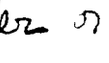
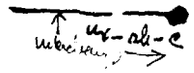
March 4, 1931

Dear Charlie,

Our plants have been very late. I have just started looking at the c-sh-wx chromosome. From what I have seen it seems clear that the knobbed chromosome, the 2nd smallest, is the c-sh-wx chromosome. In the material I have there are 3 size differences of the knob. very large, small & smaller or about  and the knob. In our plants the synopsis showed 2 of the type 3 and one of type 2. I am going to cross this plant with type 1. This points to now the fact (which will be verified in a few weeks) that the c-sh-wx genes are grouped  . I hope Beadle will be able to find on which side of the spindle fiber region the different genes are.

Harris tells me that Beadle has been finding many knobs in teosinte. I saw many in his material last spring - 2 on a chromosome etc. In fact, I believe the reason for the appearance of longer chromosomes in teosinte as compared with maize may be due to the added amount the knobs give to the metaphase chromosome. I feel convinced that such is the case with the satellite chromosome.

Will let you know whether the 3rd smallest (#8) comes there in my other stock. Do you want me to send you some stock? I will let you know how it comes in a few weeks.

Trisomic synapsis is interesting. In the early stages it looks as if Newton & Darlington were right. In many cells it was obvious that only 2 chromosomes synapsed at any one place. Character of pairing looked like -

I have seen some nice cases. I don't know whether 3 chromosomes lie side-by-side thro accident or whether it amounts to 3 chr. synapsis. I think it is accidental however & that synapsis is 2-by-2. In some cases one of the 3 chromosomes was entirely free in the early prophase. A univalent thro out probably. If synapsis is by chance, this might occur. $N(2\text{-by-}2)$

So much for the present dope - I have been at it 2 days only, so much is in chaos. Will let you know any interesting developments.

Thy regards to the crowd -

Sincerely

Barb.