Morgan wrote me asking if I could buy my own microscope.
Sharp thinks Morgan should have some more obtained for use there.
What is the financial situation? Can they afford to buy any?
Sharp is int for my taking one from Cornell.
Could you let me know - ask Sterling

July 30, 1931

Take a week off to read this letter

Dear Charlie,

Your letter just came. I was delighted with all the news. It shows great progress. I had been on the verge of writing you to tell you what I have been doing as I felt you would like to know.

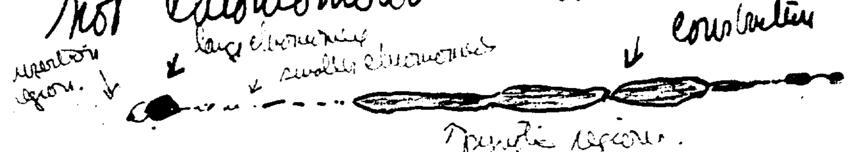
I was especially pleased about the D_3 & la. Have you seen where the interchange occurs? I think #7 will be an easy one for prophase as I believe it has a strong chark[?] marker near the insertion region. I have not checked this but will this winter. You can find which part gives the peculiar #7 trisomic appearance.

Neo-japonica - a great find. One of the earliest known genes & no place on it. It would be nice to have it one #8. Will you make the cross? I have not crossed v_1 to m + long interchange chr. of D_2.

Am interested in the translocation involving the satellite chromosome. Have you found the position?

Have sent the paper on to the proceedings. Thanks for your P.S. in your letter. I still feel guilty about it.

Concerning my work this summer - Several interesting points. I don't know whether to begin chronologically or jump into the middle - First - I think I have some of the "B" type chromosome of Randolph's solved. I ran into it by chance in some of Stadler's material & had it recognized all there was until I had some of the story. The chromosome is very peculiar, unlike any other prophase chromosome. It is almost entirely pycnotic - hardly like the knob region but not chromomeres. It looks like this in prophase -

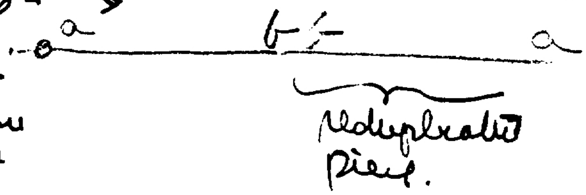


When 2 are present they usually synapse together along their length to form a double structure as above but may synapse with itself, doubles around on itself. That is the reason Randolph found some figures with 10" + 2 univalents instead of 11". When 3 "B" types are present the synapsis is just great!

It forms most peculiar figures but none inexplicable (on basis of my interpretation). The most frequent is a T form which puzzled me considerably when I started for I saw these in a 2-3 chromosome plant first.

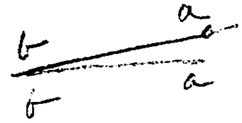
(I interpretation)

"B" type = →

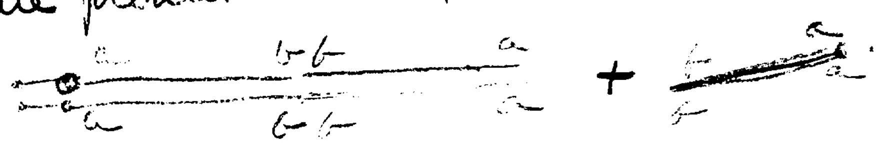


→ very occasionally in prophase = (seldom)

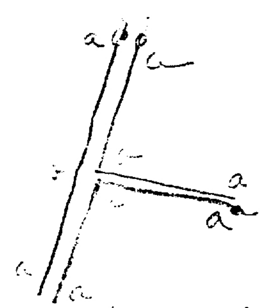
a straight univalent is formed (2 ch. plant) but more frequently



only close synapsis, not a V. When 3 are present in one plant get two varieties in prophase

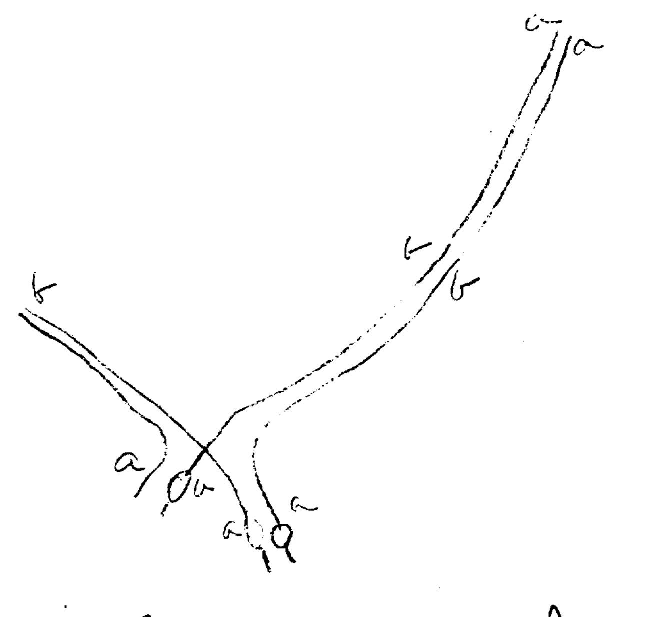


or



most frequent

or

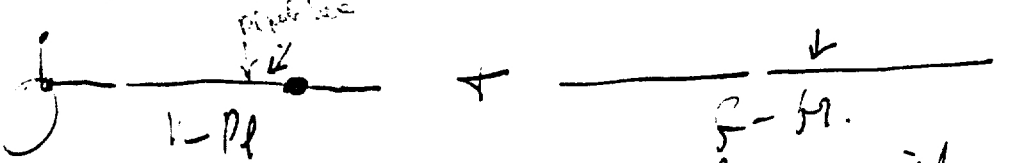


↗ These figures are clear

Synapsis is only 2-by-2

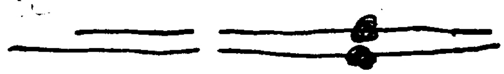
Forms like crosses at different levels.

The 2nd. I looked at some ☐5 prophases to see about the elec. involved in ☐5 - To check on t-lg + s-br. size ~~in pref~~. wanted to get morphological slope for traverses. Report of Cooper's + Brinks' was not complete enough. I found the break occurred - at long arm of satellite chromosome (about region of pl gene, see below) + just below insertion region on long arm of, I believe, the s-br. chromosome. What is the slope on this elec? It looks to me as if the longest chromosome were involved - i.e., s-br + not t-lg. The one region I had was beautiful. All the other elec in the cell were very good except 2 which I could make out partly. It still looked like the longer. Morphologically (i.e., size + arms) this fits me better than t-lg. Breaks occurred about s-br. much better than t-lg.

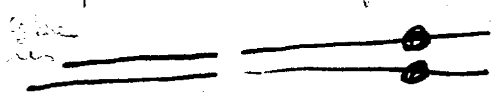


of this turns out to be s-br, morphology of this elec is OK.

which was the right size & morphology for the -lg chr.
It had a peculiar marker ~~that~~ near the insertion
region which allowed me to spot the chromosome in
this culture. Prophase figure looked like this:



A second lg plant in water culture had same chr. widely
only a shorter deficiency. Normal Lg plants had no
loss in this chromosome.



B is probably on the long arm near the knob. I am
just working it out now.
In a similar way Pl ♀ x pl ♂,
now for pl - x rayed embryo, picked out pl plants. Found one
which showed a deficiency of about 1/2 the long arm.
Therefore pl was in the lower part of long arm of satellite
chromosome. Found a 2nd plant that was pl. It
showed an interchange between satellite chr. & another
chr. which occurred at about the same position as is (#7 family #5)
D_5 - i.e., just above the knob on long arm region. If pl was
knocked out or injured in the interchange there should be

Did not finish my list of topics & need more but this letter got too lengthy as it is. I won't blame you for not trying it all at once

No crossing over between pl + interchange for pl is probably at interchange point. One other pl plant was examined. It showed no visible alteration. We shall test it for a non-visible deficiency or mutation.

So much for the major part of the summers work. I am looking over a number of defective plants + find many types of alterations. I want to attack the so-called recessives of Stadler's. No plant characters they are very important.

Dr. Parker + Harriet Arms but here in my pocket. I had left it in Ithaca. They thought I needed it + drew it out to me. I was delighted to see them for the associates here, except Stadler, have it been exciting at all. It is a one-man show on his part.

The summer here has been hot + no rain. So plants suffer. The methods of irrigation are different + costly.

Heard the news of Marion + Beadle there. Harriet via Rhoades from Emerson who had news from Beadle.

Anything turn up of particular interest? Will let you know — Regards to all —

Best.