OPTIONAL FORM NO. 10
MAY 1962 EDITION
GSA GEN. REG. NO. 27
5010-107

UNITED STATES GOVERNMENT

Memorandum

3

TO : MM/Dr.

DATE: March 5, 1964

FROM : RB/Dr. Konecci

SUBJECT: ace M isory Gr (SPAMAG) on Manned Orbital Laboratories

I just ive the minutes of the meeti f the NASA/USA Space Medicine Advisory Group (SPAMAG) held on 9-10 January 1964, in FOB-10b. The objectives, and 12 listed end products of this working group raises several questions in my m ch affect the activities of this office, and I believe the SB, as well. I am concerned with such items as: Is SPAMAG an exclusively OMSF advisory group? If so, why aren't the OSSA and OART program offices represented? Since this is principally a civilian advisory group which would make recommendations, at least the SB and RB program offices could have been accorded the same role as the Air Force special representatives The biological, human and technology experimental objectives, and anticipated end products indicated, should have inputs from the other NASA program offices (OSSA and OAR order to make their recommendations effective and meaning to accomplish our overall national objectives.

I see great merit in the products of such a distinguished group. My interest in raising the above questions are not intended to be parochial, but we do have program requirements and responsibility for ART in advanced aerospace systems, which can only be answered by properly conducted biomedical experiments in a MOL.

I sugge t this item be added to our Monday's Life Sciences Directors meeting. I further suggest that in the future, since we now meet every two weeks, that items of such importance be brought to the attention of the Life Sciences Directors, so we can mutually agree to either request participation or instruct one office to act as the overall agent for the other two.

Eugene B. Konecci

Eugene B. Konecci
Director, Biotechnology
and Human Research

R/ splinghoff
M/Mueller
MT/Gray
S/Newell
SB/Reynolds

MINUTES OF THE 9-10 JANUARY 1964
MEETING OF THE SPACE MEDICINE ADVISORY GROUP
ON
MANNED ORBITAL LABORATORIES

The first meeting of the NASA/USAF Space Medicine Advisory Group (SPAMAG) on Manned Orbital Laboratories was called to order by the co-chairman, S. P. Vinograd, M.D., Chief, Medical Science and Technology, Directorate of Space Medicine, Headquarters NASA at 9:00 a.m. on January 9, 1964 in the Management Conference room of Federal Office Building 10B, Washington, D.C. A list of the SPAMAG members in attendance for the two-day conference is shown in Attachment #1.

After convening the meeting, Dr. Vinograd proceeded with certain formal introductions as follows: Colonel Andres I. Karstens, M.D., Commander, Aerospace Medical Laboratories, Wright-Patterson AFB, Ohio, the USAF co-chairman of the group; Lt. Col. Milford D. Harris, Ph.D., and Edward A. Liske, M.D., both from the School of Aerospace Medicine, Brooks AFB, Texas -- special USAF representatives; Drs. Mae M. Link, Edward J. McLaughlin and Jefferson F. Lindsey, members of Dr. Vinograd's staff who were in attendance to provide resource materials and assistance to SPAMAG members as appropriate; and Dr. Michael Yarymovych and Mr. James Nolan -- members of the NASA Advanced Manned Missions Program Office, who were in attendance to provide the SPAMAG with formal briefings during the morning session.

The program for the morning session consisted of welcoming and orientation talks by NASA and USAF officials. Dr. George M. Knauf, Acting Director, Directorate of Space Medicine, Headquarters, NASA, was the first speaker. He welcomed the distinguished group of consultants on behalf of Dr. George E. Mueller, NASA Associate Administrator for Manned Space Flight. He pointed with gratitude and pride to the past significant contributions of professionals in the life sciences community and noted how the life scientists have supported, and are supporting, projects which have been identified as being in the national interest. Next, Dr. Knauf introduced Dr. W. Randolph Lovelace II, Special Consultant in Space Medicine to Dr. Mueller and Dr. Lovelace welcomed the group. Dr. Knauf then introduced Brigadier General Benjamin A. Strickland, Jr., USAF, Assistant for Bioastronautics to the Commander, Air Force Systems Command (AFSC) with Headquarters at Andrews AFB, Maryland. General Strickland expressed his interest and his appreciation for the work of the Space Medicine Advisory Group, and he provided the consultants with a brief description of the various activities of the AFSC Aerospace Medical Division, thus facilitating their understanding of the relationship of the Air Force to NASA with respect to space medicine and life sciences problems. The morning session was concluded with comprehensive orientation talks given by Dr. Yarymovych and Mr. Nolan concerning NASA space station conceptual approaches, and study programs, and by Col. Karstens concerning the military Manned Orbital Laboratory (MOL) concept.

During the first part of the afternoon session, Dr. Vinograd provided each conferee with a copy of the overall plan and agenda of the SPAMAG meetings (Attachment #2), which he had prepared prior to the meeting. After full discussion of the content of this document, the conferees adopted, in general, the ideas set forth thus establishing for the group: a conceptual approach to Orbital Research Laboratory recommendations about which the group should be concerned (Pages 1 and 1a, Attach. #2), a list of in-flight experimental variables to be considered (pages 2 and 3), a list of body functions to be considered (pages 4 and 5), general guidelines for the conduct of the overall study (page 6), a list of environmental factors of medical importance to be considered (page 7), the formats for reporting results to facilitate standardization when consolidating results for publication (pages 8, 9, and 10), the general agenda (page 11), and the anticipated end products of the Space Medicine Advisory Group (page 12). It was understood by all conferees that their deliberations need not be limited by the items specifically listed or mentioned in Attach. #2.

After assessing the scope of the tasks to be accomplished, the conferees discussed the time schedule for future meetings that would be required and their availability to attend. It was decided that SPAMAG meetings should be held on the first Thursday and Friday of each month for the next five months and that an assessment should be made at that time concerning the schedule for future meetings.

During the last part of the afternoon session, several diversified activities took place. First, the conferees received a welcoming and orientation discussion from Mr. E. Z. Gray, Director, Advanced Manned Mission Programs. Next, the conferees were provided with several additional pertinent technical publications for their ready reference and study. A list of these publications together with a list of the technical publications previously furnished each SPAMAG member is shown in Attach. #3. Subsequently, the SPAMAG started deliberations and discussions concerning the nine life support areas (See LIFE SUPPORT, Column B, pages 1 and 1a, Attach. #2), which continued throughout the remainder of the sessions.

As the discussions progressed, the attributes of dividing the workload into component areas of responsibility became apparent). Sub-panel membership designations were finally made as follows: Atmosphere and Suits: Dr. Carlson, Dr. Forster, Dr. Wood, and Dr. Swisher; Food, Water and Waste: Colonel Knobloch, Dr. Gordon, Dr. Pollack, and Dr. Whedon; Group Integrity: Dr. Kubis, Dr. Reitan, and Dr. Townsend; Living Conditions and Standards, and Safety Monitoring: Dr. Graybiel, Dr. McFarland, and Dr. Warren; and Hazard Protection: Dr. Baldwin, Dr. Buesseler, Dr. Grahn and Dr. Natelson.

Prior to adjournment, plans were made for the items to be included on the agenda for the second meeting of SPAMAG to be held on February 6 and 7, 1964, at Headquarters NASA in Federal Office Building 10B, Washington, D.C.

The meeting was adjourned at 4:30 p.m., Friday, January 10, 1964.

S. P. Vinograd, M.D.
Chief, Medical Science and Technology
Directorate of Space Medicine
Office of Manned Space Flight

Andres I. Karstens, Col., USAF, MC
Commander, Aerospace Medical Lab.
Wright-Patterson AFB
Dayton, Ohio

SPAMAG

Name	Specialization	Professional Titles
Baldwin, Maitland	M.D., C.M., M.Sc. Dipl. in NS (McGill) FACS, Neurological Surgery Experimental Neurology	Clinical Director, NINDB, NIH; Chief, Surgical Neurology Clinical Professor of Surgery, Georgetown U.
Buesseler, John A.	M.D., Ophthalmology	Professor & Chief of Ophthalmology, Liaison Asst. to Dean, U. of Missouri School of Medicine
Carlson, Loren D.	Ph.D., Physiology	Professor & Chairman, Dept. of Physiology & Biophysics U. of Kentucky, Lexington
Forster, Robert E.	M.D., Physiology, Respiratory	Professor, Physiology U. of Pennsylvania
Gordon, Edgar S.	M.D., Internal Med., Metabolism, Endocrinology, Nutrition	Professor of Medicine University Hospitals, Madison, Wisconsin
Grahn, Douglas	Ph.D., Animal Genetics; Radiation Biology	Associate Division Director, Argonne National Lab., Illinois
Graybiel, Ashton Capt., USN, MC	M.D., Aviation Medicine	Director of Research, Naval School of Aviation Medicine Pensacola, Florida
**Harris, Milford D., Jr. Lt. Col., USAF, MC	Ph.D., Radiobiology	Chief, Applied Radiobiology Branch, School of Aerospace Medicine, San Antonio, Texas
*Karstens, Andres I. Col., USAF, MC	M.D., Aviation Medicine	Commander, Aerospace Med. Lab., Wright-Patterson AFB, Ohio
Knobloch, Edward C. Lt. Col., USA, MSC	Biochemistry	Director, Div. of Biochemistry, Walter Reed Army Institute Washington, D.C.
Kubis, Joseph F.	Ph.D., Psychology	Professor of Psychology Fordham U. Graduate School, NYC
**Liske, Edward A.	M.D., Neurology	Director, Neurology & EEG Branch, School of Aerospace Medicine, San Antonio, Texas

SPAMAG (Contd)

Name	Specialization	Professional Titles
McFarland, Ross A.	Ph.D., Physiological Psychology	Guggenheim Professor of Aerospace Health & Safety Harvard School of Public Health Boston, Massachusetts
Natelson, Samuel	Ph.D., Organic Chemistry	Head, Dept. Biochemistry Roosevelt Hospital, NYC
Pollack, Herbert	M.D., Ph.D. Metabolic Diseases	Clinical Prof. of Medicine George Washington U.
Reitan, Ralph M.	Ph.D., Psychology (Brain Functions & Behavioral Measure)	Professor of Psychology (Neurology) & Director, Section of Neuropsychology Indiana U. Medical Center
Swisher, Scott H.	M.D., Internal Med., Hematology	Professor of Medicine U. of Rochester, New York
Townsend, John C.	Ph.D., Psychology (Experimental & Statistics)	Professor, Dept. Psychology Catholic University Washington, DC
*Vinograd, S. P.	M.D., Internal medicine	Chief, Medical Science and Technology, Directorate of Space Medicine, OMSF, NASA, Washington, DC
Warren, James V.	M.D., Medicine Cardiology	Professor & Chairman, Dept. of Medicine, Ohio State U. College of Medicine, Columbus, Ohio
Whedon, G. Donald	M.D.	Director, National Institute of Arthritis & Metabolic Diseases, NIH, Bethesda, Maryland
Wood, Earl H.	M.D., Ph.D., Physiology	Professor, Physiology, Mayo Foundation, Consultant in Physiology, Mayo Clinic Career Investigator, American Heart Association

* - Co-chairmen
** - Special USAF Representatives

4 February 1964
Attachment #1

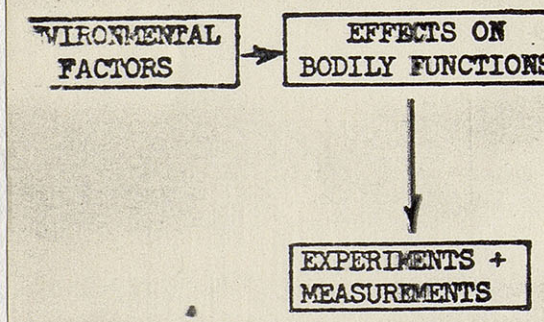
* MOL SUPPORT RECOMMENDATIONS

A

** EXPERIMENTS

Uncontrolled environmental factors)
Variables)

ist of experiments & experimental
equirements to be formulated
ccording to the following schema:



B

LIFE SUPPORT

(Controlled environmental factors)
(Constants)

*** 1. Atmosphere (Gas pressure, temperature, humidity)
2. Suits
   - -Intravehicular
   - -Extravehicular
     - -Maneuvering Unit
     - -Communications
     - -Portable Life Support System
     - -Hazard Protection (see below)
3. Food
4. Water
5. Waste
6. Living Conditions & Standards
   - -Body functions & hygiene
   - -Decor
   - -General conveniences
   - -Schedules
   - -Diversions
   - -Volume
7. Group Integrity (Selection & Training)
   - -Social compatibility
   - -Mutual confidence
   - -Individual Emotional Stability
   - -Individual Physical Ability
   - -Individual Mental Ability
   - -Individual Professional Ability

C

MOL DECISIONS

1. MOL Experiments
2. Prerequisite Ground Experiments
3. Prerequisite Space Flight Experiments
4. R&D Areas to be Explored
5. General MOL Decisions to be Made
   - a. Best & cheapest overall approach
     - -Method
     - -Vehicle
     - -Duration
   - b. Orbit
   - c. On-board Centrifuge
     - -Specs. ?
   - d. Rotation for Artificial G ?
   - e. Size requirements
   - f. Weight reqts. - total for medical experiments
   - g. Power reqts. - total for medical experiments
   - h. Number of personnel
   - i. Types of personnel
     - -Selection reqts.
     - -Training reqts.
     - -M D included ?
   - j. Animals ?
     - -Number
     - -Types
     - -Special provisions

*MOL SUPPORT RECOMMENDATIONS (CONTD)

B
LIFE SUPPORT

(Controlled environmental factors)
(Constants)

8. Hazard Protection
   - -Toxic Substances
   - -Particulate Contamination of Atmosphere
   - -Fire
   - -Radiation
     - -Selection of Orbit
     - -Dosimetry
     - -Protection of Subjects by
       - -Shielding
       - -Prophylaxis (drugs)
       - -Therapy
   - -Micrometeoroids
   - -Loss of Pressure
   - -Illness
   - -Accidental Injury
   - -Extravehicular Hazards

9. Safety Monitoring - Medical
   - -Bioinstrumentation
   - -Communications
   - -Ground Support

C
MOL DECISIONS

k. Cycling of Personnel & Animals
l. Onboard laboratory requirements
m. Storage reqts. (volume & type)
   - -for medical lab. supplies
   - -for food, H_2O, waste
   - -for laboratory specimens
n. Supporting Logistics
o. Bioinstrumentation requirements
p. Communications (methods & equip)
   - -telemetry
   - -onboard recording
   - -reqts. for extravehicular activities
   - -voice communication schedule
q. Ground Support
   - -personnel
   - -equipment & communication
   - -distribution & schedules
   - -recovery plan
r. Necessity for total ground simulation prior to flight

*Each item in A&B to be examined from standpoint of prerequisite ground & space flight experiments, indicated R&D, (for techniques, instrumentation & engineering), and MOL Experiment - with priority evaluation for each investigation.

**Any of the items listed under Life Support" may be changed to an experimental variable if deemed indicated.

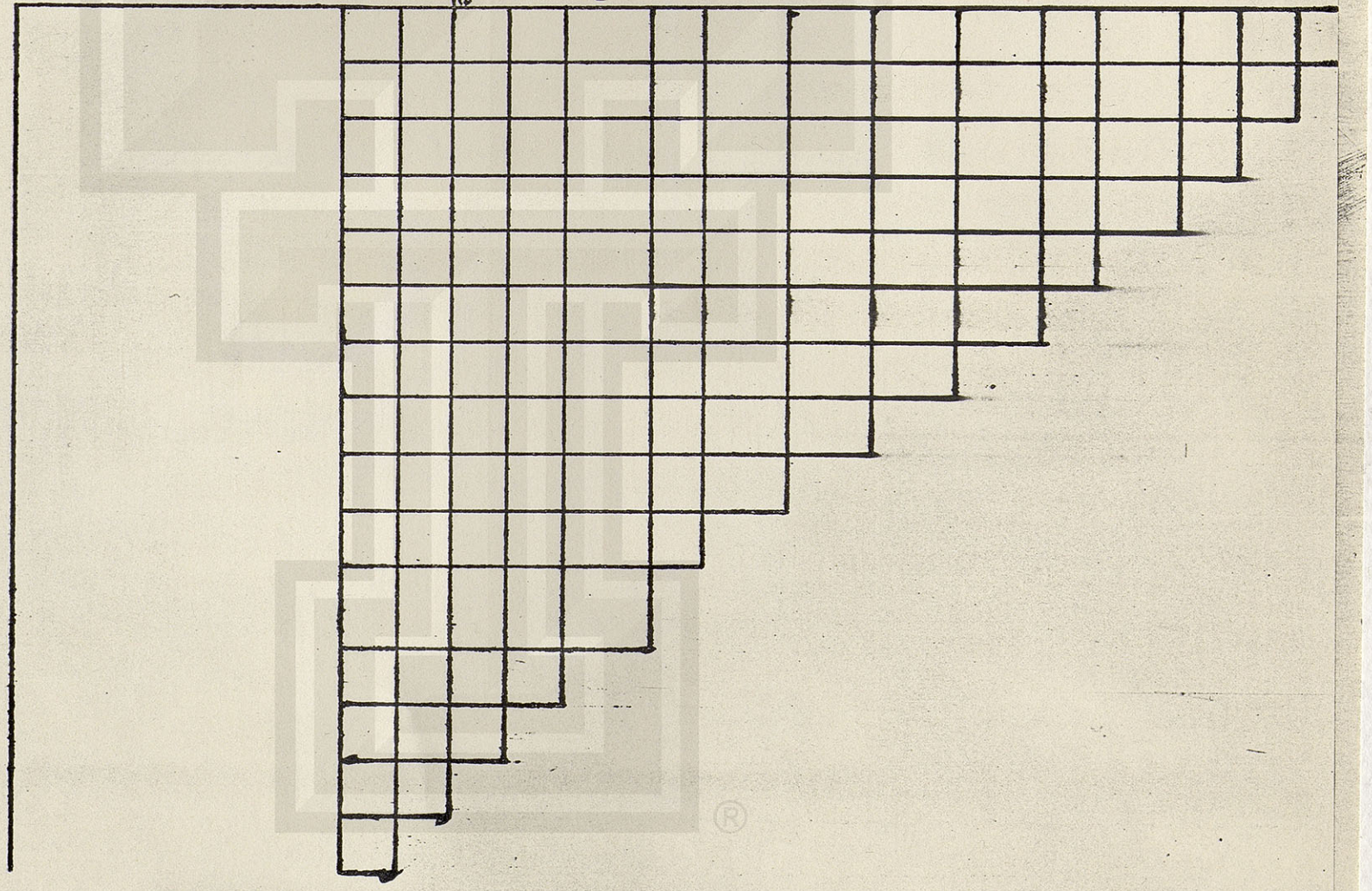
***Atmosphere decision of primary importance.

ENVIRONMENTAL FACTORS (STRESSES) OF SPACE FLIGHT
(INFLIGHT EXPERIMENTAL VARIABLES)

A. SINGLE ENVIRONMENTAL FACTORS (STRESSES) (PROLONGED)	B. COMBINED STRESSES DOUBLE	C. COMBINED STRESSES TRIPLE	ETC.
1. Weightlessness			
2. Radiation			
3. Confinement			
4. Social Restriction			
5. Monotony			
6. Threat of Danger			
7. Artificial Atmosphere			
8. Toxic Substances			
9. Particulate Matter (in Weightlessness)			
10. Microorganisms			
11. Change in Circadian Rhythms			
12. Magnetic Fields			
13. Ultra Violet Exposure			
14 Infra Red Exposure			
15. Noise			

DETERMINATION OF COMBINED STRESS REQUIREMENTS (DOUBLE)

Weightlessness
Radiation
Confinement
Social Restriction
Monotony
Threat of Danger
Artificial Atmosphere
Toxic Substances
Particulate Matter
Microorganisms
Change in Circadian Rhythm
Magnetic Fields
Ultra Violet Exposure
Infra Red Exposure
Noise



Body Functions

1. Neurological Function
   - CNS
   - Special Senses
     - Vision
     - Auditory
     - Smell
     - Taste
     - Vestibular
   - Peripheral N.S.
     - Somatic
     - Autonomic

2. Psychological Performance
   - Sensation
   - Psychomotor
   - Perception
   - Higher Mental Processes
   - Emotion

3. Circulation
   - Pump
   - Blood Volume Control
   - Vasomotor Control

4. Respiration Lung
   - Blood
   - Tissue

5. Digestion

6. Metabolism

7. Endocrine Balance

8. Thermo-Regulatory and Integumentary

9. Neuromuscular

10. Skeletal

11. Fluid & Electrolyte Balance,
    Renal and Urinary Tract Functions

12. Reproduction

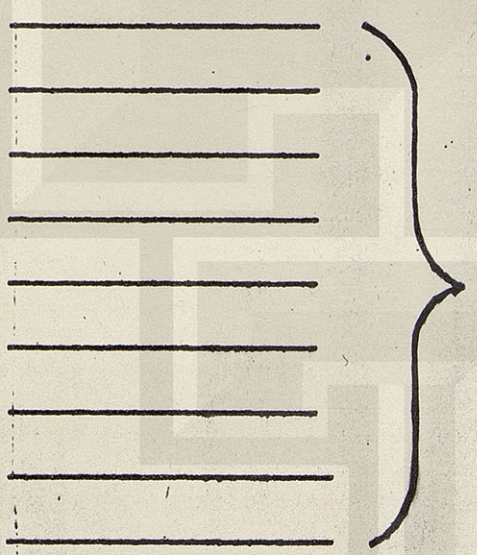
13. Hematological Response

14. Immunological Response

SAMPLE EVALUATION OF ENVIRONMENTAL FACTOR (STRESS)

WEIGHTLESSNESS AND RADIATION

BODY FUNCTIONS LIST



Evaluate each as potential problem area, assign priority, and devise experiments and/or measures in experimental design format.

GUIDELINES

1. Experiments and measures are to be designed to:

   Establish effects both qualitatively and quantitatively
   Determine mechanisms
   Establish predictive means both qualitatively and quantitatively
   Determine most effective countermeasures

2. Consider effects of orbital environmental factors (stresses) both intrinsically and in terms of post-orbital environmental requirements.

3. Assign priorities to all MOL experiments and measures, and all prerequisite experiments and recommended R&D.

4. Attempt to build flexibility into MOL experimental protocol and equipment. Provide redundancy where possible.

5. In terms of personnel, time, equipment size, weight and power, etc., MOL experiments are to require the least to provide valid and reliable results. If wish to suggest alternative experiments or additional measurements beyond minimal, categorize as "minimal," "desirable - 1," "desirable - 2," etc.

6. Consider all stresses, functions, measurements, procedures, life support requirements, equipment function, storage, animal housing, etc. in terms of behavior in weightlessness.

7. The basic question is the means by which prolonged manned interplanetary and orbital missions can be achieved in terms of the well being of man. Therefore, in general MOL environmental conditions may be set up paralleling those anticipated aboard an interplanetary or orbital vehicle rather than earth.

8. As a general philosophy, man is to be supported in best manner possible by life support systems.

9. Keep in mind throughout this exercise the possible uses of space for studying and perhaps treating various pathological states.

ENVIRONMENTAL FACTORS (STRESSES) OF MEDICAL IMPORTANCE FOR MOL PLANNING

I. Orbital

A. Unknowns
B. Constants

II. Post Orbital

A. Reentry (Constant)
--Acceleration, Impact, Possible Oscillation and Vibration
--Change of Atmosphere Provided by ECS
--Danger
--Need for Alertness
--Need for Precise Coordination
--Need for Precise Reaction Times

B. Terrestrial (Constant)
--Constant 1G
--Change to normal atmosphere
--Organic and functional integrity to resume all normal earth activities

EXPERIMENTAL DESIGN FORMAT

(For MOL Experiments, MOL Measurements, and for Prerequisite Spaceflight Experiments)

1. Name of Experiment

2. Estimated Priority (Priority 1, 2, or 3)

3. Purpose

4. Justification

5. Experiment (experimental design in detail)

6. Experimental Controls

7. Summary of Number and Types of Space Station Personnel (level of training required, i.e., physician, lab tech, trained astronaut, etc.)

8. Summary of On-Board Experimental Equipment Required (latest state-of-the-art equipment, size, weight, and power requirements, as nearly as known)
   (a) fixed equipment
   (b) consumable equipment

9. Summary of Animals, if needed (number, type, and alternative types in order of preference)

10. Summary of Other Living Forms, if needed (number, type,and alternative types in order of preference)

11. Summary of On-Board Laboratory Determinations (type, frequency -- time consumed for each)

12. Summary of Laboratory Specimens to be Flown to Earth for Laboratory Examination (type, number and timing of specimens, how stored aboard, and types of determination)

13. Proposed Rendezvous Schedule for Rotation of Crew

14. Telemetry versus On-Board Recording Requirements

15. Pre-requisite Ground Based Experiments

16. Pre-requisite Space Flight Experiments

17. Pre-requisite Research & Development

18. On-Board Gaseous Atmosphere Desired

19. Requirement for Rotation for Artificial G (if any)

20. Comments re Form of Data and Interpretation of Data

21. Special Comments

22. Pertinent References, Briefly Annotated

FORMAT FOR "PREREQUISITE GROUND EXPERIMENTS" AND "RECOMMENDED RESEARCH AND DEVELOPMENT"

1. Title and basic format reference (A, B, or C and No., if any)
2. Priority
3. Purpose
4. Bibliographical references if any, briefly annotated
5. Special comments and recommendations

FORMAT FOR LIFE SUPPORT RECOMMENDATIONS

1. Specify allowable limits (quantitative and qualitative).

2. Pertinent references, briefly annotated.

Consider interactions of system with other systems, with spaceflight stresses, and with follow-on post-orbital environmental factors to formulate the following:

3. Prerequisite ground experiments.

4. Prerequisite spaceflight experiments.

5. Recommendations for research and development.

6. MOL medical experiments.

7. Special comments.

GENERAL AGENDA

1. Review entire format for over-all approach and completeness -- comment and amend.

2. Review list of single stresses.

3. Create list of combined stresses (double, triple, etc.)

    a. Star those to be included as experimental variables for addition to list of MOL experimental stresses

    b. Note with circle those requiring prerequisite ground or spaceflight experiments but not MOL experiments (start lists of these for specific recommendations for each in format later on).

4. Review list of body functions -- comment and amend.

5. Review list of guidelines -- comment and amend.

6. Review formats for experiments (2) -- comment and amend.

7. Review list of anticipated results of SMAG effort and comment.

8. Define "priority."

9. Expose each stress (including combinations) to list of body functions, utilizing guidelines, determine MOL experiments, additional measurements, and prerequisite ground and spaceflight experiments and R&D. Write up in appropriate formats placing by-products (philosophies, general MOL decision recommendations, etc.) in appropriate categories according to list of "anticipated end products of SMAG effort."

10. Review items in 3b above. Make recommendations in format. Again categorize by-product recommendations.

11. Study "life support" items. Make recommendations in format. Categorize by-product recommendations.

12. Review total, make recommendations listed in Group C, "general MOL decisions," and complete "anticipated end products."

ANTICIPATED END PRODUCTS OF SPACE MEDICINE CONSULTANT ADVISORY GROUP EFFORT

1. Group of MOL medical experiments in format
2. Group of additional MOL medical measurements in format
3. Group of life support recommendations in format
4. Group of prerequisite ground based experiments
5. Group of prerequisite spaceflight experiments
6. Group of recommendations for research and development
7. General philosophy and recommendations for MOL experimental approach
8. Recommendations for general MOL decisions
9. Tentative flight plan
10. Reviews of work of four study contracts and MOL BEWG
11. Summary of possible uses of space environment for study and therapy of pathological states
12. Recommendations for future study effort

LIST OF RESOURCE MATERIALS FURNISHED THE SPAMAG

1. Materials Furnished During 9-10 January 1964 Meeting

   a. ASD Technical Report 61-166. Weightlessness and Performance -- A Review of the Literature, Wright-Patterson AFB, Ohio, dated June 1961

   b. AMRL TDR 63-67, Cardiodynamic and Metabolic Effects of Prolonged Bed Rest, Wright-Patterson AFB, Ohio, dated May 1963

   c. AMRL TDR 62-114, Weightless Man: A Survey of Sensations and Performance While Free-Floating, Wright-Patterson AFB, Ohio, dated March 1963

   d. Minutes from the first three meetings of the Manned Orbital Laboratory Biomedical Experimental Working Group

   e. NASA SP-45, Mercury Project Summary including results of the Fourth Manned Orbital Flight, Manned Spacecraft Center, Houston, Texas, dated October 1963

   f. North American Aviation, Inc. Study Contract SID 63-1392, "Biomedical and Human Factors Requirements for a Manned Earth-Orbiting Station -- Final Report"

   g. Compilation of material on weightlessness

   h. NASA Technical Note D-2008, "Selection of Space Cabin Atmospheres", Part I, "Oxygen Toxicity", Emanuel Roth, M.D., Lovelace Foundation for Medical Eduction and Research, Albuquerque, New Mexico, dated August 1963

Attachment #3

SPV:rlc 11March

Memo to RB/Konecci

From: Dr. Knauf

DISTRIBUTION

Bisplinghoff, Mueller, Newell, Reynolds, Grey

In reply to your memorandum of 5 March 1964, the issues raised are perhaps BEST clarified by first reviewing the chronological history of its formation.

In the spring of 1963, MM had at the request of Dr. W. A. Lee, Director, MG, Systems Studies, OMSF, given support to the MG Space Station Study Program by organizing the bio-medical uses panel under Mr. James P. Nolan of this office. The Panel meetings which followed were attended by representatives of all NASA Life Sciences areas.

On 26 June 1963, MM received a request from Dr. Lee to utilize several of the country's top medical specialists to determine specific medical experimental requirements for a manned space station as recommended in further support of this effort. In response to this request, Dr. Vinograd of this office drew up a tentative letter and a list of names of specialists who might be approached to submit ideas for experiments. He did so with the assistance of Dr. Frank Voris(RB) who submitted additional names ~~for~~ to the list of scientists. Our approach at this time was to correspond with a rather large representation of the scientific community soliciting their ideas for medical experiments for the space laboratory. Approximately one month after the response deadline, which at that time was envisioned as the end of August, 1963, a series of meetings with a small group of specialists collected from the list of correspondence was to be inaugurated to review

and make recommendations upon the experiments submitted.

This plan was submitted to Dr. Nello Pace in July 1963 who suggested that the effort be broadened in scope to encompass the entire spectrum of life sciences.

Accordingly, a few days later, on July 29, 1963, Dr. Frank Voris and Mr. Robert Trapp representing Dr. Konecci, RB, Dr. Orr Reynolds, SB, and Mr. James Nolan and Dr. S.P. Vinograd, MM, met with Dr. Pace in Dr. Reynolds' office to discuss this plan. During this meeting, the background of this effort was presented and discussed. Copies of Dr. Vinograd's letter were distributed to the attendees and changes were suggested by them appropro the enlargement of this endeavor. Following this meeting, Dr. Vinograd re-wrote the letter incorporating the suggested changes.

A 2nd meeting was held on 5 Aug 1963, in Dr. Pace's office. Attendees were Mr. Trapp and Dr. Voris for Dr. Konecci, Dr. Reynolds, Dr. Pace, Mr. Nolan and Dr. Vinograd. Copies of the re-written letter were distributed to the attendees and additional changes were suggested. At the same time, Drs. Pace and Reynolds suggested the addition of several more names to the distribution list. As a result of this meeting, the letter was once more re-worded by Dr. Vinograd in preparation for a 3rd mtg. which was to be called by Dr. Vinograd at a time suitable to Drs. Reynolds, Konecci, and Pace.

Because of Dr. Konecci's out-of-town commitments, arrangements were made with his secretary for a suitable time for all concerned for the 3rd meeting, although this entailed a week's delay of the meeting and a postponement

of Dr. Vinograd's vacation. The 3rd mtg. was held on Aug. _____ , 1963, Attendees were Drs. Pace, Reynolds and Vinograd. Dr. Pace stated at this time THAT one could not expect these scientists to contribute their ideas gratis without at least the right of ownership of the experiments which they authored. He felt that they should at least be given the opportunity to follow the development of their own experimental package, and to monitor their progress in flight. In his opinion, "Ideas are the currency of these academic people." Dr. Reynolds was in agreement. Dr. Vinograd took the position that if this were indeed the case, the write-in approach would have to be dropped SINCE and NASA would not be in a position to make such commitments to contributors of experiments to a program not yet approved or even, at that point, clearly defined. The meeting ended with no action items and with no plans for future meetings.

In accordance with the final advice of these three Life Science meetings, MM abandoned the plan of solicitng experiments from consultant-scientists by correspondence prior to the 1st mtg. of the selected panel. Consistent with its commitments as discussed during these three meetings, MM then chose the alternative approach, namely, BY PASSING THE CORRESPONDENCE AND PROCEEDING DIRECTLY TO THE ORGANIZATION OF THE WORKING PANEL ~~organizing the panel itself~~, the group of consultants now known as the Space Medicine Advisory Group. Having already missed the 1st target date, action to gather this group was begun in early Sept. with the hopeful intention of assembling them for the 1st time in mid-November. Unfortunately, this date could not be met for administrative reasons. A THE meeting was then set for the 1st week in December but due to the tragedy of Nov. 22, it was re-scheduled for Jan. 9 and 10, 1964, the actual date of the

first meeting.

With the establishment of the MOL BEWG in Aug 1963 ? under Mr. James Nolan by Dr. Lee, the envisioned function of SPAMAG was an advisory one to MOL BEWG. This was discussed with the PSAC Committee on two occasions (DATES) both of ~~which~~ THEIR meetings were attended by RB and SB representatives, and THEY both of ~~which~~ took place before the first meeting of SPAMAG in Jan 1964.

Throughout the entire organization of this Group, close communication has been maintained ~~by~~ with Dr. Frank Voris, RB, He coordinated closely on the meeting format to insure that RB's medical requirements were fully incorporated, and throughout the entire period of the genesis and existence of SPAMAG he has understood the desirability of his attendance at these meetings. Frequent mention ~~was made~~ of the SPAMAG during the SERIES OF MOL BEWG meetings ~~and its~~ MADE ITS participants ~~were consequently~~ aware of its formation well before ~~its~~ SPAMAG'S first meeting in January, 1964. During the 5th MOL BEWG meeting, the first to take place after the initial SPAMAG meeting, Dr. Vinograd gave a briefing on the p roceedings of the first meeting ~~at which time he~~ AND also discussed the meeting format. Both RB and SB are represented in the MOL BEWG by both Hqrs. and field personnel.

Considering all of these exchanges of information, it was with some surprize that MM read the referenced memorandum which was IN FACT written in response to a further exchange of information, the minutes of the 1st SPAMAG meeting. This was clearly not a cloistered effort, nor were there any groups within NASA having a medical interest who did not know THROUGH AT LEAST SOME OF ITS MEMBERS of its organization or existence. It is distinctly emphasized that the SPAMAG is a NASA medical working group designed to benefit the entire NASA medical effort wherever possible.

To further amplify the task of SPAMAG and its methodology, it is a working group, rather than a committee in the usual sense. Because of this, because of its size, because of its heavy schedule, and because of its time constraints, participation in its discussions is confined to the chairman, co=chairman, and members of the group itself. Although other members of MM are present, even their mission is only to observe, record, and assist. It is considered that this constraint is ~~consider~~ highly important to prevent ~~the~~ any possibility of compromise of the timely effectiveness of the group. Interested observers are welcomed and arrangements can be made by contacting MM, Dr. Vinograd.

The recognition of the merit of SPAMAG conveyed by the memorandum is much appreciated. They are, indeed, both as individual members and as a group, an aggregation of which NASA can be truly proud. It is and has been the intention of this Division that they be considered a NASA medical group and, as such, that they be of assistance to any NASA area having a medical interest. MM ~~will be~~ is pleased to entertain requests and suggestions from such groups.

The broad distribution of the minutes is designed to facilitate the utility of SPAMAG to other life sciences groups. Suggestions concerning their content or distribution will be appreciatively received.

GMK

BKG

OCT. 10, 1963

OOSC INSTRUCT-

M-IA 8115.281

SEPT. 6, 1963

OMSF MEMO

M<G 8115.99

J. F. SHEA TO LOW

Thank you for your expression of interest in the NASA/USAF Space Medicine Advisory Group (SPAMAG), And for the continuing cooperation of your medical representative, Dr. Voris, in helping to establish this distinguished group.

I realize that because of your out of town commitments in the late summer you were not in personal attendance at the meetings held with Doctors Pace, Reynolds, Trapp, And Unsigned, And ~~perhaps may not~~ could not therefore recall the exact sequence of events that led to the establishment of SPAMAG.

I Am therefore Attaching a Chronology of
Events for your information.

Briefly, the SPAMAS Concept Originated
in the Spring of 1963 with the Request
of Mr. Lee, ~~Mr~~ Director, Systems Studies, OMSF
that MM provide Medical Support
to the Space Station Study Program. The
Panel is a working group rather than
a Committee in the usual sense. Participation
is limited to the ~~Panel~~ Group itself And to
the two medical officers, the
Chairmen And Co-Chairmen respectively.

~~Lyle Others~~
Other staff members of OMSF, And of

NASA, Are welcome & Qs observers. With

reference to the Air Force Co-Chairmen,

this is in line with ———.

In reply to your memorandum ——— dated ——,
I appreciate your comment relative to
the fact that you can see the worth of
the potential contributions of SPAMAG and
your suggestion that a representative
from ———— be invited to
attend ~~and participate in~~ the meetings
Accordingly, I herewith extend a
cordial invitation to you to
attend, ~~(or send a representative)~~ ~~to~~
~~→ or send a representative~~
→ and/or to send up to three representatives to attend the next meeting
on —— April 1964 beginning
at 8:30 am in Room ——, FOB 1013.

Furthermore, I share ~~with you~~
your concern that you evidently
have not been aware of the
~~developments~~ events that led up to
the formation of SPAMAG ~~including~~
~~the selection of the representation~~
until your memorandum of 5 March 1964. Perhaps
a review of these events, ~~will be~~ as given briefly

below, will be helpful ~~in reviewing understanding~~