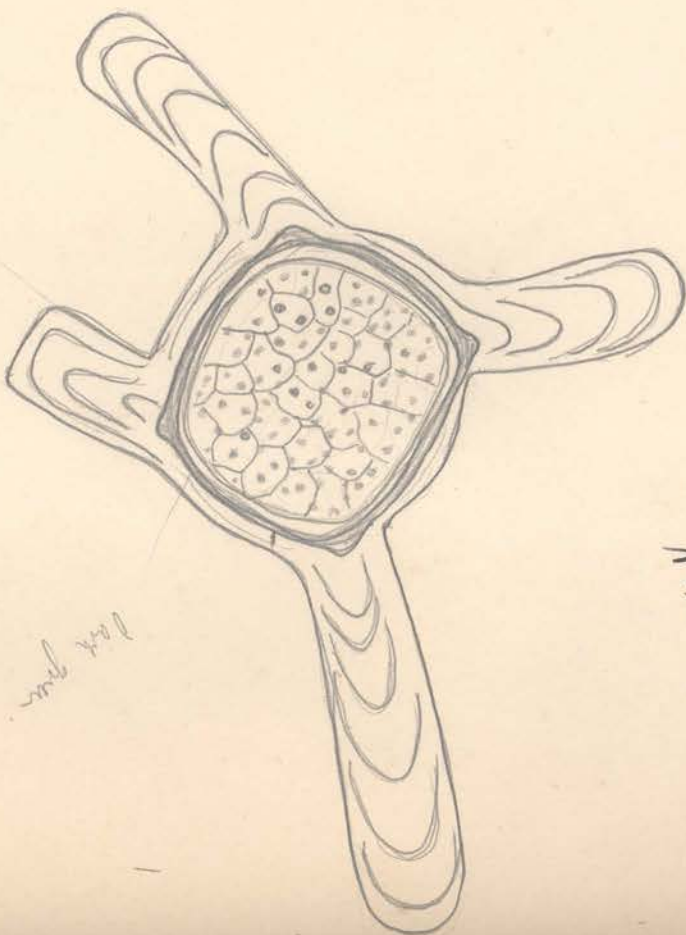
exclusion of amyloplasm

spine wall densely verrucose





Skinn-wand fundat  
Pis. d. 1. p. die

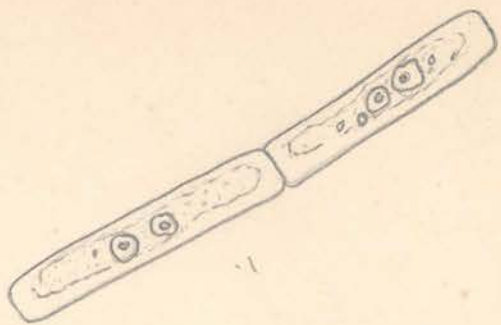


Zygane  
Kannelen

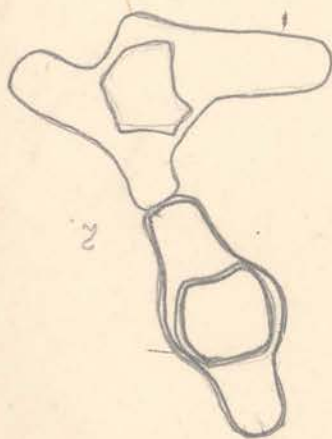
Das sind

on  
+ 444

Handwritten text at the bottom right of the page.



74



X 620

Var. *crassa* Koyl.

Var. *strigata*

O.S.

*Zygomycetes* minutum

*Phanerochaete*  
*crassa* Koyl.  
*strigata*  
Lec. *crassa* Koyl.

*Zygnemopsis minutum*. var. *striata* a. r. 1200

All ~~x 880~~

x 620

Dark brown when  
stained with  
iron salts



8



5



10  
180  $\mu$  di

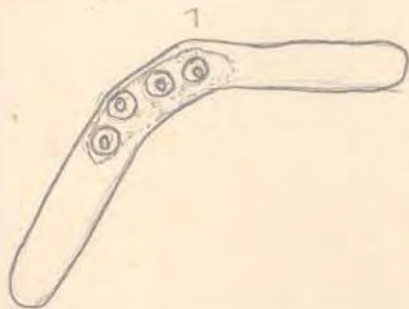


6

Vegetative cells

8-10  $\mu$  l w

3600 4000  $\mu$



7



3



4

1. scalariform conjugation

2. Lateral conjugation





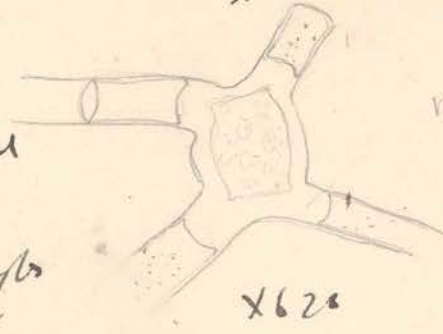


in sp. nov.

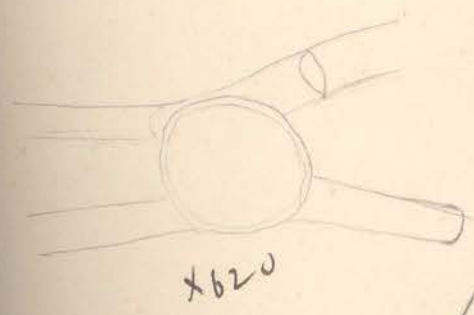
Resembles *N. Hylesopora Shyzi* 1921 - in the shape of

- 1. Much larger vegetative cells with in
- 2. Absence of ...
- 3. Angles are not convex but ...

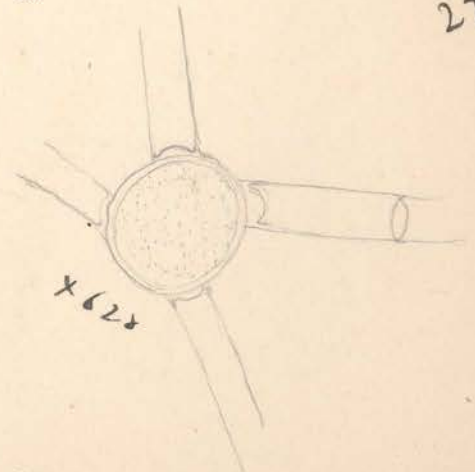
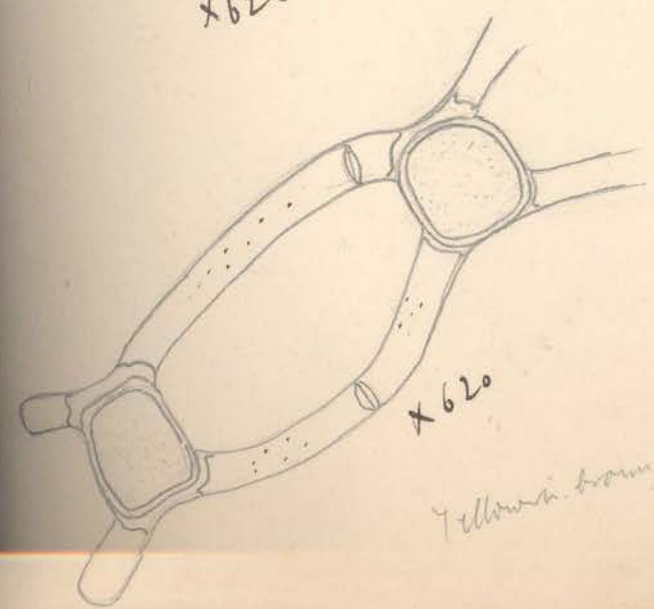
*N. quadrangulata* Hasant  
 differs in smaller  
 size of zygospores, angle  
 of ...



Resembles *N. Regelii* Shyzi 1923  
 but differs from it in  
 size of zygospores  
 shape of ...



cells = 10-12  $\mu$  br.  
 quadrati in ...  
 22 - 33  $\mu$  broad  
 27 - 33  $\mu$  long  
 average size  
 27 x 27  $\mu$



Cells = 10  $\mu$  br.  
 - 10  $\mu$

Yellowish brown ...

2-6 hyaline

*Alga scabra*

*Nougstonia scabra* -  
Harsal.

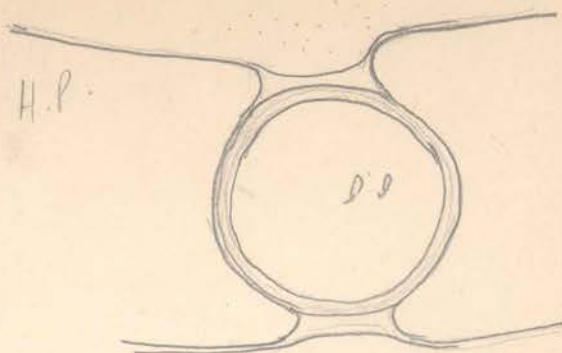
*Nougstonia*

Richardson

28.3.35

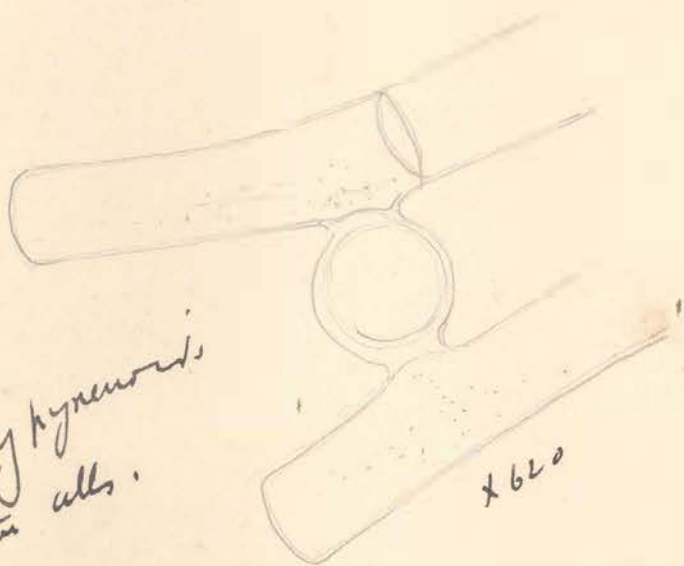
28/3/35

H.P.



X 950

*Nougstonia scabra*



X 620

rows of hyaline vegetative cells.

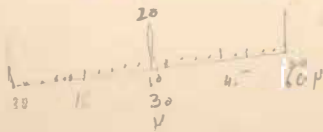
vegetative cells hyaline

200  $\mu$  br.  
24  $\mu$  - 26  $\mu$  - 28  $\mu$

110  $\mu$  long

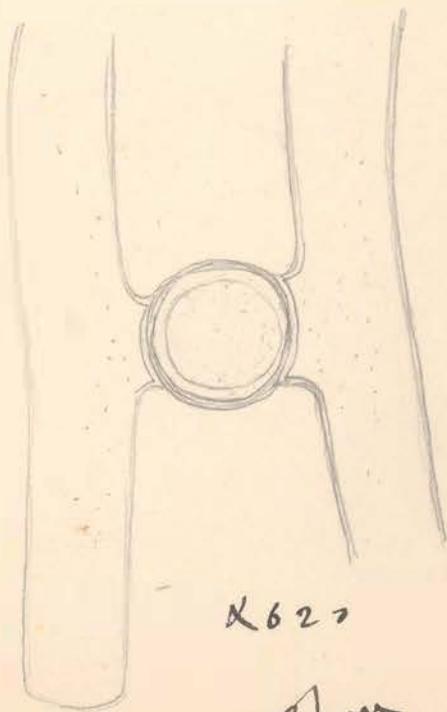
150  $\mu$

20



20  $\mu$

side view = 3  $\mu$



X 620

thick-walled smooth

zygospores

28  $\mu$  br

26  $\mu$  br

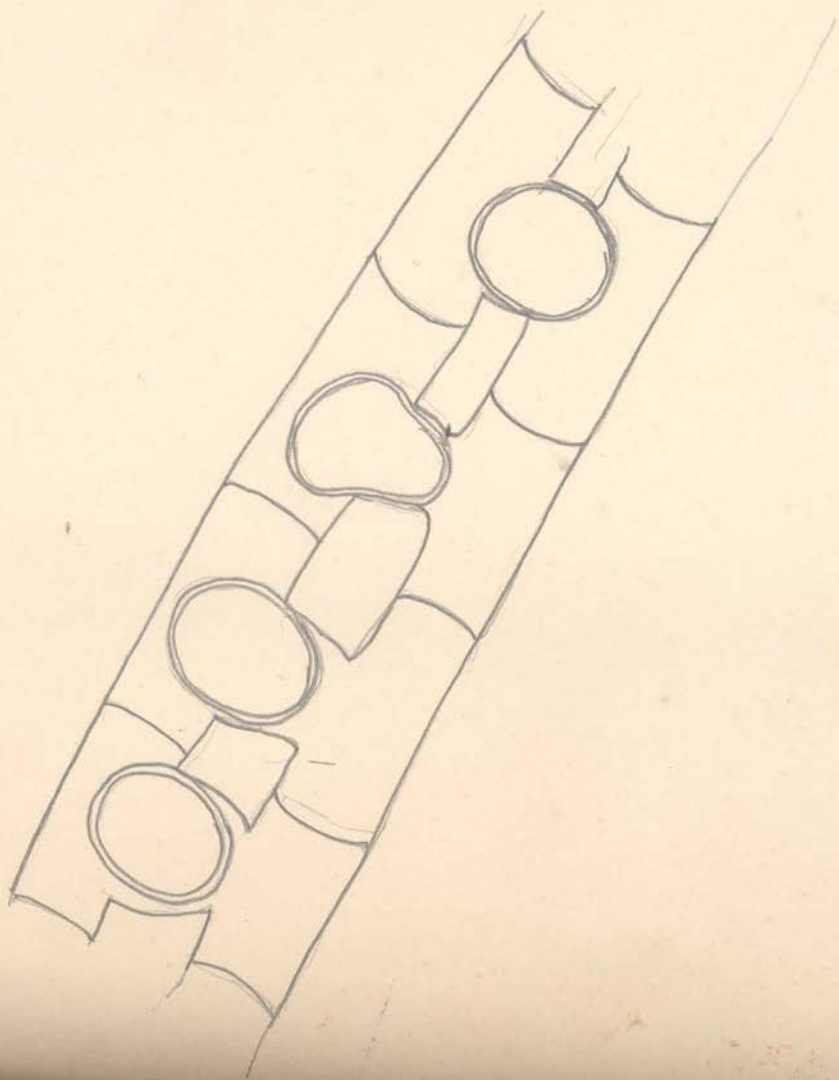
30  $\mu$  br

width

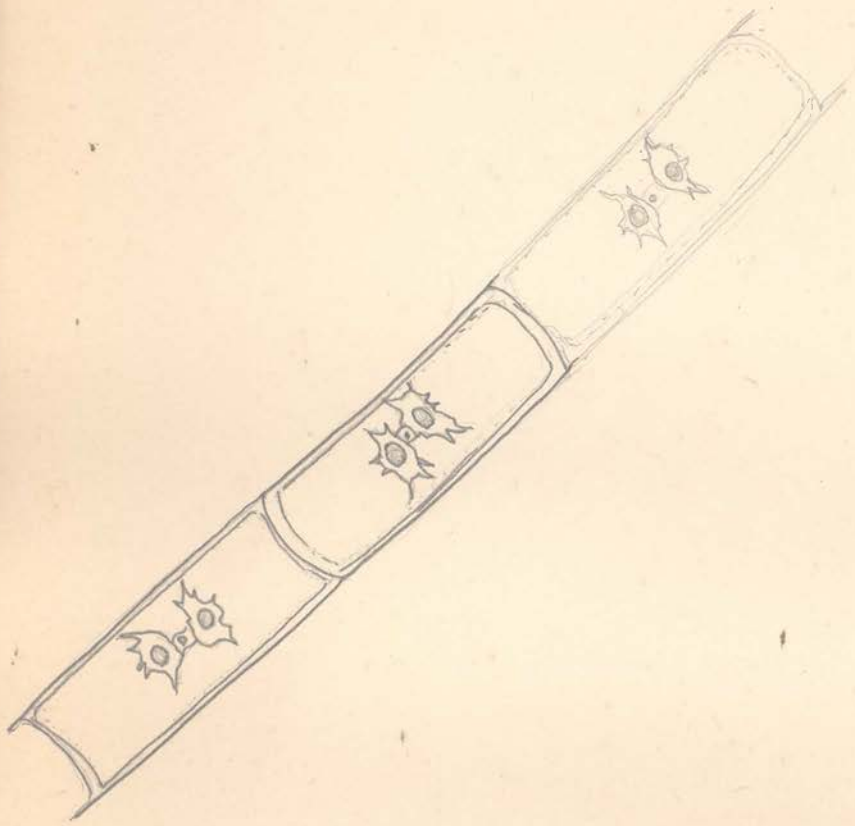
8  $\mu$  diam

26 - 28 - 38  $\mu$

in diameter



Zygodema on *Mercurialis*

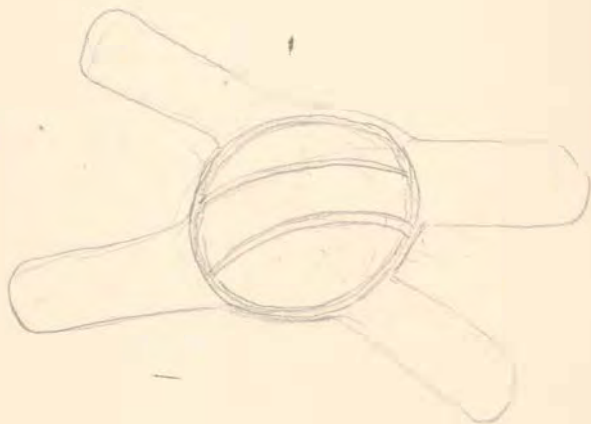




Pongostea

256 - Feb. 38

Autograph



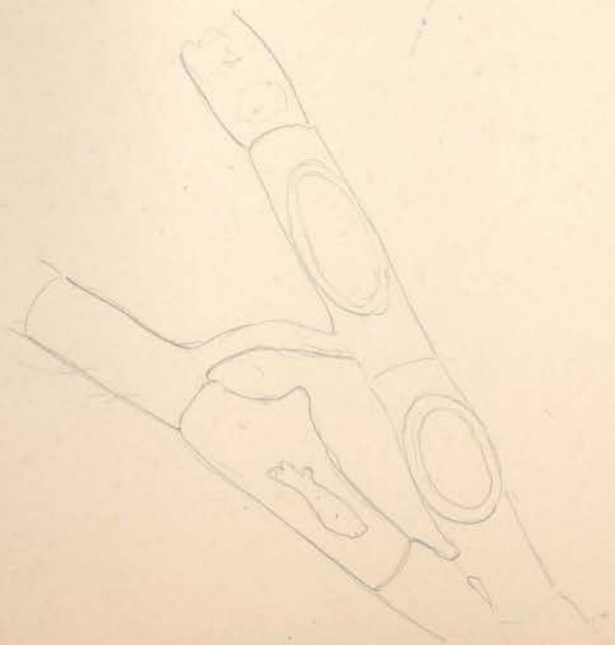
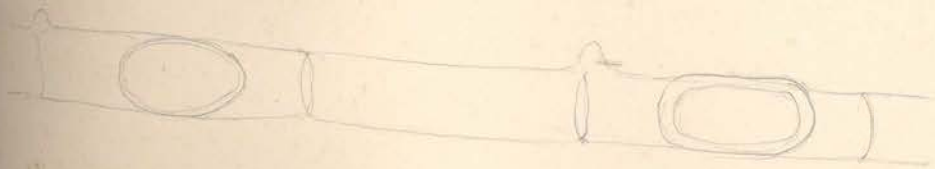
*Zygodium mucigena*. sp. nov.

collected from *Stemodia fluitans*  
15<sup>th</sup> Feb. 37.

found in a light bluish  
mucilaginous mass free.  
floating, looking more like  
a ~~member~~ species of  
*Anabaena* or related  
phenomenon.

spores. dark blue. g  
ground  
spore-wall of *unic*

11 = 18.6



14 = 21.3  
= 42

X 990

X 1000

Zyguema mucronata

Europane greenish brown

Asopane with pits

Pits in 5-6 rows very

small. Regularly

Europane like ~~coloration~~

Pits =

same shape  
in color.



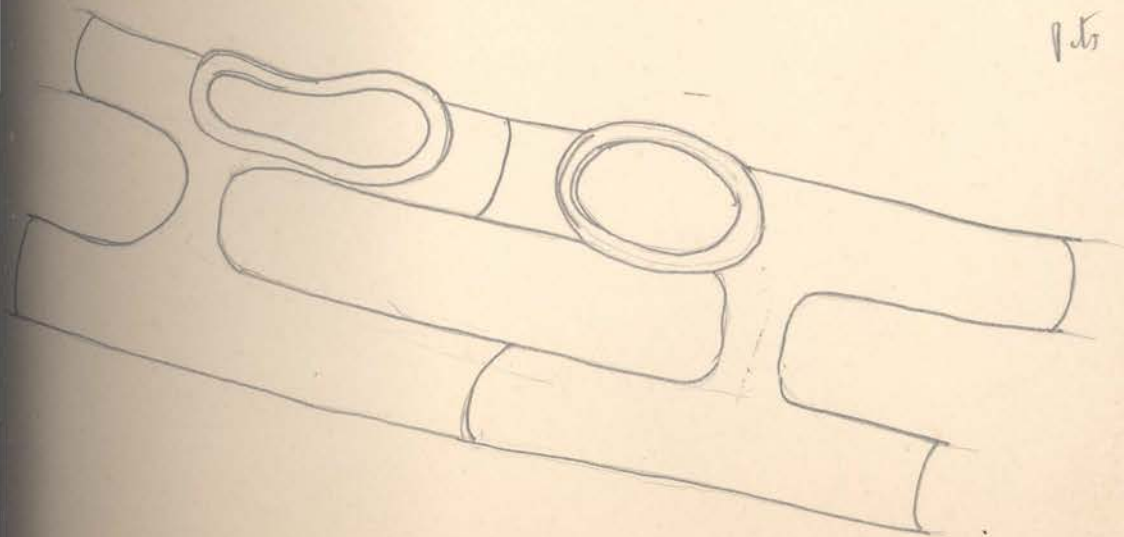
Ridges on surface wall

20 x 36

22 x 33

22 x 30

Pits about  $1\mu - 1\frac{1}{2}\mu$  in diameter  
3-4  $\mu$  apart



not visible any when  
cut in ~~middle~~

*Zygema mucigera*  
*Lucasana*



11 = 18.6

l =  $\frac{18}{11} \times 12$

$$\begin{array}{r} 216 \overline{) 19} \\ 11 \\ \hline 22 \\ \hline 11 \end{array}$$

$$\begin{array}{r} 15 \\ 16 \\ \hline 32 \\ 25 \\ \hline 22 \\ 32 \end{array}$$

$\frac{18}{11} \times 5$

11  $\sqrt{180} \overline{) 16}$

11  $\sqrt{144} \overline{) 13}$

11  $\sqrt{24}$

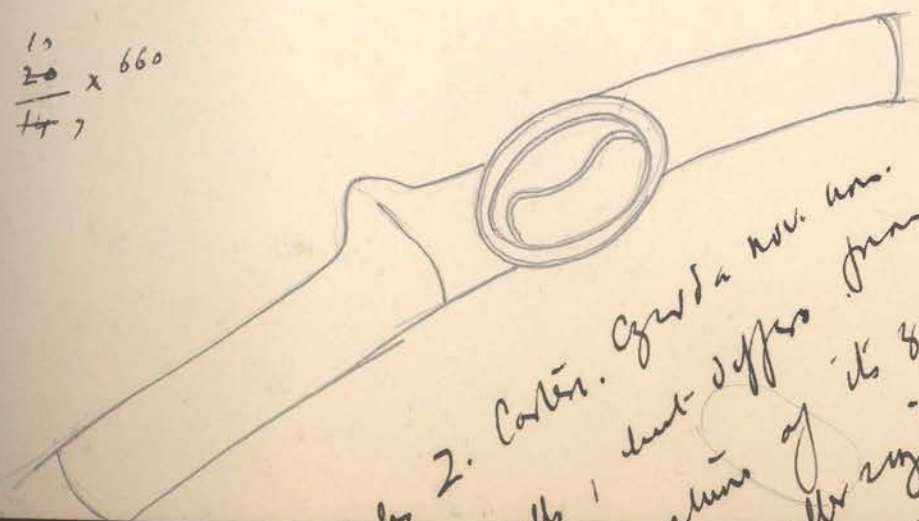
Scalariiform impregnation is very  
 rare w 4 radii of an oval  
 nature - is constant from  
 the irregular w length impregn  
 canals.

Spines  
 18V-20N-23P  
~~w 4-6 lines~~  
 X940

28-36N long

$\frac{13}{20} \times 660$

13  
 20 x 660  
 147



2. Carter. *Gyrodia nov. spec.*  
 the 1st diff from  
 others of its *Zygema*  
 size, w vegetative alls =  
 12-16V long.

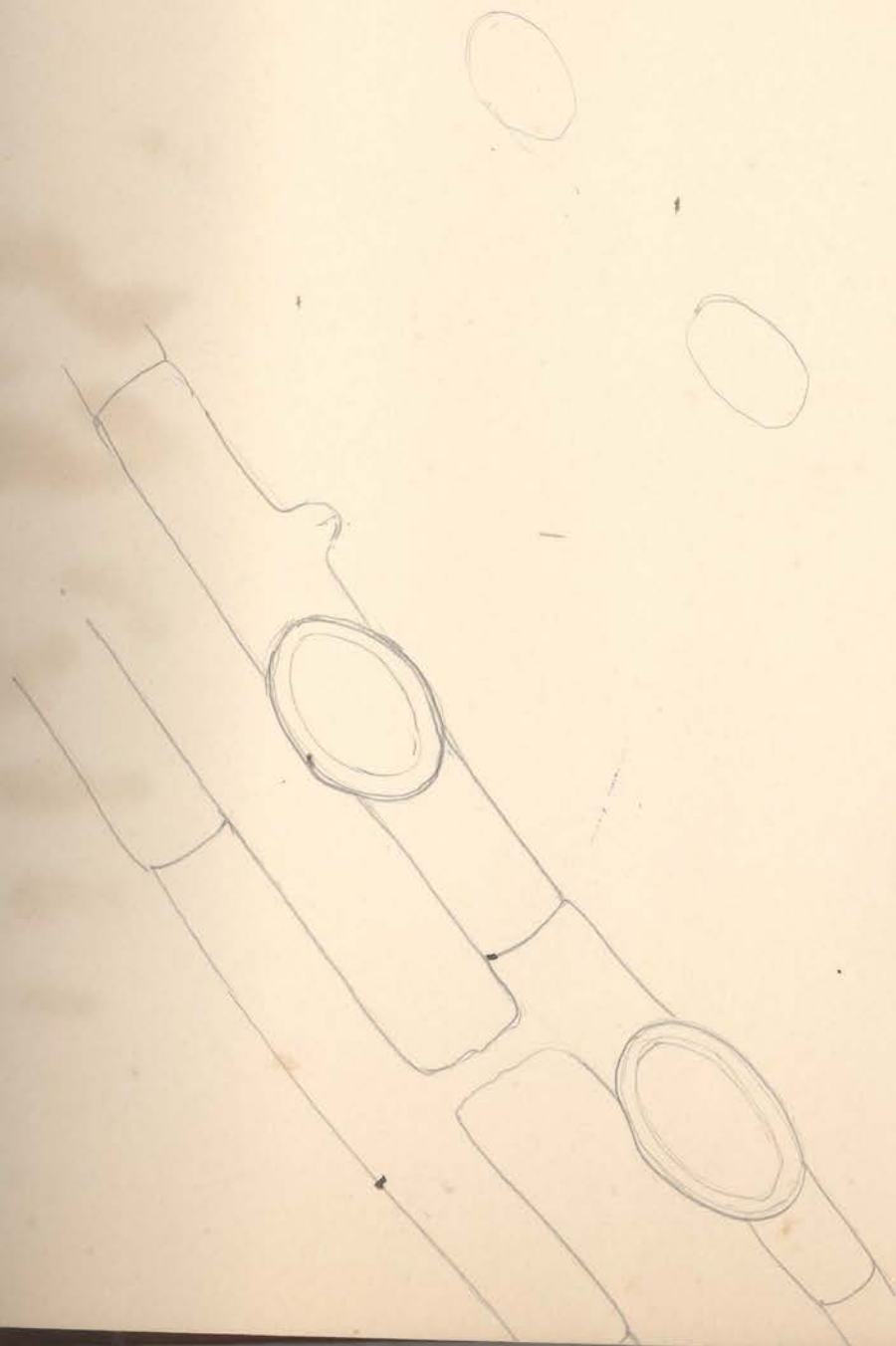


w 4-6 lines long.



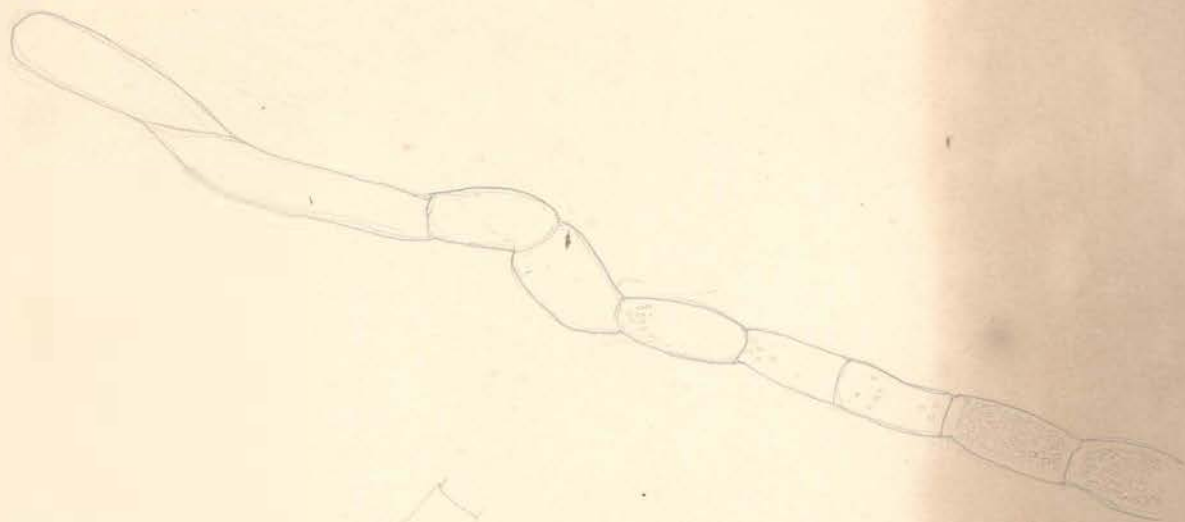
*Zyglina unigula*.

herbar



Tamara palustris  
15. vii. Aug. 38

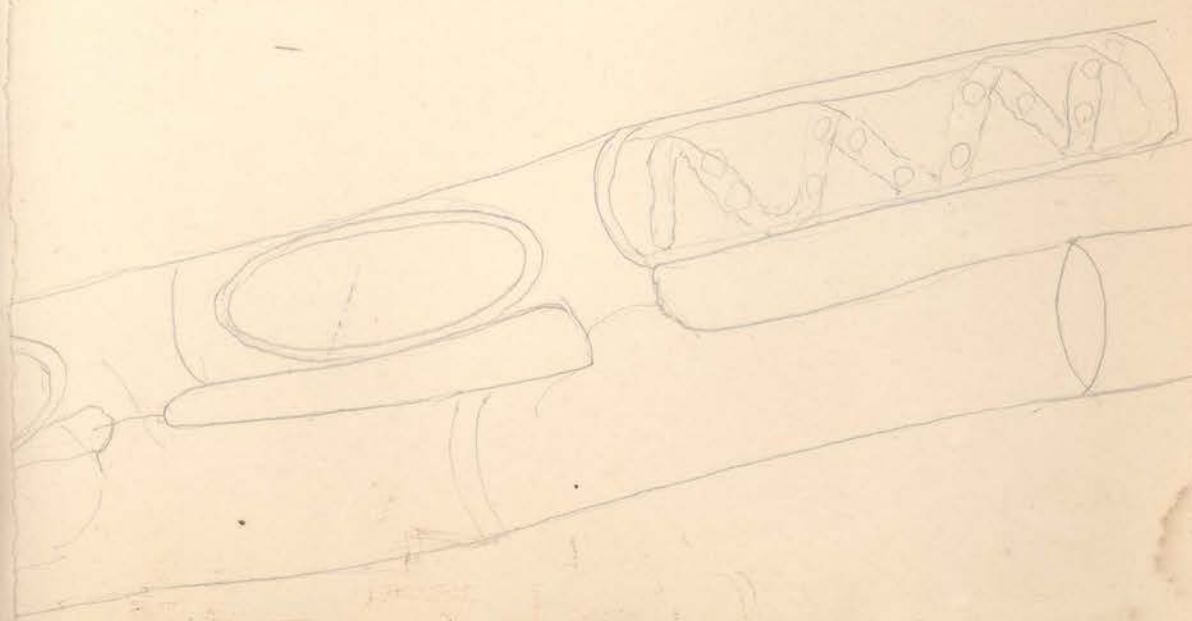
Oedogonium terrestris.



oospores, many  
dark chocolate-brown  
in colour.  
Each spore. thick  
envelope. thin  
dissepiment



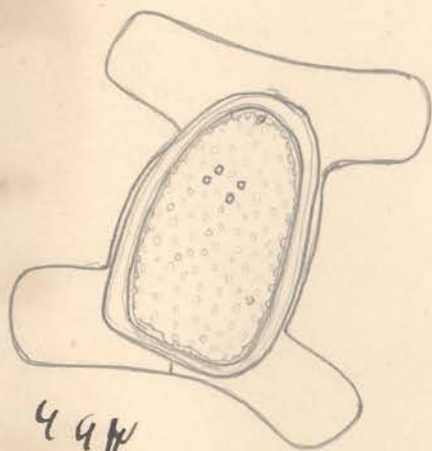
Faint, illegible handwritten text or notes, possibly describing the specimen or the drawing.





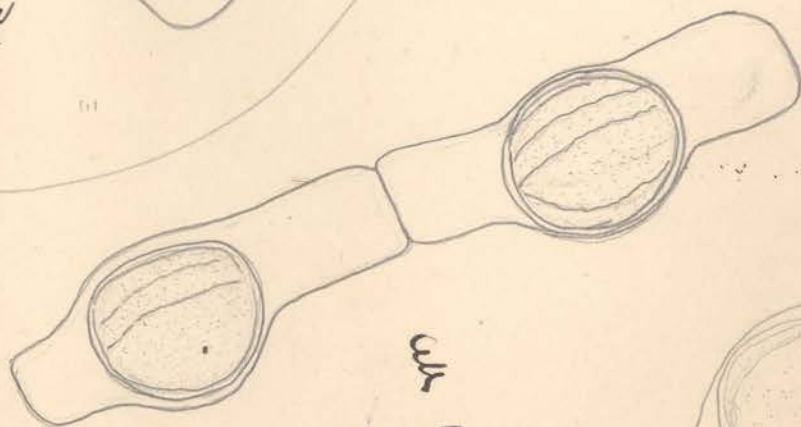


*Zygnemopsis splendens*.



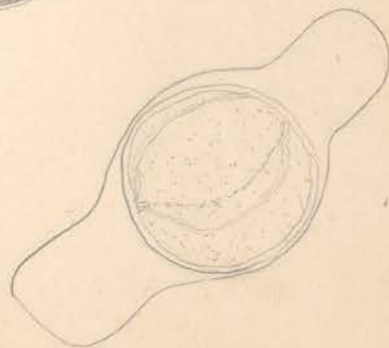
28-49μ

*Zygnemopsis minutum*  
var. *grassa*.



X 880

16-18 μ



sphms

24-30 μ diam

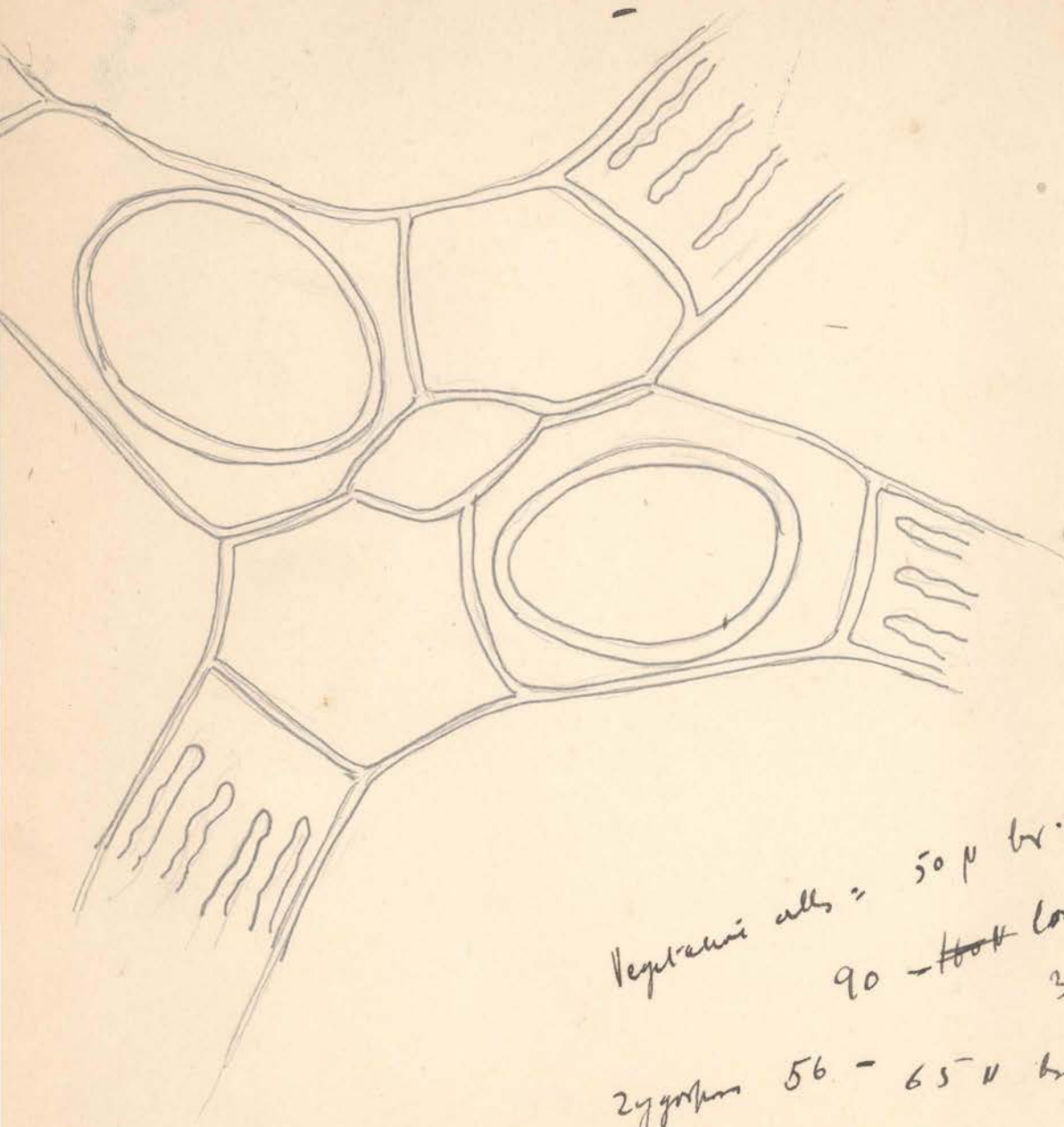
27-28 μ diam

1x diameter of *Zygnemopsis*

10/2/01

*Zygnemopsis*

*Sirognathus sticticus*  
- Babranpur



Vegetative cells = 50  $\mu$  br. - 55  $\mu$  br.  
90 - ~~100~~ long - ~~3-4~~ long  
3-4 diameter

Zygospores 56 - 65  $\mu$  broad

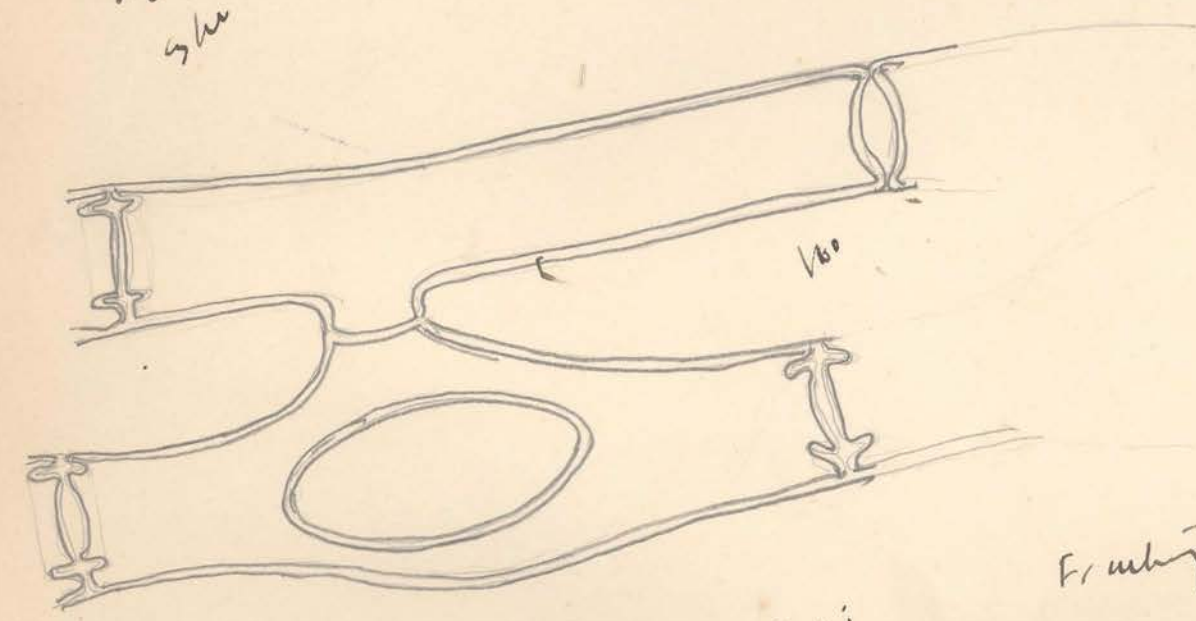
78 - 90  $\mu$  long

smooth

Moss from *S. reticulata* Moss  
 inflated sponges  
 sponges by loose cells with  
 occurrence of single chloroplast  
 w/ as in figure 2, 3 & 4 in  
 5th

Moss. 12/1/35  
*S. pinggya*  
 Vegetation cells 24-25  $\mu$  broad  
 each with a single chloroplast  
 seta *reticulata*

resembles *S. Lambertii*  
 in way of sponges  
 thin-walled  
 w/ w/ single  
 a thin outer wall



Fringing cells inflated at ends  
 Zygotomes 32-34  $\mu$  broad  
 72  $\mu$  long  
*reticulata* - thin-walled

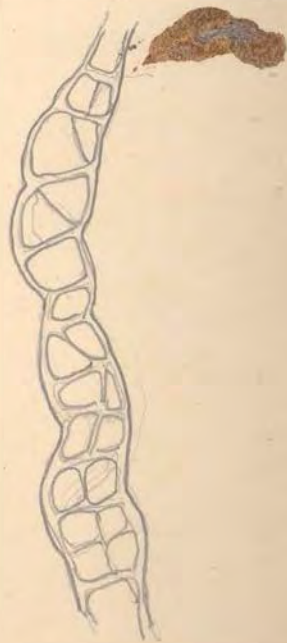
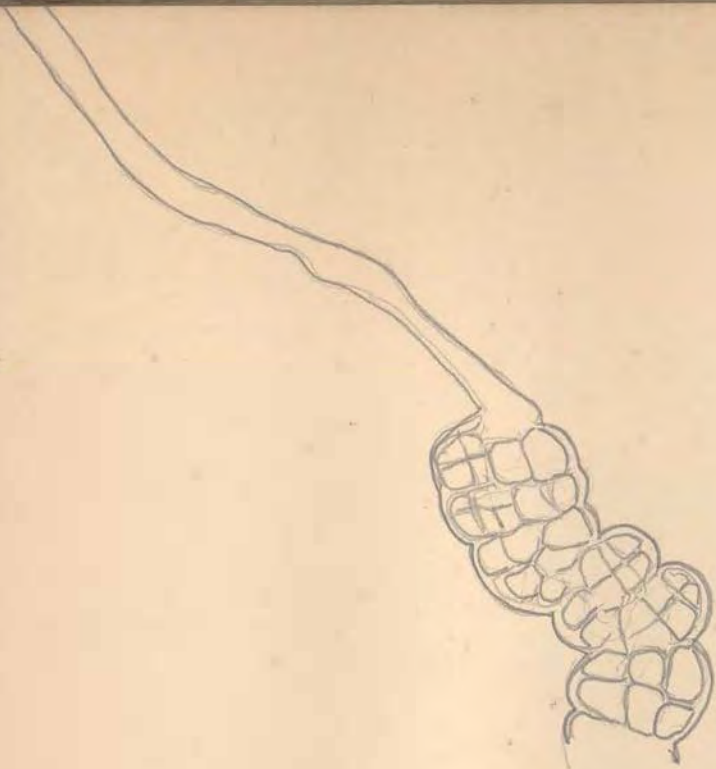
Fringing cells inflated  
 50-  
 60  $\mu$

single thin chloroplast

66.

reticulate markings





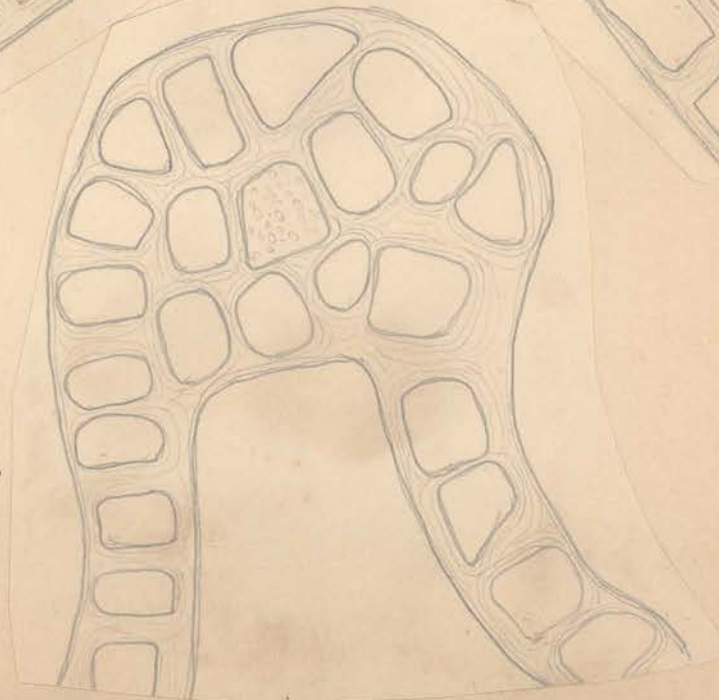
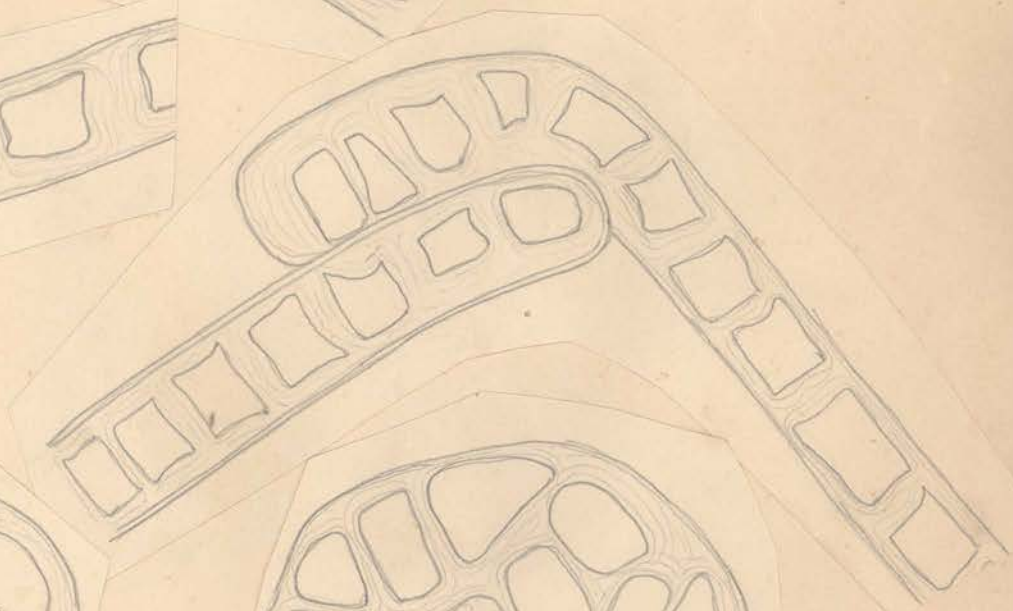
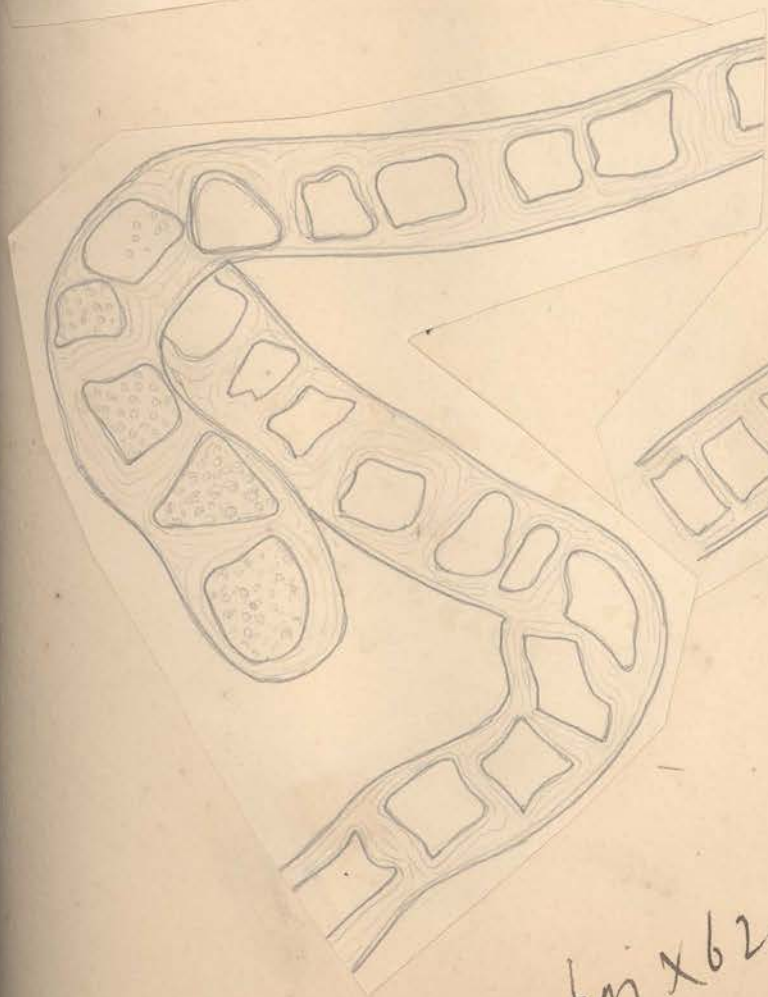
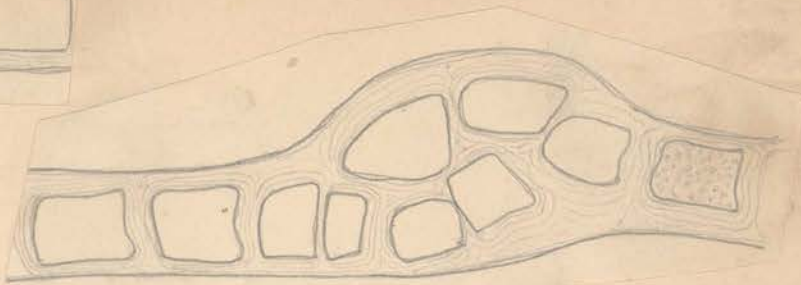
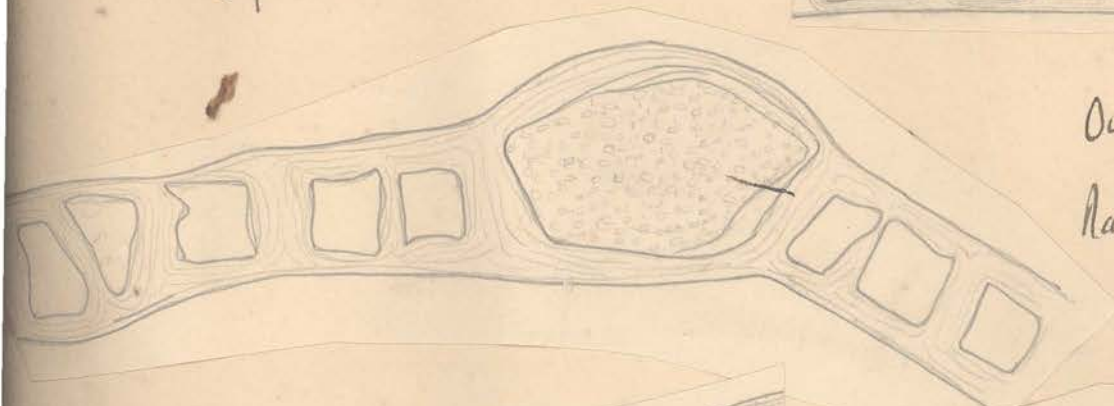




*Cylindroclonus*  
*scyconclonus*

October 1938 from  
Ramsey from Nashville

All figs X 620



*Cyathochaeta*  
*truncoides*  
rh. nov.



x620



18  
4 x 1/2

Collected at - O. Chundapani

from a pond (young)

in form of green & red patches  
heard also a noise

In water a piece

10-12

18-20

Volvox



x 620



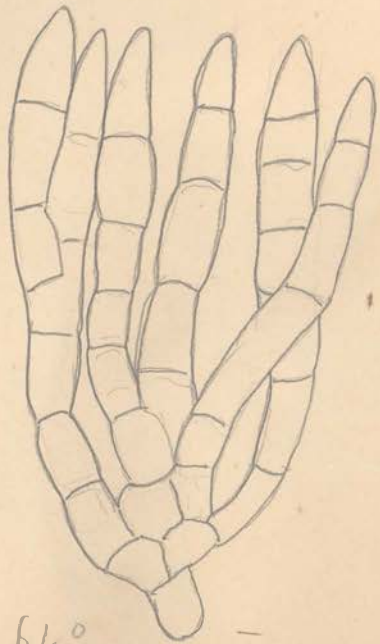




x 890



X 620



X 620

This may be

- i. Projecting system  
green  
with chloroplasts  
chloroplasts 1-2 per cell
- ii. Storage system.



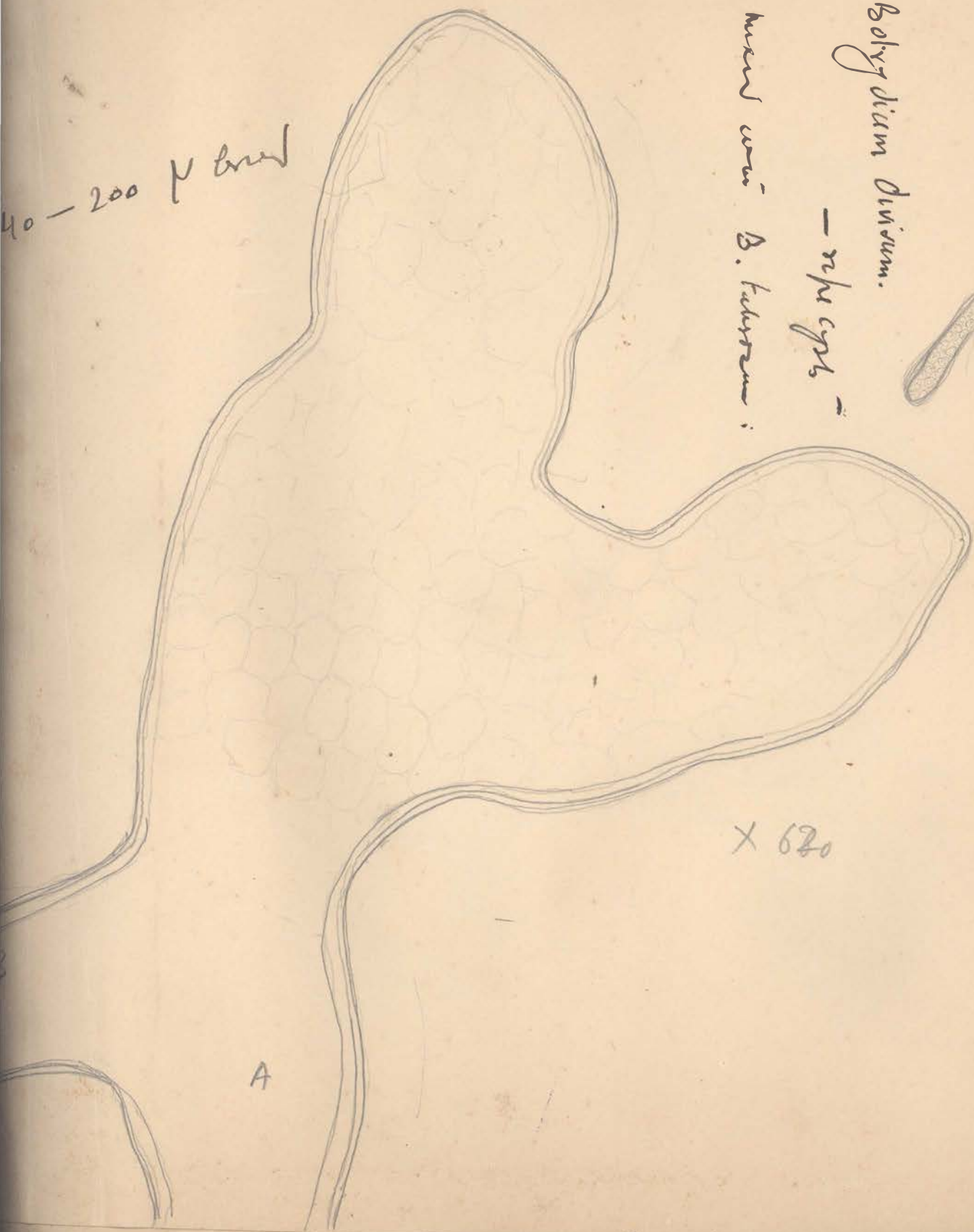
X 622

149 A

B. divinum



40-200  $\mu$  broad



Botrydium division.  
- rhizoids -

new com. B. tuberosum:



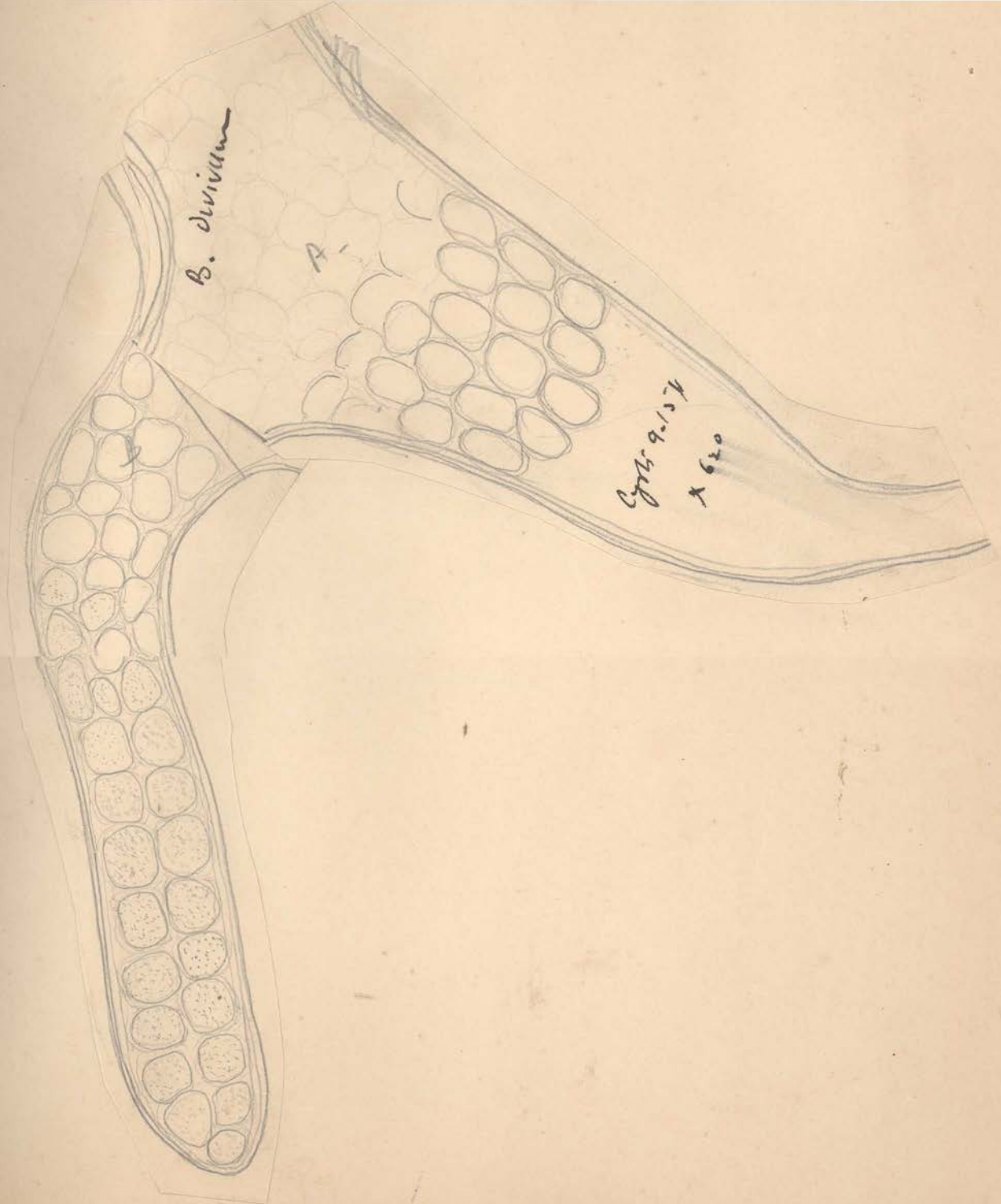
11 = 1  
4

198

~~Handwritten text~~

X 620

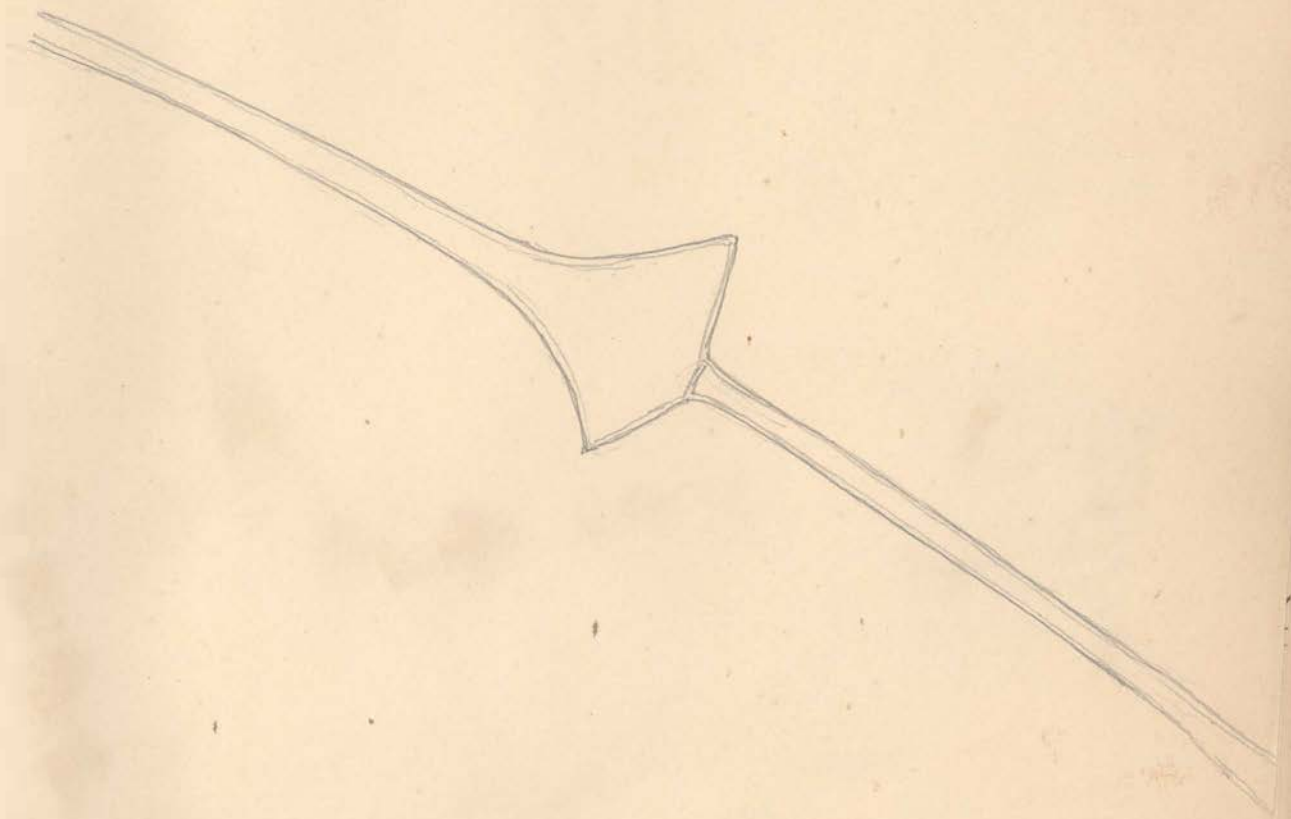
A

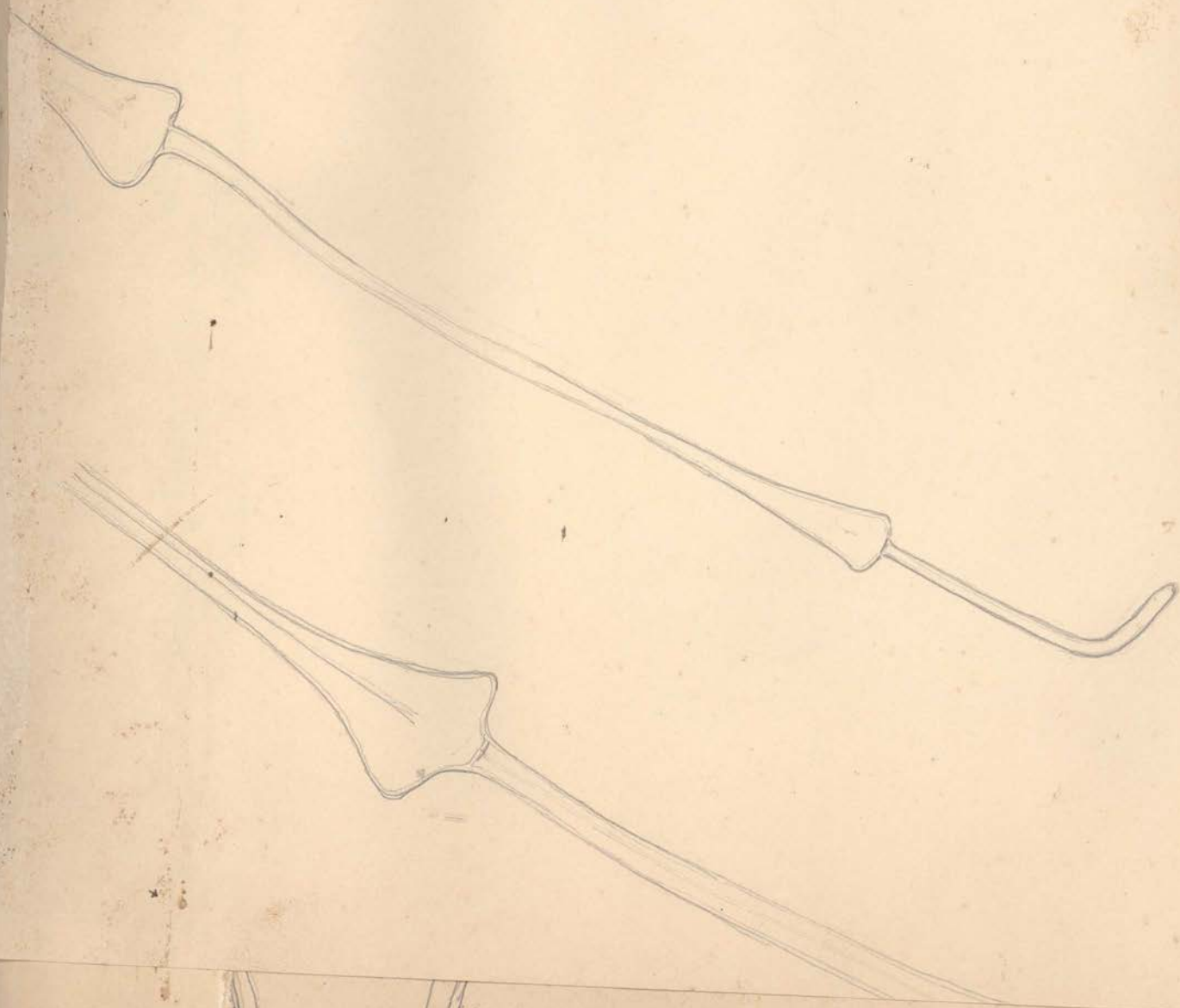


B. divinum

A.

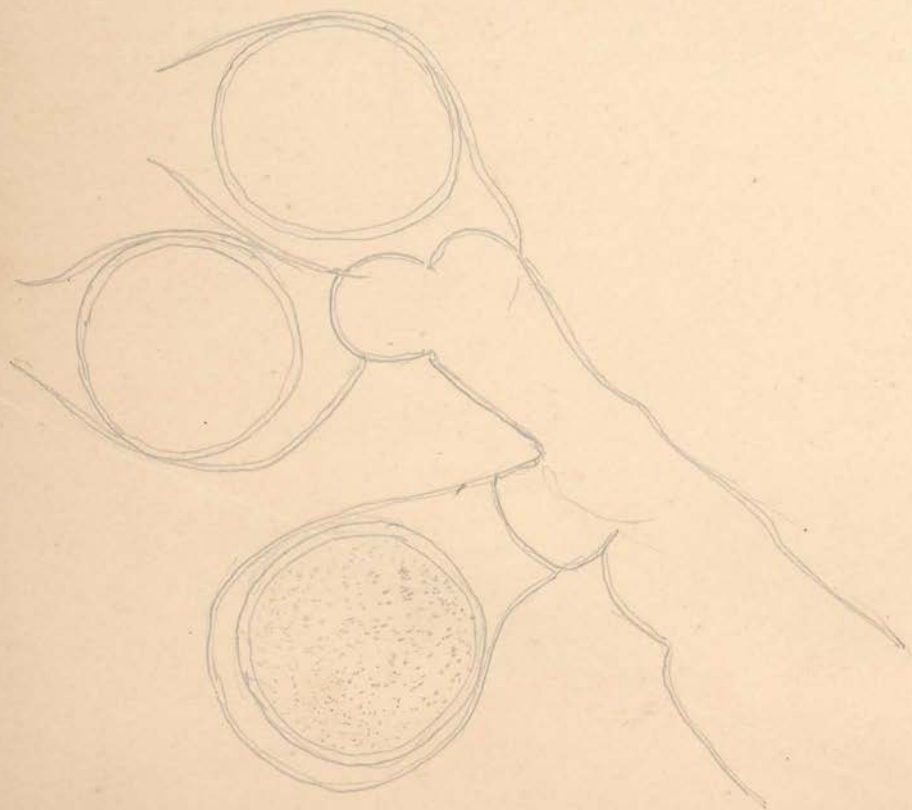
Cyt. 9.1.157  
X 620

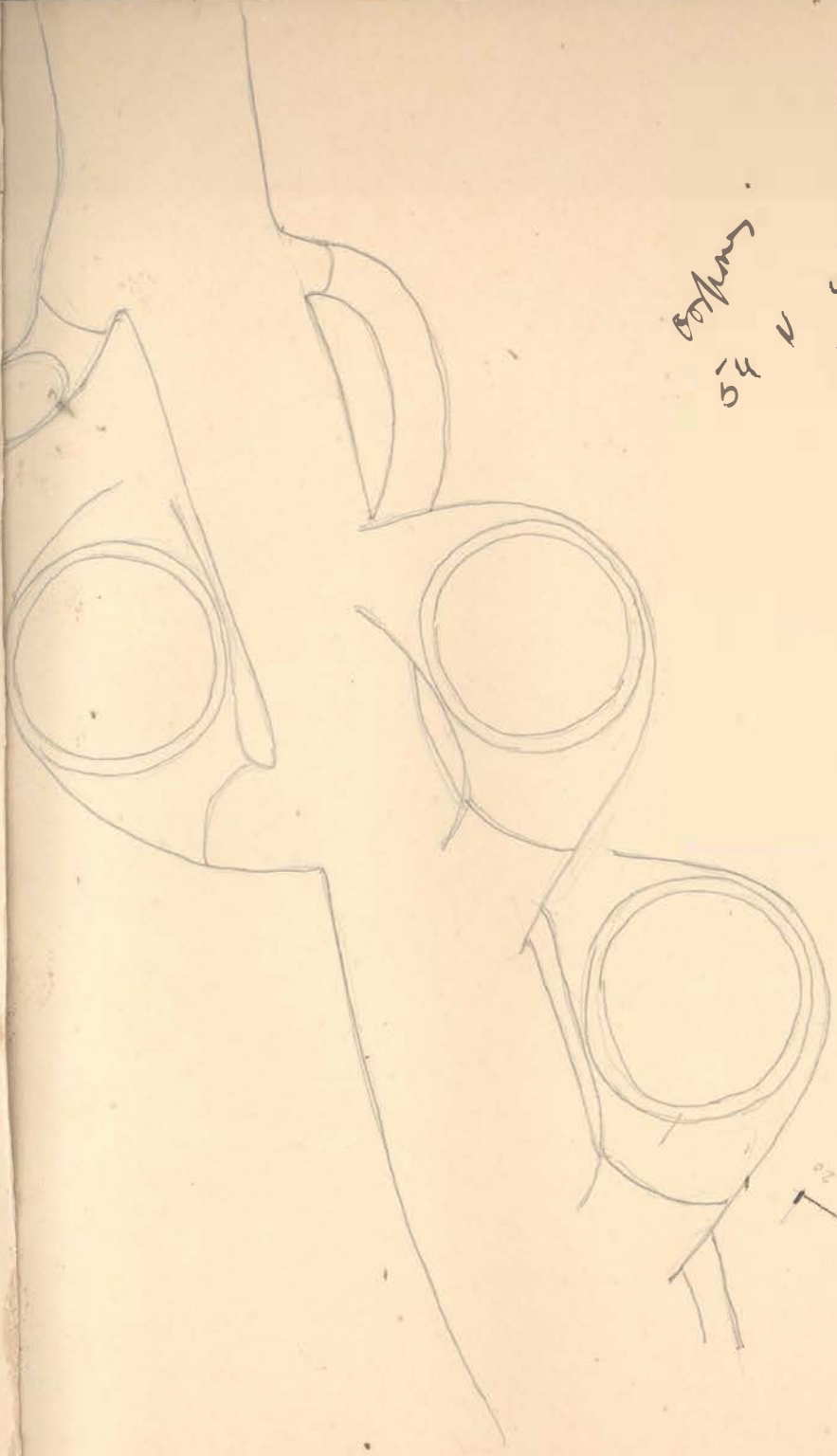






*Vandaea polytrichum.*





50 mm

54

1/2

dim.

regnum

50 - 35

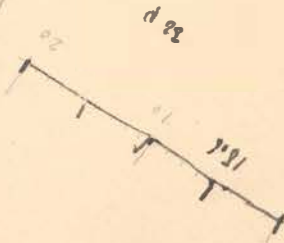
50 - 6

11.  $\sqrt{540} (49)$

11.  $\sqrt{630} (57)$

*Amphispiza bilineata*  
Harris

Amphispiza bilineata  
10 in. Nov. 25



11/18

11-186

*Vandusia holzschuhi*

Filament = 36 - 54  $\mu$



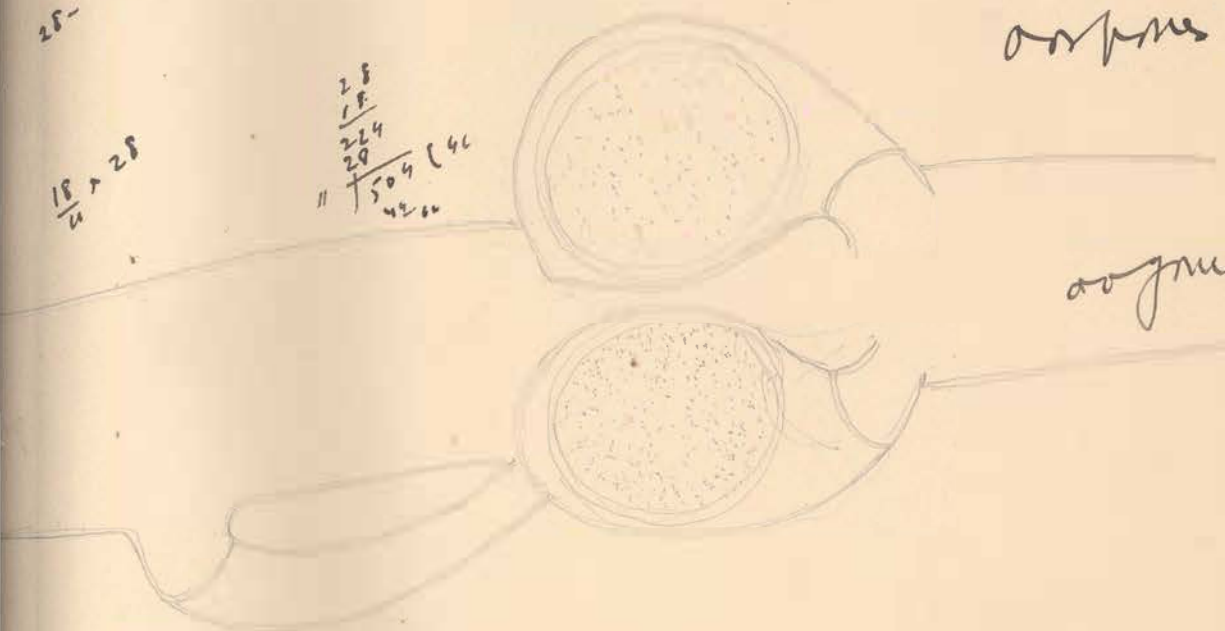
oozome = 46 - 54  $\mu$

oozome

oozome = 50 - 60  $\mu$

25-33  
18-28  
4

28  
18  
224  
28  
504 (46  
426

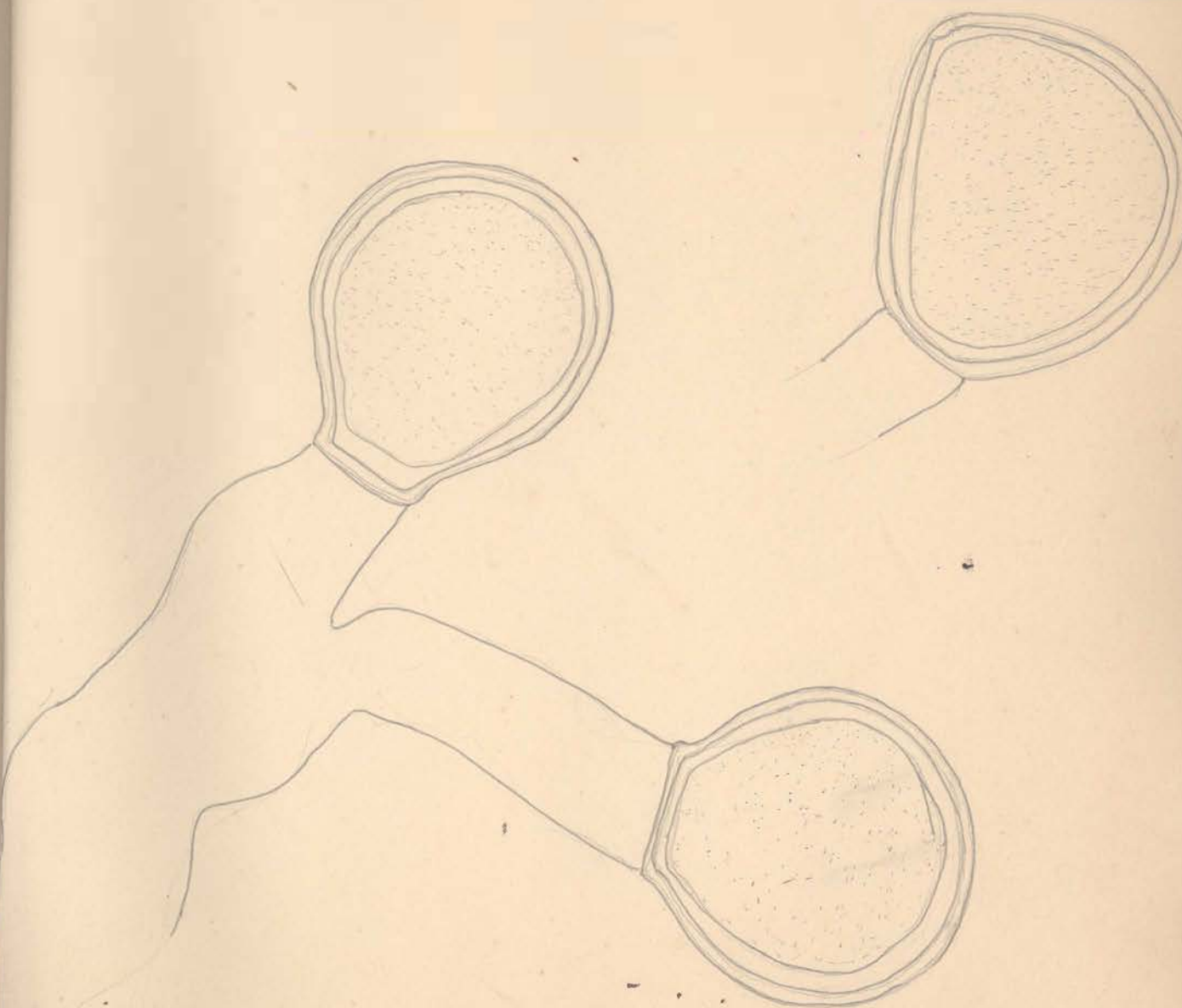


50 - 60 - 70  
18  
9.00  
88  
21

18  
576  
72  
1296  
11  
19  
11  
86

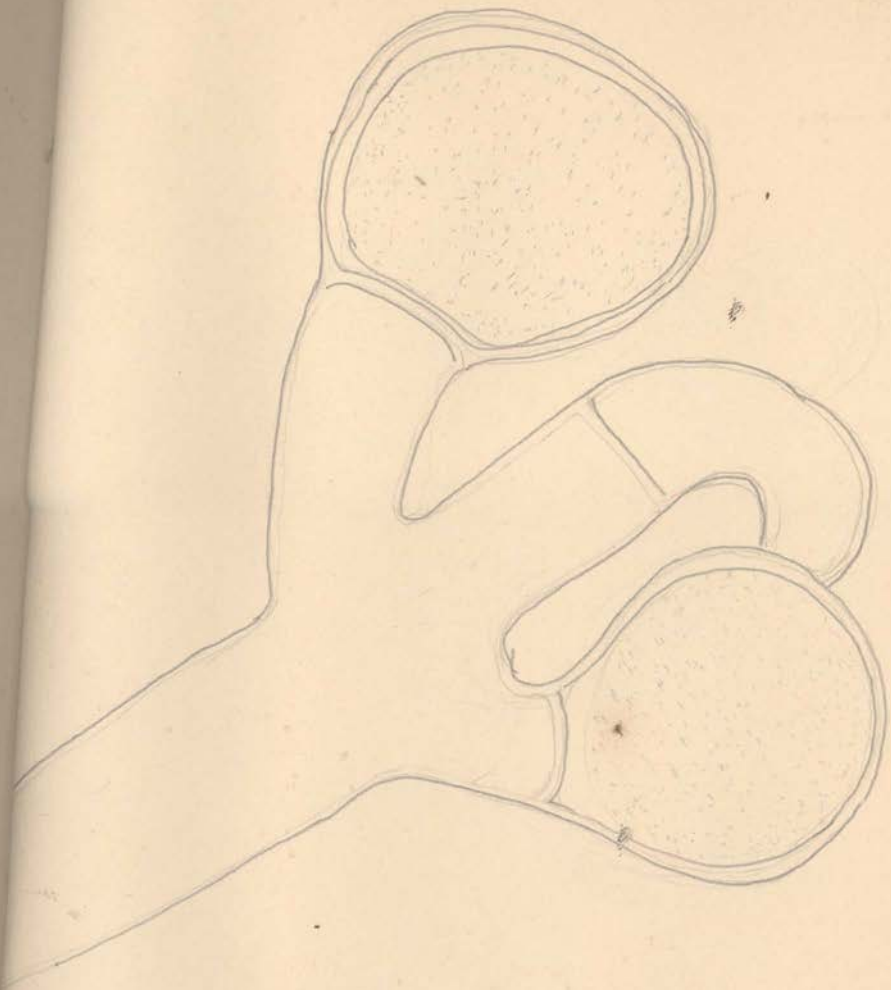
14  
126

80 - 118



*V. amplicaria*





*V. aspericarpa*

✓  
42 -

Portia  
1891

filamen

amp

av

sh



to cement no

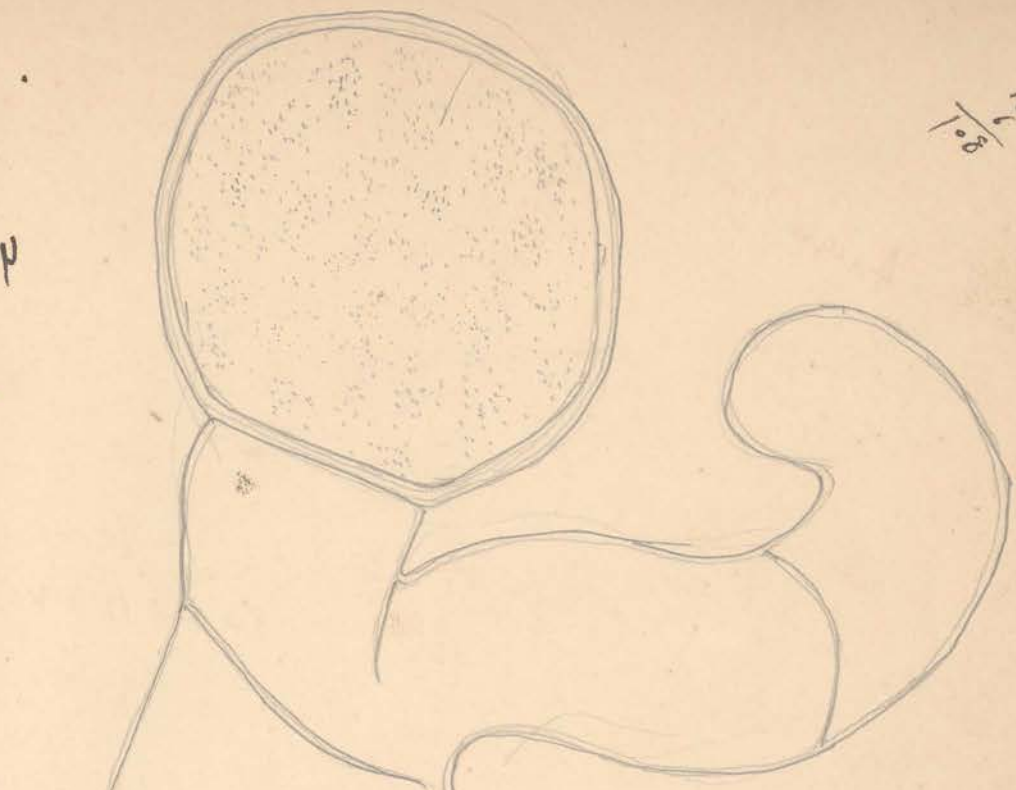
N

kanata

-90 - 108 μ  
W.

18  
108

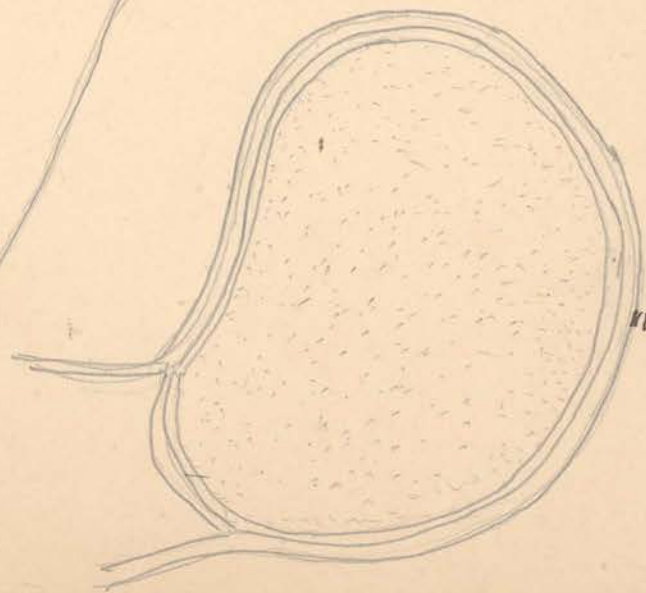
36-4



54 - 72 μ  
W

Found growing

20-36



$$\begin{array}{r} 26 \\ 18 \\ \hline 208 \\ 26 \\ \hline 468 \end{array} \Bigg| 42$$

$$\begin{array}{r} 36 \\ 18 \\ \hline 288 \\ 36 \\ \hline 648 \end{array} \Bigg| 6$$

Aurivida = 20 - 25

$$\begin{array}{r} 20 \quad -25 \\ \hline 18 \\ \hline 11 \quad | \quad 860 \quad | \quad 52 \\ \quad \quad 33 \\ \quad \quad \hline \quad \quad 554 \end{array}$$

$$\begin{array}{r} 224 \\ 28 \\ \hline 11 \quad | \quad 504 \quad | \quad 4 \\ \quad \quad 44 \\ \quad \quad \hline \quad \quad 64 \end{array}$$

oostrom = 72 - 90 - 108 p dw.  
80 - 118 v long

Vegetation plant = 42 - 60 p w.

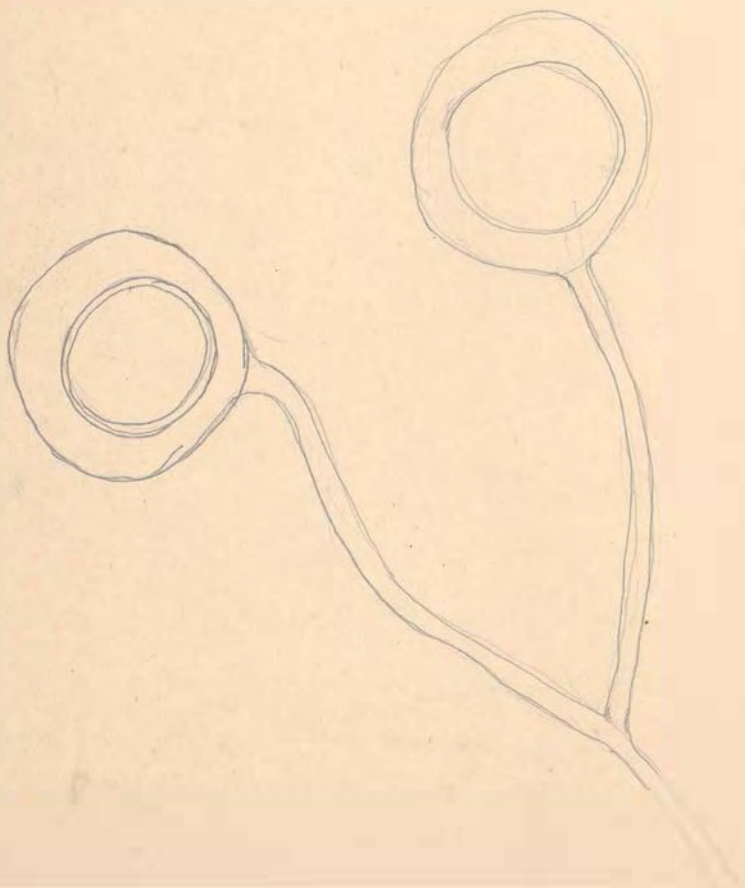
Aurivida = 30 - 44 v in diameter

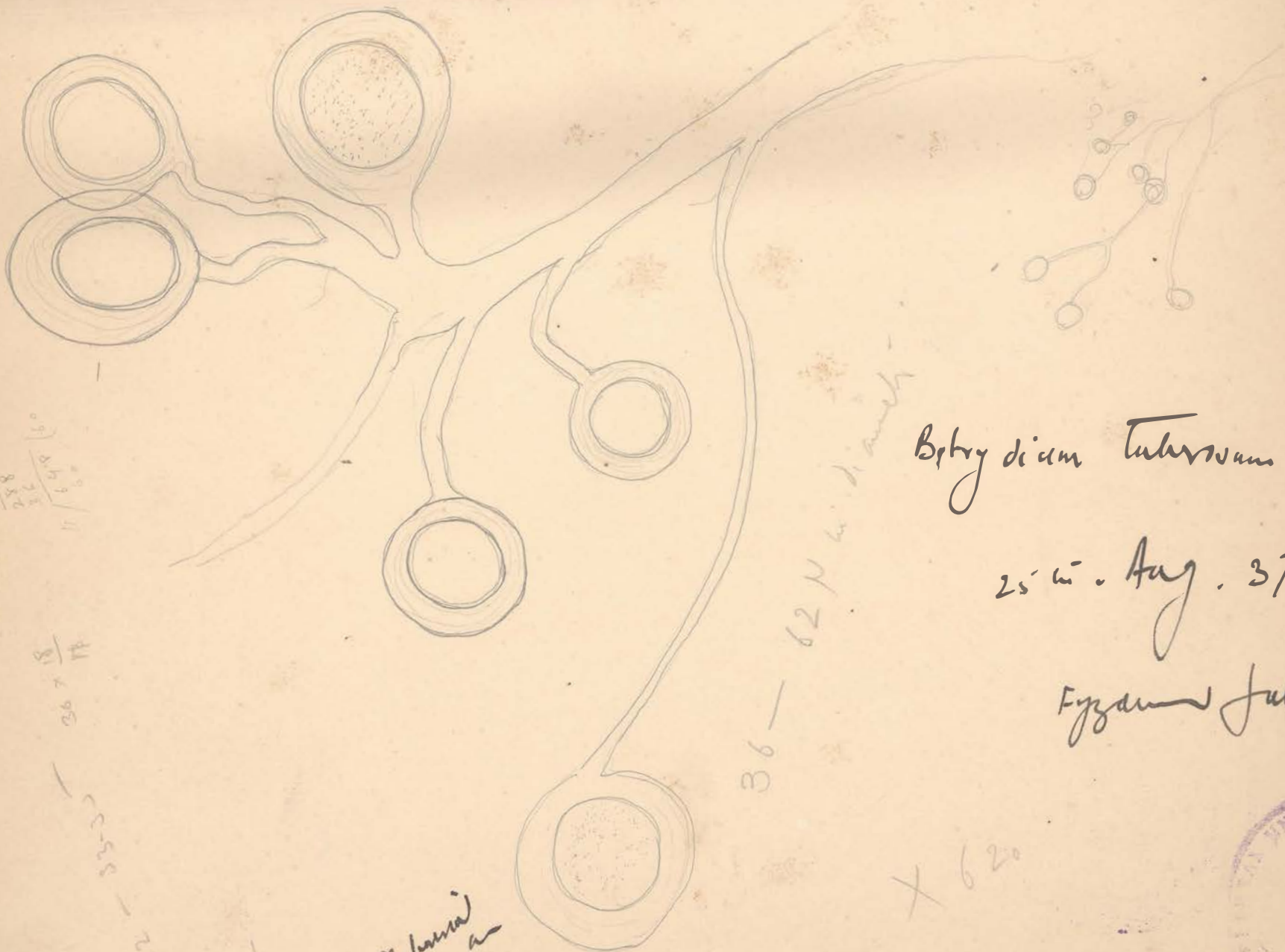
= 70 - 104 v

76 - 116 v



*B. tuberosum*.





Brydium tuberosum

25<sup>th</sup> Aug. 37

Fyzant July

36 - 62 N. diam.

x 620

Plumaria  
110 P

96  
31  
85  
23  
11

36 x 18  
18

11 = 18.6

122 - 53-53

96

