

ATHENAEUM
551 South Hill Avenue, Pasadena 5, California

February 13, 1954

Dear Francis,

I now understand $\frac{1}{2}$ of RNA. Consider the following (1) In RNA from plant viruses, the base ratios are not complementary (2) In RNA from all other sources, the ratios are complementary. This is not an obvious fact as much of the data is sloppy but the good papers show the ratios and are the ones to be considered. The conclusive data are in Smellie (it smells tight!!!) and Davidson Biochem J. (May 1953). 3) The x-ray diagrams (both powder + fibre) from both complementary and non complementary RNA are identical.

From this we can deduce

(and)

1) the structure of the non complementary RNA cannot be two stranded & complementary. In fact it is likely a one stranded helix (the x-ray pattern is horribly helical).

2) the complementary must also exist (at least after isolation) in the single stranded form.

3) both types will however replicate by complements. The 2 stranded form we shall postulate to be less permanent than the one stranded beast.

4) the plant viruses contain only one of the two possible complements and always the same one.

This seems plain but I see no way out.

We must find out

1) the structure of the one stranded form. We have a structure which is neither very ugly nor very cute but which seems to vaguely agree with

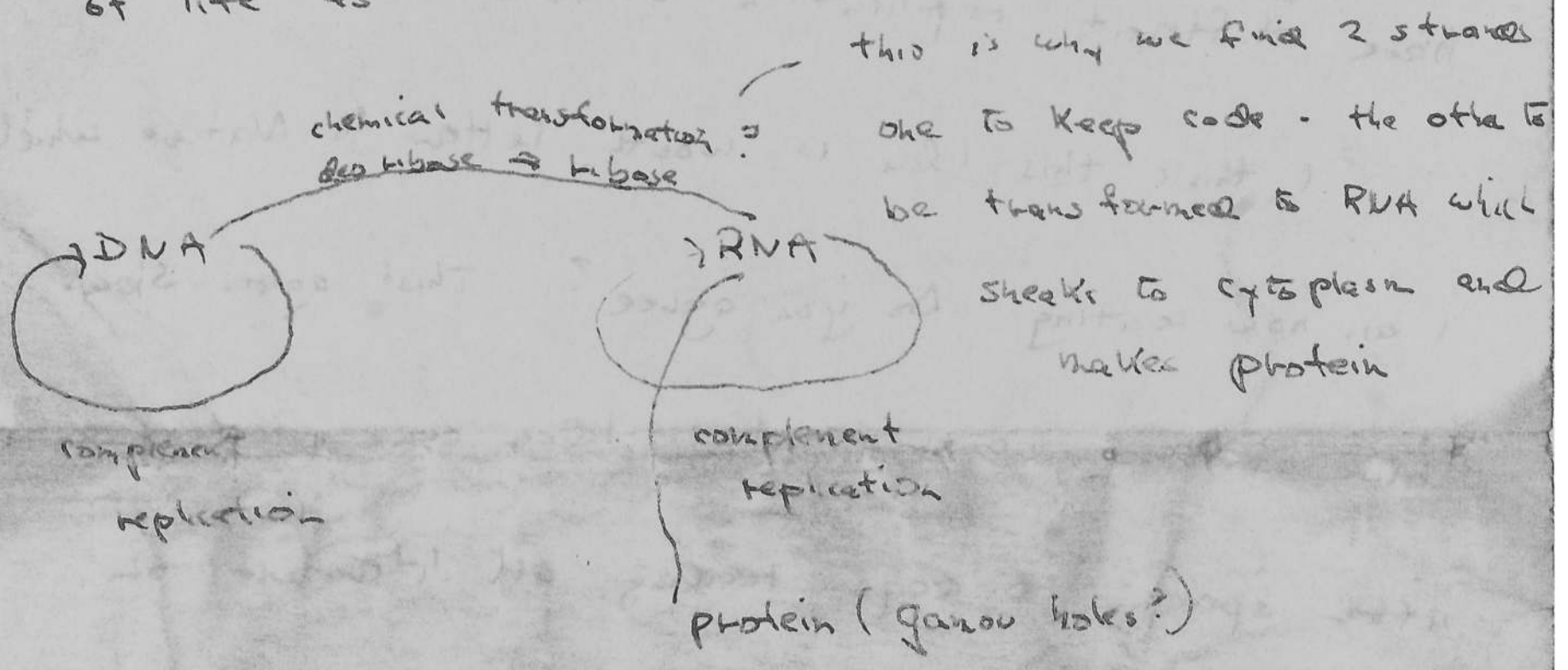
Delbruck. The others are not convinced but are not
situative creatures, and so do not count. I do not
believe the base ratios could be so good if they
did not imply self replication - Also cannot believe in
2 ways for RNA to replicate. hence do not mind the
asymmetry in Aest Vitis picture. Also it would be
strange for DNA & RNA to be so similar and yet
have different replication schemes.

I think this idea is worth better to Nature which
I am now writing. Do you agree? This again shows
value of reading over expts. Idea came 3 days ago
after spending 3 days reading all literature on
base analysis: Chargaff has failed again!!! Really
very funny. The important thing is to ignore data which
complicates life.

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2) the structure of the two stranded beast. This may be nasty since we have no x-rays but is worth the effort since this ^{may} be the beast which grows proteins.

In any case we now visualize the mysteries of life as follows.



All of this is slightly mad but as it is cute.

I think it is correct. Your comments seriously desired. Have convinced Feynman and slightly

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what do we do after protein specificity is solved. I really do not want to do genetics or watch birds. or think about phospho lipids

About your trip to Midwest. I did write Lurie. He replied favorably and so I don't feel I can write again. I think it best for you to write directly.

It is now raining like hell. When not much snow. However life is not so depressing as initially. Even so L.A. is basically dead. Am going to drinker brawl this evening and so it is good that I have written now and not planning to do so tomorrow.

would feel best if you did not pass on contents of this letter until note to Nature is in

John