

National Academy of Sciences
National Research Council
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D R A F T

MINUTES
Joint Meeting of
Committee on Psychological and Biological Research
and its
Sub-Committee on Exobiology

Stanford University
Palo Alto, California

February 29, 1960

Attendance: Members: H. Keffer Hartline, Chairman; Paul Berg;
Howard J. Curtis; Richard Davis; L. E. Farr; Norman
Horowitz; Joshua Lederberg; E. F. MacNichol; Daniel
Mazia; Otto H. Schmitt; C. B. Van Niel; G. A. Derbyshire,
Secretary.

Members Absent: Thomas Francis; Edward L. Tatum.

Invited Participants: Sam F. Seeley, NRC-DOD Committee
on Bio-Astronautics; H. Burr Steinbach, Division of
Biology and Agriculture, ~~NIH~~. NRC

different composition and structure. Some expansion of the Committee has occurred, i.e., the formation of the West Coast biology group of Dr. Lederberg (and his appointment to the Board) and the addition of Dr. Thomas Francis to the Committee.

The Chairman noted that the Committee had early expressed a lack of interest in Project Mercury, had not been requested to give advice on the program, and had assumed that advice was not needed. He noted, however, that the 1970-80 program indicates the incorporation of man as a part of the system, and that a thorough study of man vs. instrument should now be undertaken.

The Committee agreed (after considerable discussion) that space related biology falls into:

- (1) Exobiology, i.e. extraterrestrial life, contamination and related topics
- (2) Radiation biology
- (3) Environmental biology, *e.g., biological effects of* ~~the~~ *the gravity-free state; high vacuum; and other features of*
satellite, planetary and interplanetary environments
- (4) Man's role in space.
Capabilities of man in space

The Chairman noted that the first category is covered by Dr. Lederberg's group; the second through Drs. Curtis and Farr (in addition, Dr. Curtis is chairman of the Radiation Biology Panel of the Bio-Astronautics Committee); Environmental Biology has no representative on the committee. Both Pittendrigh and Hastings were mentioned in this connection. Dr. Seeley offered the services of the Bio-Astronautics Panel on Biological Rhythms to the Committee noting that Pittendrigh was a member of the Panel. ~~This may serve the needs of Committee II and prevent the activation of another committee.~~

make
For the time being,
Category 4, Man's Role in Space, is referred to Dr. Stevens ~~for~~ for discussion and membership recommendation.

The Committee recommends this organization to the Space Science Board, and will, on approval, make the following assignment of its members.

- (1) Hartline, Lederberg and Stevens members of all sub-committees
- (2) Exobiology Sub-Committee 11-A Lederberg
- (3) Radiation Biology Sub-Committee 11-B Curtis/Farr
- (4) Environmental Biology Sub-Committee 11-C
- (5) Man's Role in Space 11-D Stevens

→ Dr. Francis will be consulted as to the desirability of organizing a separate ^{sub}committee to ~~univ~~ ^{univ} the problem of back-contamination of the earth, or to join subcommittee IIA & in studying this problem.

In addition, the Committee's discussions indicated the need for instrumentation for its needs, but does not wish to establish its own specialized group; therefore, it is recommended that Dr. Villard's Committee be activated to serve as the focal point for instrumentation problems and information. It is suggested that Drs. Schmitt and Mac Nichol would be willing to represent its instrumentation needs on the committee.

3. Other Relevant Topics

3.1 Information and Communication

There was discussion of the need to provide up-to-date information on many aspects of science to the user in a usable form, i.e. up-to-date information on radiation biology research results. Dr. Curtis agreed to provide a working paper discussion of this topic.

3.2 Space and Money Available

It was reported (Davies) that space for biology experiments could be available on a Venus fly-by (5000 miles miss distance) being planned at JPL for 1962. Great interest was indicated in the temperature of Venus, in the depth of the atmosphere and some crude map of the surface features. Seeley reported that he had been told \$3,000,000 was available in NASA for supporting the biology program.

3.3 High Altitude Sampling

It was noted that the Fort Detrick laboratories (Dr. Phillips) are building devices for biological sampling of the atmosphere at high altitude. It was hoped to include these as 'guests' on subsequent balloon flights.

4. 1960-65 Program

The biology program as approved by the Committee is contained in Attachment A.

5. Back-Contamination

After thorough debate and discussion, the Committee approved without dissent a resolution for transmittal to the Space Science Board covering the establishment of an interdepartmental study committee. The resolution is contained in Attachment B.

6. Scientific Aims of Space Research

The Committee, without dissent, adopted the Scientific Aims of Space Research (Attachment C) and moved its transmittal to the Space Science Board.

7. Next Meetings Plans

On approval of the Committee organization phase by the Space Science Board, the sub-committees will be urged to convene. This will provide time for development of biology programs for inclusion in the longer-range space science program to be formulated this fall.

8. Adjournment

The Committee adjourned at 5:30 P.M.