

CALIFORNIA INSTITUTE OF TECHNOLOGY
PASADENA

DIVISION OF BIOLOGY
KERCKHOFF LABORATORIES OF BIOLOGY

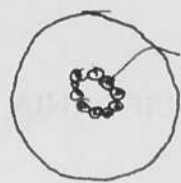
February 10, 1955

Dear Francis

I have put off writing because I hoped to be in a position to write a longish letter. First of all, I have done nothing with the Virus Paper. Reason is preoccupation with many things. However I seem to be returning to work at a steady pace. Viruses seem to chose this time of year to descend on Pasadena. The following factual information may interest you.

- 1) RNA. shows no increase in UV adsorption on boiling for one hour [TMV, Yeast, Liver] Nevertheless shows 20% rise when taken from .1M NaCl to H₂O. Have been obtaining fibres from some new Yeast RNA of S₂₀ 10-12. Seems to behave like previous samples this is a pity. No x-ray pictures yet, but birefringence and stickiness seem similar. This should be very clean RNA so I wonder whether sample improvement will help us. We should probably concentrate on obtaining better photographs from present samples. Hope soon to get x-ray photos and sedimentation pictures from boiled RNA - this to check whether specific hydrogen bonds exist - Would guess they don't. Am going to Berkeley next week to look again for RNA in E.M.
- 2) TMV. Casper (now here at Caltech) doubts whether Rosy's sign assignment for Equatorials is right. If he is right in his guesses, we find a high density = $\rho = 20 \cdot PO_4$?? Probably would pay to talk to her. M.W. of TMV RNA seems to be 240,000. Are there

8-10 chains running down the edge as follows
in the very center; to be expected if the bases



He guesses low density
are on the inside. TMV

behaves the H_2 of the RNA would, that is unless PUX is pushed. What about
having Ray Markham prepare you some. - Oh is Ray doing it.

Southern Bean Mosaic: Caspar has low angle curve [DUMOND EQUIPMENT] in water and high
density salt. First picture gave approximation to uniform sphere - second gave nothing. Hence
RNA is likely to be highly hydrated.

Bacterial Microsomes: We are preparing these from E. coli for both low and high angle. Since they are
so to RNA, am curious whether we shall see RNA powder patterns. Have new analytical Spinco
at disposal - necessary in this work.

Garrow was here for 4 days - rather exhausting as I do not live on Whisky. Your TIELLER note arrived
during visit. Am not so pessimistic. Dislike adapters - we must find RNA structure before
we give up and return to viscosity and bird watching. I should like have physical-chemical data
before I return to model building - This we may have before summer.

My visit to England: Still plan to come by early summer. However certain uncertainties about academic
future make simple planning impossible. Will write when things clear up - may not be for several
months.

My visit East was pleasant. Am returning in mid March for several weeks

Regards to Odile - am looking forward to return to Unit

Jim