

March 25, 1960

MEMORANDUM

TO: R. C. Peavey
FROM: G. A. Derbyshire
SUBJECT: Biology Committee Functions and Organization

Discussions between Hartline and Lederberg with the background of the Committee's deliberations developed the portions of biology in space thought to be the concern of the Space Science Board. These concerns require some additional members of the Committee and a reorganization to provide for adequate coverage. Also discussed was the necessity for adding to the Board membership to give an improved balance between the physical and the biological.

I. Area of interest

a) Biology experiments which are of significant scientific value in themselves but which may not be directly related to manned space flight. Specifically excluded are: studies of ecological systems, acceleration stress, and engineering of protective systems.

b) Four specific categories currently stand out as of specific interest:

1. Exobiology and the detection of extraterrestrial life forms, problems of sterilization and decontamination, protection of the earth from back-contamination. (This is by far the most interesting of the group.)

2. Radiation biology in space - studies of the effects of the radiations in space on terrestrial organisms and highly organized systems.

3. Environmental biology - studies of the effects of the space environment on terrestrial life forms - e.g. the zero gravity on terrestrial dependent rhythms, the effects of weightlessness on biological orientation and other ties to the terrestrial environment.

4. Man's role in space - the objective evaluation of man's functions as part of an integrated system.

Implicit in these activities is the necessary ground-based background research and activity which must either precede or be concurrent with space experiments. Also of importance is the necessity for preventing stupid experiments that will actually adversely affect the program and participation by biologists of stature.

c) Instrumentation - those special instruments and instrument systems that will be required as a means for performance of experiments.

II. Organization and Membership

We visualize Committee 11, now renamed Biological Research, as the parent or board of directors, with each member being assigned a sub-committee task:

Hartline and Lederberg as members of all sub-committees.

11a - Exobiology, - Lederberg and Francis together with the old Westax group.

11b - Radiation biology - Curtis and Farr (could be augmented by the bio-astronauts panel of which Curtis is also chairman)

11c - Environmental biology - need a chairman. Suggestions: Pittrindrigh, Hastings, Steinbach.

11d - Man's role in space - need a chairman. Suggestions: Licklider, Lambertson, Fitts, Fenn.

In addition recommend that the general instrument committee of the Board be activated and that it include on its roster Scmitt and MacNichol to represent bio interests.

III. Add to Board

In the opinion of the Committee, the Board membership needs better balance - it is now heavily weighted to the physical sciences. Needed is someone in psychology - Fitts?; physiology - Fenn?; Lambertson?; Steinbach?. This will have to be discussed with Bronk/Berkner, Hartline; moreover, biology needs more than two specialists to represent its broad views.

Random thought: Biologists as a whole are not too anxious to give up their current research interests to go into space related activities. It may be difficult to get sound scientists to do this. Exceptions are those noted above who are known to have some interest.