

September 22, 1960

Dr. Norman Horowitz
Division of Biology
California Institute of Technology
Pasadena, California

Dear Norm:

Thanks for your letter of the 19th. I hope the present proposal for a session on October 29th will be more convenient for you.

I think that Stanley Miller would be a very good idea and I am asking if he would at least like to sit in on this next meeting.

I appreciate what you have to say about decontamination and I am a little appalled at the weak position that I understand was held by some of our biological colleagues. The physicists on the Planetary Steering Committee do not seem to lack courage in this respect, but they may become suspicious if they hear too much confusion from us. In any case, I feel that there would be such overwhelming public pressure at this point, that, at least for Mars, it is difficult for me to see how NASA could make a too obvious blunder. But I agree there is a continuing problem here. Perhaps one answer to your question would be the COSPAR meeting next spring.

There has been some more recent work again on the growth of microorganisms in heavy water - for example, a paper by Rittenberg and Borek in a recent number of the PNAS; Mel Calvin has also been interested in this. I do not think this is likely to be too serious a problem judging from the experimental results that are presented. However, the necessity of looking for the deuterium ratio in planetary atmospheres is a good suggestion - I believe it has been brought up in other quarters.

As to the problem of an upright landing, there are any number of other reasons why this is necessary - for example, the efficient orientation of the telemetering antenna. The landing capsule that is being designed for the lunar landing has a self-righting design and something like this should be absolutely necessary for the Martian experiment too. The blast problem is potentially a serious one and again some thought has to be given to the means of getting around it. If one simply waited a while, the local area should become repopulated but there might also be some question of the enrichment with unburned fuel and the products of combustion. I would be interested in an elaboration of how an electrostatic precipitator might be used to separate bacteria from mineral particles to which they might be somewhat adherent. I have not been able to think of a plausible way of using this principle - and there would be every advantage to not bothering with a fluid in the separator. Did you get the NRC report Exob. 8-5? On page 19 there is a reference to the "particle spectrometer" that Goetz has set up. This might be a useful device along the lines of your own suggestion and I wonder if I could ask you to look into it if it is especially convenient for you to do this.