April 7, 1930.

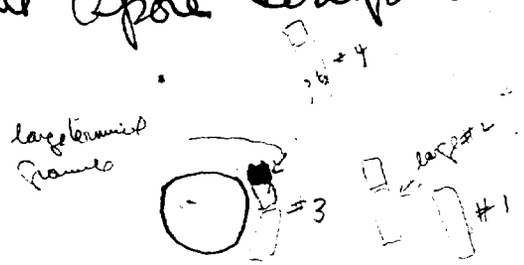
Dear Charlie,

Things have turned up so fast since I wrote you that I am dashing off a line to bring things up to date.

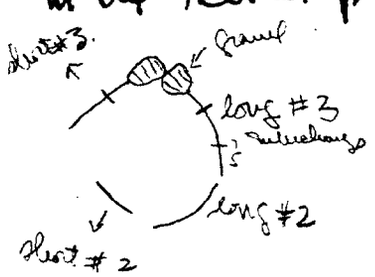
I have been working on B 98 × B 13 ② ⊠2
(8) normal. Wx wx  Wx wx.

Among the regular normals diakineses shows: 3 small bivalents, r-g, #2 + a small #3 with a large terminal granule. It is not much larger than no. 2 without the granule.

The spore stages show a regular #1 + #4 but a fairly large #2 + the chr. with the granule which is #3. I have enclosed a rather poor photograph of the spore complement – 4 smallest chromosomes.




In the sister plants which are ⊠2 diakineses shows –



If disjunction takes place half the time sister-nuclei & half opposite then we should expect 2 types of fertile spores & 4 types of sterile spores;

| | | | |
|---|---|---|---|
| 1. Small #3 + large #2 = fertile regular gametes | ♀ + ♂ | OK | 1/4 |
| 2. Large #3 + small #2 = " interchange gametes | ♀ + ♂ | | 1/4 |
| 3. Large #3 + small #3 (no #2) bad | ♀ + ♀ | sterile | 1/8 |
| 4. Small #2 + large #2 (no #3) " | ♂ + ♂ | sterile | 1/8 |
| 5 Large #3 + large #2 " | ♀ + ♂ | not sterile | 1/8 |
| 6 Small #3 + small #2 " | ♀ + ♂ | not sterile | 1/8 |

If all the spores undergo the first division then should be seen the above 6 types in the proportions given.

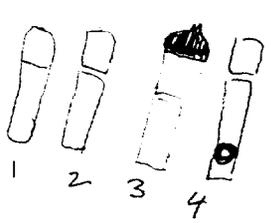
I took a late stage, about second div. in spores in fertile spores. At this stage the fertile & sterile grains are clearly distinguishable. I counted the number of sterile spores with 2 nuclei, 1 nucleus, no nucleus & got 170 2-nucleated; 59 1 nucleated, 19 nucleate, 19 no nuclei. It looks as if among the sterile spores 3 of the combinations come thru the first division & one can't. Of course we need more counts.

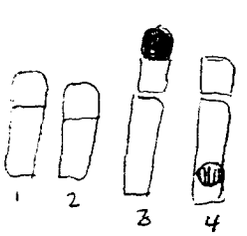
To check this I have looked at the spore dimension figures and have found the normal ~~gamete~~ chr. complement i.e. short #3 + long #2 as in photo; the interchange factile gamete, long #3 + short #2 (which is possibly shorter than #1) + no #2. The sterile combination of two #3s, a long + short; the sterile combination of two #2s, long + short + no #3; possibly the long #3 + long #2. The other combination - short #3 + short #2 I have not found as yet but really have not looked enough.

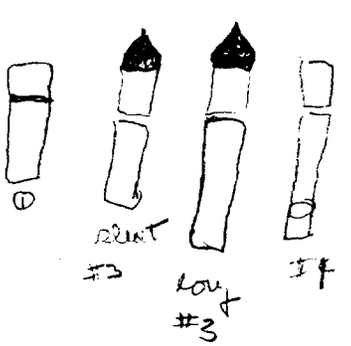
From this it looks as if #3 has received more than it has given in the interchange.

Among the 2 nucleated sterile spores some have a few large starch grains + some have none - there may be a numerical difference i.e. 1/4 of the spores with grains etc, which might be related to a certain combination.

Normal Complement - Interchange Complement Sterile complement with 2 #3 no #2



So much for the recent dope. I have much to do yet but want you to keep up with all that is going on.

As ever

Barb.