

NASA MEDICAL DIRECTOR TO SPEAK

Dr. Vinograd to Speak at General Session ASMT CONVENTION

As was announced in the December ASMT NEWS, Dr. Sherman Vinograd, Director of Medical Science & Technology of the Office of Manned Space Flight from NASA Headquarters in Washington will speak at the Wednesday morning, General Session at the 1967 ASMT Convention. His subject will be "Medical Technology and the Space Age." Dr. Vinograd graduated from the Wisconsin Medical School in 1946 and interned at Touro Infirmary in New Orleans. After two years in the U.S. Navy as a Flight Surgeon, he completed his residence at St. Mary's Hospital in Madison, Wisconsin in Internal Medicine. For eight years he was in private practice and five years ago joined the staff of the space program. Two years ago he became Director of Medical Science and Technology for NASA. He was particularly concerned in the area of inflight experiments. Prior to becoming Director, he worked in research and development in support of the Manned Spacecraft Program and in medical operations.

Besides his position with NASA, he is the Director of the post-graduate program in Space Medicine in the College of General Studies at George Washington University in Washington, D.C.

Dr. Vinograd has recently completed an article dealing with the life science effort in space which will appear in the next issue of Year Book published by Encyclopedia Britannica.

All members of the Society should now have received a copy of the Preliminary Program and Advance Registration Material which appeared as a part of the November-December AJMT.

Several changes in scheduling have been made since the Preliminary Program went to press. Some of these are as follows:

- The Coleman Dinner previously scheduled for Saturday, June 24, will now be held Monday, June 26.
- The six Scientific Sessions scheduled for 1:30-4:30 p.m. on Monday, June 26 will conclude at 4:00 p.m.
- Reference Committees 1 and 2 will meet from 4:00 p.m. to 6:00 p.m. simultaneously on Monday, June 26 as opposed to the schedule given in the Preliminary Program.

The membership is urged to complete the appropriate registration forms and send them to the Executive Office as soon as possible. The initial response to the Advance Registration Material indicates that the 1967 Convention will be well attended.



Dr. Sherman Vinograd

SOCIETY TO BE AIDED BY SALES IDEAS, INC.

Upon recommendation of the Executive Director, the ASMT Board of Directors has approved a one year association with Sales Ideas, Incorporated of Los Angeles, nationwide creative service and consultation group. In recommending this move, the Executive Director said, "The requirements of the 1966-67 projects and objectives require the services of a firm which can be called upon to supply art work, graphics, posters, letterhead designs, and layout which will provide the Society with best possible outward image. The internal and external relationships require a broader concern than just public relations. It involves marketing, advertising, publicity, promotion, merchandising . . . and public relations. Sales Ideas offers the Society an opportunity to purchase the necessary utensils for complete image development and campaign on a job-by-job basis."

The agreement, effective October, 1966, stipulates that this firm will work directly with and through the Executive Director, Stephen B. Friedheim and the Chairman of the ASMT Public Relations Committee, Mrs. Georgia Hileman.

This firm has been involved in several production items so far, including: the new layout and design for the ASMT NEWS; design and development of the first poster appearing in the Nov. issue of the NEWS; design and layout for new stationery for the AJMT and the ASMT Education & Research Fund, Inc.; design and layout for a new Public Relations Information Folder which has been sent to each State Society Public Relations Chairman; creation of "Tina Tech Tickles" series; a journalistic critique of the AJMT, dealing with the layout and design of the publication; layout and design of the new ASMT Placement Bulletin; the preparation of a preliminary design for an ASMT Shoulder Patch; and redesign of the ASMT Exhibit.

CONDITIONS OF COVERAGE REVISED BY DEPARTMENT OF HEALTH, EDUCATION AND WELFARE

The revised "Conditions for Coverage of Services of Independent Laboratories" have been published in their final form in The Federal Register of December 16, 1966, Volume 31, Number 243. Copies of this issue are being sent to constituent society presidents and legislation committee chairmen. Additional copies are available from the U.S. Government Printing Office at 15¢ a copy.

These "Conditions" were promulgated by The Secretary of the Department of Health, Education and Welfare under the supplemental health benefits section of The Medicare Act. Independent laboratories must now comply in order that they receive payments for laboratory services performed for patients covered by Medicare.

The earlier versions of the "Conditions," distributed last Spring, and published in The Federal Register on July 22, 1966 apparently met with much opposition, and were not enforced.

Several major changes have been made:

1. In section 405.1301(b), the definition of the term "independent laboratory" has been revised so as to exclude from the scope of this term the office of a physician whose primary practice is directly attending patients and/or providing consultation. Diagnostic tests furnished in the offices of physicians (such as radiologist and cardiologist) whose primary practice is directly attending patients and/or providing consultation, even though conducted partly through diagnostic procedures, will be considered to be physician's services rather than clinical laboratory services. (Consultation is defined as a deliberation of two or more physicians with respect to the diagnosis and treatment in any particular case. It includes history taking, examination of the patient, and, in each case, transmitting to the attending physician an opinion concerning diagnosis and/or treatment.) A statement has been added to section 405.1301(a) to make it clear that "diagnostic X-ray tests" are not included among diagnostic laboratory services for purposes of section 1861(s)(10) and (11) of the Act; and proposed section 405.1317-405.1319, containing proposed conditions for radiologic diagnostic facilities, have been deleted.

2. A new paragraph has been added to section 405.1314, regarding tests performed, to extend the requirement of successful performance in a proficiency testing program to doctoral-directed laboratories but only to the extent that such testing is made available either by the State health department itself or through a local health department. (If the State government itself cannot provide proficiency testing, the proficiency testing requirement for nondoctoral directors set forth in the exception in section 405.1312(b)(4), may be met by participation in a privately operated, State-approved program.)

3. Sections on personnel qualifications have been revised as follows:

- a. Section 405.1312(b)(4), containing an exception until July 1, 1971 to the doctoral requirement for laboratory directors, has been expanded:

- (1) to provide specifically for inclusion of the individual holding a master's degree from an accredited institution with a chemical, physical, or biological science as his major subject and with at least 4 years of pertinent clinical laboratory experience;

- (2) to add a category for the individual who was responsible for the direction of a clinical laboratory for 12 months within the 5 years preceding July 1, 1966, and has achieved a satisfactory grade in an examination conducted by or under the sponsorship of the U.S. Public Health Service (In order to allow for a reasonable amount of time within which to complete development of this examination, to make arrangements for applicants to take it, and to grade it, provision is made for conditional approval through July 31, 1967, of an otherwise qualified laboratory if the director indicates his intention, in writing, to take the examination.);

- (3) to provide also for conditional approval through July 31, 1967, of an otherwise qualified laboratory if the State does not yet have a proficiency testing program in operation.

- b. Section 405.1315(b) defining the qualifications required for clinical laboratory technologists has been revised as follows:

- (1) reference to the registry of the American Society of Clinical Pathologists and the National Registry of Microbiologists is deleted and replaced by a more detailed statement in terms of education (basically, at a bachelor's level), course distribution and experience; and

- (2) a temporary exception from the required qualifications is provided, until July 1, 1971, if the technologist was performing the duties of a clinical laboratory technologist on, or within the 5 years preceding, July 1, 1966, and has at least 10 years of pertinent clinical laboratory experience prior to July 1, 1966. Pertinent education in an accredited institution may count toward such experience at the rate of 30 semester hours for 2 years of experience.

continued on page 4

Integrated Scoring of Tilt Table Response as a Means to Evaluate Cardiovascular Deconditioning Due to True or Simulated Space Flight

FRED B. BENJAMIN, D.M.D., PH.D., JOHN C. TOWNSEND, PH.D., S. P. VINOGRAD, M.D., and BRIG. GEN. J. BOLLERUD, USAF, MC

The term "Cardiovascular Deconditioning" is commonly used to describe the combination of cardiovascular changes which may occur under actual or simulated space flight. The present paper presents a method of integrating a number of suitable parameters into one integrated score which can be used for medical monitoring during the flight and for comparative evaluation of preventive and therapeutic procedures in ground experiments.

THE TRADITIONAL WAY of evaluating the degree of deconditioning in true or simulated space flight is the tilt-table test (TTT) or the use of the lower body negative pressure (LBNP) device. Such a test produces many data. Fred Vogt of the Texas Institute of Rehabilitation uses up to 32 parameters for the evaluation of the response.⁴ However, there has been no way of combining the data into one integrated score which allows comparative evaluation of the degree of deconditioning and of the effectiveness of preventive and therapeutic methods. The following is an attempt to develop an integrated score for deconditioning and it is hoped that such a score will provide:

1. An objective measure of the degree of deconditioning;

2. A sensitive indicator allowing recognition of early changes and therapeutic effects; and

3. Immediately available information.

Obviously, use of such a score is an additional tool to evaluate the total response of the subject and does not eliminate use of any other tests and measurements. The purpose of this paper is to introduce the concept of integrated scoring, and to present a possible approach. The actual method is preliminary and subject to change as more information becomes available.

PHYSIOLOGICAL BASIS OF DECONDITIONING

To obtain an integrated score of deconditioning, it must be defined first. This can be done by listing those factors which are or may be involved.^{1, 2, 3} These are:

1. Loss of vascular tonus—The rate and extent of smooth muscle compliance to stretch appears to be increased. Change of body position in a gravitational field causes an intermittent stress on blood vessel walls. This stress factor is absent in weightlessness.

2. There may be an increase of the permeability of the vessel wall due to the lack of stress leading to an escape of fluid into the interstitial spaces (causatively this change is closely related to the change of vascular tonus).

3. There may be a loss of reflex response. The loss of vascular tonus may not be only on a muscular basis,

Statistical analysis of the data was made by Miss P. Van Schaack.

but may also involve a decreased responsiveness of the neural feedback loop.

4. Loss of blood volume (increased urinary fluid loss due to a decreased output of antidiuretic hormone) is an important factor, but may be considered a contributory element rather than part of the deconditioning syndrome.

5. Loss of tonus of skeletal muscle due to lack of physical activity may be another contributory factor by facilitating the venous distention and escape of fluid into interstitial spaces.

6. The absence of gravity leads to a shift of blood volume from the lower part of the body to the upper portion. Therefore, all changes discussed above would be more marked in the leg area than in the rest of the body.

CONSIDERATIONS IN SELECTION OF VARIABLES FOR INTEGRATED SCORE

It was felt that the selection of variables could be restricted to comparatively few provided that they represent the basic mechanisms involved. In view of the lack of knowledge and understanding in the field, objections must be expected against any procedure. The one discussed below is based on the judgment of a group of experts who met in Houston on March 23, 1967, and a second meeting in Washington, D.C. on April 12, 1967. However, revisions may be necessary as more evidence becomes available. The selection of variables was based on the following assumptions:

(1) As the "Integrated Score" should be a common tool, methods which are not available in most research laboratories were eliminated. (2) If data obtained on ground are to serve as a baseline for the evaluation of space flight effects, the procedures and tests should be combinable with a lower body negative pressure test during space flight.

SELECTED VARIABLES

Heart Rate: The TTT or LBNP causes a shift of blood from the upper to the lower part of the body. The decreased pressure in the great arteries and carotid sinns area initiates a reflex increase of the heart rate. It is expected that in all tests, heart rate will be monitored continuously. The following parameters were selected:

1. Mean resting heart rate;
2. Mean heart rate during tilt or LBNP;
3. Maximum heart rate during tilt;
4. Change of mean heart rate during first minute of tilt; and
5. Change of mean heart rate during first minute after tilt.

Blood Pressure: Generally, blood pressure is affected by the heart rate. However, analysis of Fred Vogt's tilt table data shows that blood pressure variations are not very closely correlated to changes of heart rate. Changes of venous return may be the major factor involved.

In space and in many laboratories, intra-arterial monitoring is not possible, therefore, it is assumed that

only intermittent blood pressure data will be available.

Careful scrutiny of ground and space flight data showed that mean blood pressure during tilt did not show consistent changes. Therefore, the following two parameters were selected:

1. Mean pulse pressure during tilt or LBNP; and
2. Lowest pulse pressure during tilt (minimum mean of any three consecutive tests).

Leg Volume: The measurement of the leg volume, though not one of the key indicators of deconditioning, is considered a suitable measure of the compliance of the vascular bed and of fluid escape into the interstitial spaces. With the tilt table procedure, it is necessary to use multiple measurements to eliminate the disturbance caused by the displacement of muscular mass with change of gravity. This is no problem with the LBNP. The Whitney strain gauge poses a problem of calibration. In addition, the possibility of mercury contamination calls for the use of some other material under space conditions. The applicability of other measurements including impedance plethysmography should be explored.

At this time, the only suitable parameter appears to be maximum leg volume change during tilt or LBNP.

INTEGRATED SCORING SYSTEM

The basic test value to be used is the difference between the value obtained after possible deconditioning (space flight, bedrest, water immersion) and the control value for the same subject before deconditioning. This value can be positive or negative. However, as the response to the test is unidirectional, any increased response is marked as positive and any decreased response as negative. For some parameters, a "positive" response may be a numerical increase and for other parameters it may be a numerical decrease.

The following are considered as positive response:

1. Increase of mean resting heart rate;
2. Increase of mean heart rate during tilt;
3. Increase of maximum heart rate during tilt;
4. Increased slope of mean heart rate on start of tilt;
5. Increased slope of mean heart rate at the end of tilt;
6. Lower mean pulse pressure during tilt;
7. Decrease of lowest pulse pressure during tilt; and
8. Greater maximum leg volume during tilt.

As mentioned before, the value of interest is the difference before and after deconditioning. These values are expressed in physiological units. If different parameters are to be combined, they must be expressed in common and meaningful terms.

It would be desirable to use the standard deviation for each test on each subject as the common denominator to combine the eight tests. However, it is not possible to obtain sufficient baseline data on all subjects to derive meaningful individual standard deviations. Therefore, the data on the tilt table responses of all Gemini astronauts were combined and the variability of the combined tests was determined using for each astronaut his own pre-flight data as control. The lumped standard deviation of the difference between

the pre- and post-flight data is then being used as a means of expressing the post-flight changes in a way that makes it possible to combine all parameters into one integrated score (Tables I and II).

The use of the standard deviation provides an automatic weighting of the various parameters. An additional weighting is due to the selection of parameters. In this case, 5 parameters are based on heart rate and only one on leg volume.

Sometimes it may not be possible to obtain adequate data for all parameters. In this case, the per cent contribution of each parameter to the total score as given in the last row of Table I can be used to adjust the total score for the lacking parameter. The following procedure was used to determine the integrated score and the same procedure is suggested for future tests:

1. Determine control values for the 8 parameters listed above;
2. Determine the experimental values for the same 8 parameters;
3. Deduct control value from experimental value for each parameter;
4. Adjust the sign as indicated above, i.e., reverse the sign for parameters 6 and 7;
5. Divide each value by the specific correction factor given below (standard deviation of Gemini data); and
6. Obtain the integrated score by adding the eight individual values.

APPLICABILITY OF INTEGRATED SCORE

The only way of validating the integrated score is by application to experimental and space flight data. When combining all Gemini data, it can be shown (Table II) that the integrated score is high immediately after landing and comes back to normal within the next 48 hours.

Figure 1 provides the results of an analysis of the more prolonged Gemini missions. Comparing the results with the average values of Table II, it can be seen that there is a marked increase in the four-day mission. In the eight-day mission, the change is still more pronounced, and in the fourteen-day mission, the response is similar to the average response of all flights (Table II). These changes are in agreement with other clinical observations and measurements.

Until more information becomes available, the average response of the astronauts (Integrated Score of Table I) may be considered "mild deconditioning" and serve as a means of evaluating individual responses.

LIMITATIONS OF INTEGRATED SCORE

The procedure as outlined above assumes normal linearly distributed scores, and weights with a coefficient of one the contribution of each individual score to the composite score. This is satisfactory as long as the score is used only for comparative evaluation. However, with further understanding, it may be pos-

TABLE I. MEAN VALUES (DIFFERENCE BETWEEN PRE- AND POST-DECONDITIONING) AND STANDARD DEVIATIONS FOR GEMINI ASTRONAUTS

Hours Post-Flight	I Mean Rest'g H.R.	II Mean H.R. During Tilt	III Max. H.R. During Tilt	IV Slope of H.R. 1st Min. of Tilt	V Slope of H.R. 1st Min. After Tilt	VI Mean Pulse Press. During Tilt (Rev.) #	VII Lowest Cont'd Pulse Pressure Dur- ing Tilt (Rev.) #	VIII Max. Leg Volume Dur- ing Tilt
Mean	17	40	43	16	19	16	18	1.7
2 hrs. S.D.	15.6	20.6	21.3	13.3	20.4	7.5	6.9	2.8
Mean	15	33	33	14	13	5	6	0.2
12 hrs. S.D.	11.3	16.5	14.3	16.1	16.3	11.6	12.5	2.8
Mean	6	11	12	.3	1.6	5	6	0.7
24 hrs. S.D.	8.9	12.6	12.9	10.0	15.4	6.7	6.0	0.4
Mean	0.5	1.3	0.2	-0.9	2.3	-2.2	-2.1	0.7
48 hrs. S.D.	10.2	12.8	12.1	7.3	15.9	6.9	8.4	0.4
S.D. of Com- bined Data	11.3	16.0	15.6	12.1	17.1	8.4	9.2	2.0
% Contribu- tion To Total Score	12.8	17.4	16.9	13.1	18.5	9.1	10.0	2.2

- Sign Reversed

TABLE II. INTEGRATED SCORES FOR GEMINI ASTRONAUTS

Hours Post-Flight	I Mean Rest- ing H.R.	II Mean H.R. During Tilt	III Max. H.R. During Tilt	IV Slope H.R. 1st Min. Tilt	V Slope H.R. 1st Min. After Tilt	VI Mean PP During Tilt	VII Lowest Cont'd PP During Tilt	VIII Max. Leg Volume Dur- ing Tilt	Integrated Score
2 hrs.	1.44	2.50	2.76	1.32	1.12	1.91	1.96	0.85	13.86
12 hrs.	1.27	2.06	2.12	1.16	0.76	0.59	0.65	0.10	8.71
24 hrs.	0.51	0.69	0.77	0.25	0.09	0.59	0.65	0.35	3.90
48 hrs.	0.03	0.08	0.13	-0.75	0.13	-0.26	-0.73	0.35	-0.42

Figures in the bottom of the table give parameter scores.

sible to improve the scoring system by use of differential weights for their relative importance in the composite score in view of the particularly shaped (exponential rather than linear) relationships most likely existing among biological variables.

In the process of integration as outlined above, a marked change in one parameter may be obscured by mild or even negative changes in other parameters. Therefore, it may be necessary to include an alarm signal in the final computer program, if certain parameters should exceed specified safety limits.

In view of our limited understanding of the physiological changes of space deconditioning, the methods of scoring responses and the technique of obtaining the integrated score may have to be modified as knowledge and technique advance.

CONTROL OF EXTRANEEOUS VARIABLES

The standardization of the test procedure is an obvious requirement which will not be discussed here. However, it shall be realized that even the best testing methods and scoring techniques are of little value if extraneous variables cannot be controlled. If possible, the test should be performed at a place which is free of outside interference, at a fixed time of the day and with the subject in a post-absorptive state. Any change from this procedure should be noted. In addition, body temperature, body weight, and resting heart rate should be recorded. As more information becomes available, it may be possible to correct for small changes in these variables between the control and the test procedure.

SUMMARY

A method of integrating tilt table response data into one score is presented. Eight physiological variables were selected as indicators of deconditioning when subjects were exposed to the tilt table test or to lower body negative pressure.

A system was defined for expressing the change from the control value in terms of standard deviation and then combining these eight variables into one integrated score. The formula when applied to the re-

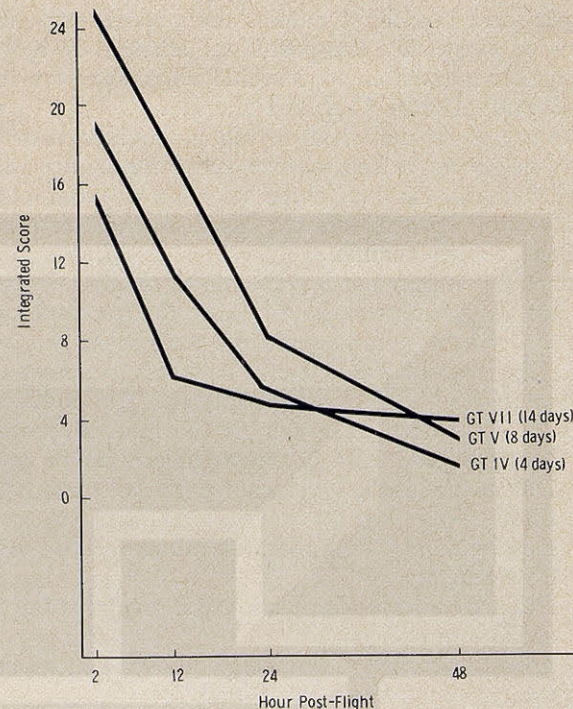


Fig. 1. Integrated score as indicator of deconditioning in space flight.

sults of the Gemini flights appear to be a good indicator of deconditioning.

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1. DIETLEIN, L. F., and JUDY, W. V.: Cardiovascular Deconditioning—Review of Medical Results of Gemini 7 and Related Flights. NASA 1966, pp. 1-36.
2. LAMB, L. E., JOHNSON, R. L., STEVENS, P. M., and WELCH, B. E.: Cardiovascular Deconditioning from Space Cabin Simulator Confinement. *Aerospace Med.*, 35:420-428, 1964.
3. VOGT, F. B., SPENCER, W. A., CARDUS, D., and VALLBONA, C.: The Effect of Bedrest on Various Parameters of Physiological Function: Review of Possible Mechanisms of Orthostatic Intolerance. NASA-CR-183, May 1966.
4. VOGT, F. B.: An Objective Approach to the Analysis of Tilt Table Data. *Aerospace Med.*, 37:1195-1204, 1966.

New York State Academy
of General Practice, Inc.



Nineteenth Annual
Scientific Assembly



**New York State Academy
of General Practice, Inc.**




**Nineteenth Annual
Scientific Assembly**

APRIL 4, 5, 6, 1967

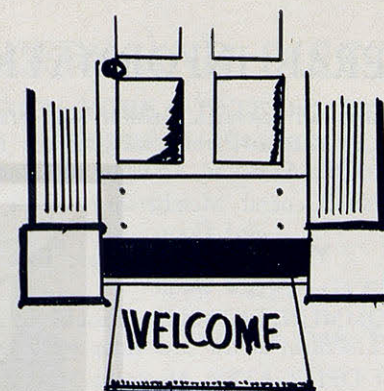
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New York City**

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Convenient Floor Plan
Will be Found in Center of Book

two



Welcome Doctor, welcome Mate,
 From "towns" all over New York State
 We're glad that it was your intention
 To spend some time at our CONVENTION
 We've worked and planned for countless hours
 To make your stay a "bed of flowers"
 Produced a program that's terrific
 Both social and the scientific
 The important and the new
 Material of help to you
 Isotopes and their new uses
 Psycho-drugs and their abuses
 Dr. Vinograd will trace
 investigations into Space
 Rehab. and it's many phases
 Heart, — advances will amaze us
 And the Ladies, yours and mine
 Should gird themselves for one grand time:
 T.V. Stars and Fashion Shows
 Paintings, Wedgwood, heaven knows
 And then the room of Hospitality
 For coffee and conviviality
 And, my friends, to top it all
 Reserve your place at the PRESIDENT'S BALL.

MARTIN MARKOWITZ, M.D.
 For Kings County Chapter
 of N.Y.A.G.P.

GENERAL INFORMATION

ATTENDANCE at all Scientific Sessions will grant 15 hours Category 1 Credit toward the post-graduate requirements for members of the American Academy of General Practice.

REGISTRATION: General Membership; West Promenade, —3rd floor.

Congress of Delegates; East Promenade, —3rd floor.

OFFICIAL COMMUNICATIONS: Should be referred to Dr. George Liberman at the 3rd floor west promenade.

CONGRESS of DELEGATES: Meets in Mercury Ballroom: Tel: 586-7000, Ext. 5218.

LADIES' HEADQUARTERS — HOSPITALITY ROOM: Rooms 537 and 540. Tel: 586-7000 and ask for above rooms.

PRESS and PUBLIC RELATIONS: 3rd Floor, west promenade; Tel: 586-7000, Ext. 5217. Martin Markowitz, M.D., Chairman of Press and Publications; Editor, Daily Convention Bulletin.

DOCTORS' CALL SERVICE: Registration desk, West Promenade; Tel. 586-7000, Ext. 5217.

SCIENTIFIC MEETINGS: West Ballroom.

SCIENTIFIC, TECHNICAL EXHIBITS: E. Ballroom and Foyer.

DAILY BULLETIN: News, announcements and business of the Convention will be published in the Daily Bulletin and distributed on Tuesday, Wednesday and Thursday.

The material herein represents the combined efforts of the Committees of the Assembly and Convention. We thank the Executive Secretary, Mr. Lawrence Kennedy, the Assistant to the Secretary, Mrs. Anne Rogers and the Secretary-Treasurer, Dr. Arthur Howard.

We acknowledge, with thanks, the cooperation of the Medical Society of the State of New York for assisting in the distribution of the Scientific Program to all New York Physicians.

MARTIN MARKOWITZ, M.D.
Editor

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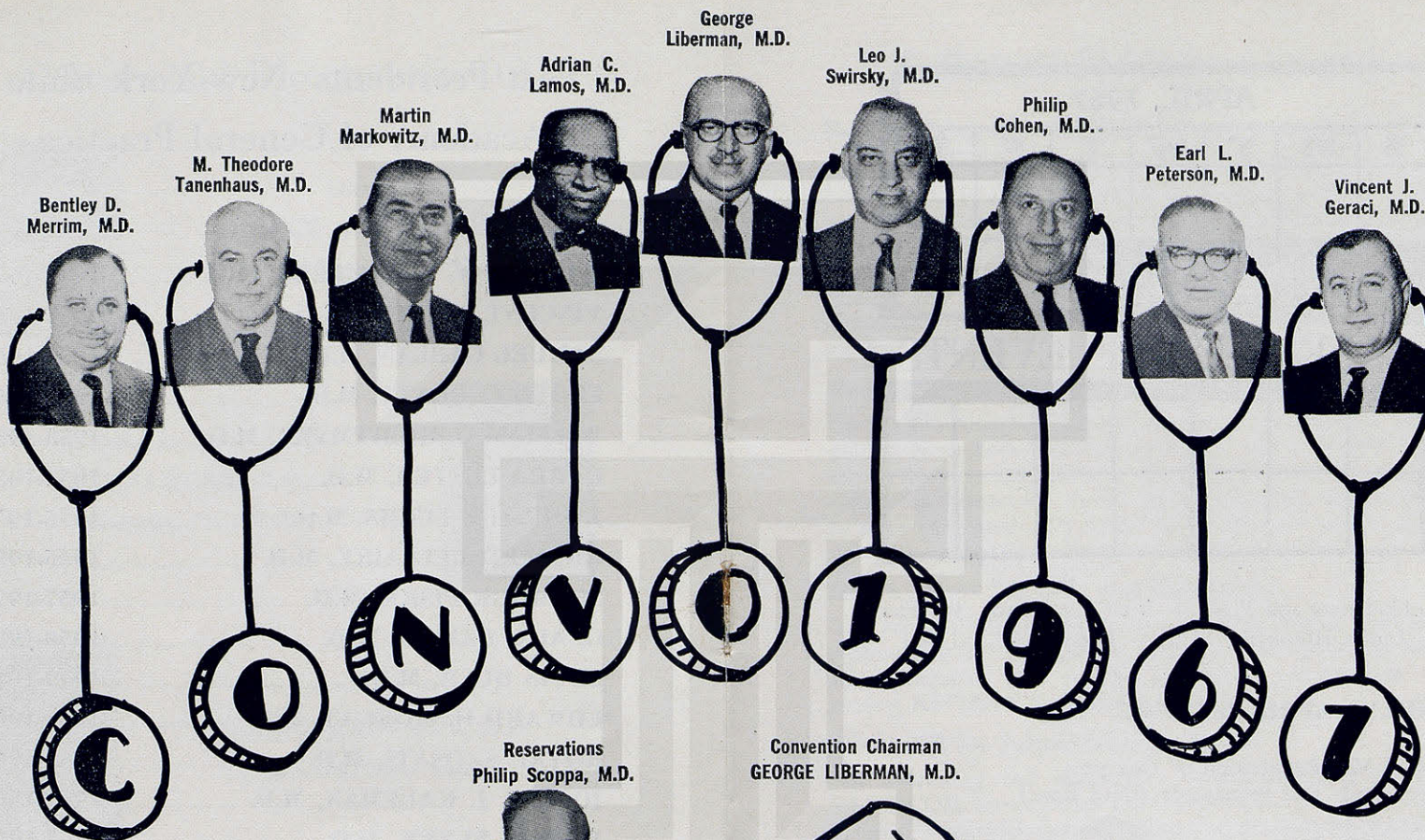
eight

Past Presidents - New York State Academy of General Practice

NAME	YEAR
WILLIAM A. BUECHELER, M.D.	1948-1950
VINCENT FISCHER, M.D.	1950-1951
SAMUEL GARLAN, M.D.	1951-1952
FLOYD C. BRATT, M.D.	1952-1953
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GARRA LESTER, M.D.	1954-1955
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G. ALX. GALVIN, M.D.	1958-1959
LOUIS BUSH, M.D.	1959-1960
EDWARD H. MORGAT, M.D.	1960-1961
ROYAL S. DAVIS, M.D.	1961-1962
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JOHN J. FLYNN, M.D.	1963-1964
RAYMOND S. McKEEBY, M.D.	1964-1965
SAMUEL LIEBERMAN, M.D.	1965-1966

*Deceased

nine



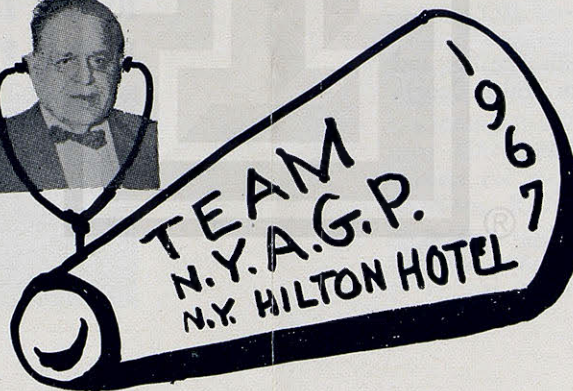
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Technical Exhibits
Martin Markowitz, M.D., Publications Editor,
Press — Public Relations
M. Theodore Tanenhaus, M.D., Banquet
Bentley D. Merrim, M.D., Printing and
Publications Management

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Convention Chairman
GEORGE LIBERMAN, M.D.



Leo J. Swirsky, M.D., Co-Chairman,
Scientific Assembly

Philip Cohen, M.D., Reception

Earl L. Peterson, M.D., Scientific Exhibits

Vincent J. Geraci, M.D., Registration

CHAIRMEN

APRIL, 1967						
S	M	T	W	T	F	S
2	3	4	5	6		

CALENDAR OF EVENTS

Headquarters and Press — West Promenade, 3rd Floor
Ladies Hospitality Suite — Rooms 537 and 540

SUNDAY—APRIL 2nd, 1967

9:00 A.M.—Registration of Delegates,
East Promenade (third floor).

9:00 A.M.—Reference Committees meet with Speaker and
Vice-Speaker, Mercury Ballroom (third floor).

10:00 A.M.—Roll Call—Congress of Delegates,
Mercury Ballroom.

2:00 P.M.—Reference Committees meet in the following
rooms on the fifth floor: 510, 520, 524, 526,
529, 543.

twelve

Calendar of Events (cont.)

MONDAY—April 3rd, 1967

9:00 A.M.—Registration of Delegates,
East Promenade (third floor).

10:00 A.M.—Congress of Delegates,
West Ballroom Center (third floor).

12:45 P.M.—Delegates Luncheon
West Ballroom (third floor).

2:00 P.M.—Congress of Delegates
West Ballroom Center (third floor).

4:00 P.M.—Finish of Business of Congress
Reference Committees meet in rooms 504, 507,
510, 513, 517, 524, 526.

TUESDAY, APRIL 4th, 1967

8:30 A.M.—General Registration
West Promenade (third floor).

9:30 A.M.—Opening of Scientific Assembly
Welcome Addresses; West Ballroom,
(third floor).

10:15 A.M.—Awards to Essay Winners

10:30 A.M.—Scientific Session Opens

2:00 P.M.—Scientific Session Resumes

thirteen

Calendar of Events (cont.)

WEDNESDAY—APRIL 5th, 1967

8:30 A.M.—General Registration
West Promenade (third floor)

9:20 A.M.—Scientific Session
West Ballroom (third floor)

12:00 Noon—Board of Directors Meeting

2:00 P.M.—Scientific Session (West Ballroom)

7:00 P.M.—Annual President's Banquet
Trianon Ballroom

THURSDAY—APRIL 7th, 1967

8:30 A.M.—General Registration
West Promenade (third floor)

9:20 A.M. to 5 P.M.—Scientific Sessions
(West Ballroom)

Scientific and Technical Exhibits

Tuesday, Wednesday and Thursday
9:00 A.M. to 5:00 P.M.—East Ballroom and Foyer
(third floor)



VISIT THE SCIENTIFIC AND TECHNICAL BOOTHS
PLEASE REGISTER AT EVERY BOOTH

fourteen

HONORARY CO-CHAIRMEN

Presidents of the Greater New York
and Long Island Academy of General
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fifteen

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MILTON B. SPIEGEL, M.D.

Kings County

Co-Chairman—Reception Committee



BANQUET PROGRAM

WEDNESDAY, APRIL 5th, 1967, 8:30 P.M.

Cocktails 7:30 P.M.

Trionon Ballroom — New York Hilton Hotel

In Honor of Dr. Max Cheplove — Retiring President

Toastmaster **GEORGE LIBERMAN, M.D.**
Convention Chairman

THE NATIONAL ANTHEM

Invocation **RIGHT REVEREND RAYMOND P. RIGNEY**
Superintendent of Schools
Archdiocese of New York City

Greetings **CARROLL L. WITTEN, M.D.**
President, American Academy
of General Practice

Retiring President's Remarks **MAX CHEPLOVE, M.D.**

President's Remarks **LAWRENCE AMES, M.D.**

Entertainment

LESTER BRAUN & HIS SOCIETY ORCHESTRA

Dress Optional

THEODORE TANENHAUS, M.D.
Chairman, Dinner-Dance

Ladies Convention Committee



MRS. GEORGE LIBERMAN

Chairman

MRS. LEO J. SWIRSKY

Co-Chairman



MRS. THEODORE TANENHAUS

Co-Chairman

COMMITTEE

Mrs. Lawrence Ames	Mrs. Sidney J. Kohle
Mrs. Clement J. Bocalini	Mrs. Adrian Lamos
Mrs. Philip Cohen	Mrs. Martin Markowitz
Mrs. Allen Goldberg	Mrs. Milton Spiegel

HOSTESSES

Mrs. Ernest Buffone	Mrs. Theodore Leshner
Mrs. Earl P. Bursen	Mrs. Bentley D. Merrim
Mrs. Vincent Geraci	Mrs. Earl Peterson
Mrs. Morris Gerswind	Mrs. Justin Rosenbush
Mrs. Irving J. Jarrett	Mrs. Philip Scoppa

eighteen

Ladies Convention Committee

SPECIAL ACTIVITIES FOR THE LADIES

Tuesday, April 4th

- 10:00 A.M. Coffee in the Hospitality Rooms 537, 540.
 11:00 A.M. FASHION SHOW OF HATS by MARION NARDEL . . . from outstanding designers such as Mr. John, Lilly Daché, etc., modelled by our own doctors' wives.
 2:00 P.M. BETSY PALMER will act as commentator for an outstanding FUR FASHION SHOW.

Wednesday, April 5th

- 10:00 A.M. Coffee in the Hospitality Rooms 537, 540.
 11:00 A.M. "Collecting Wedgwood", an illustrated lecture by Dr. Stanley Greenwald, vice-president of the National Wedgwood Society. Prepared for presentation at the Smithsonian Institution, Washington, D. C.
 2:00 P.M. "An Afternoon with GLAMOUR" by Clairol. Talk and Demonstration.

Thursday, April 6th

- 9:30 A.M. Coffee in the Hospitality Rooms, 537, 540.
 10:30 A.M. GUIDED TOUR: Famous Rockefeller Collection of Art at the Chase Manhattan Bank, and
 2:00 P.M. Chase Manhattan Plaza. (Limited to 50 Guests —please make reservations before March 15).
 TOURS of Whitney Museum, Museum of Modern Art, Brooklyn Museum and Lincoln Center by SPECIAL ARRANGEMENT.

HOSPITALITY ROOMS — 537, 540

Where Doctors' wives can meet, relax . . . and receive FREE GIFT.

OBTAIN INFORMATION: about favorite Restaurants, Shopping hints for bargain shopping in New York City.

nineteen

Thanks

CONVENTION PARTICIPANTS

Acknowledgement

To the many learned participants in the Scientific Assembly and to the many Scientific Exhibitors who jointly shared of their medical knowledge and to the many Technical Exhibitors who supported our efforts so generously and to our many Educational Grant Sponsors, — our most sincere thanks for joining with us in making this CONVENTION an outstanding success.

For The Convention Committee,

GEORGE LIBERMAN, M.D.
Chairman

SCIENTIFIC PROGRAM

Place: West Ballroom

THE G.P. — THE ONLY PRACTITIONER
OF COMPREHENSIVE MEDICINE

A.A.G.P. ACCREDITED FOR 15 HOURS

TUESDAY, April 4th, 1967

A.M.

8:30—Registration.

9:30—ASSEMBLY OPENING:

GEORGE LIBERMAN, M.D., *Convention Chairman.*

Welcome: MAX CHEPLOVE, M.D., *Outgoing President,*
N.Y.S.A.G.P.

LAWRENCE AMES, M.D., *Incoming President,*
N.Y.S.A.G.P.

10:00—ESSAY AWARD:

JOSEPH ROBINSON, M.D., *Chairman Education.*

10:15—DR. HOWARD J. BROWN, M.D., *Health Service Ad-
ministrator for the City of New York. Greetings
from the City of New York.*

MEDICAL EDUCATION

10:30—"TRENDS IN MEDICAL EDUCATION"

ROBERT A. MOORE, M.D., *Medical Director National
Fund for Medical Education. Formerly President and
Dean, College of Medicine, Downstate Medical
Center, Brooklyn, N. Y.*

SPACE MEDICINE

11:00—"INFLIGHT MEDICAL INVESTIGATION INTO
MANNED SPACE FLIGHT"

S. P. VINOGRAD, M.D., *Director of Medical Science
and Technology in the National Aeronautics and
Space Administration (NASA).*

12:00 Noon—LUNCHEON—VISIT THE EXHIBITS

*This program has been made possible
by educational grants from*

Eli Lilly & Company

**Pfizer Laboratories; J. B. Roerig & Co.
Divisions, Chas. Pfizer & Co., Inc.
Ciba Pharmaceutical Company**

PROCLAMATION



State of New York

(Executive Chamber)

When illness strikes, the very presence of the family doctor brings comfort. He eases not only the pain and suffering but also the doubts, anxieties and uncertainties.

The family doctor, known also as the general practitioner, can be more than a healer. He can be a medical advisor and personal friend of the family. It is not uncommon for the family doctor to deliver a baby whose father or mother he saw through birth a generation earlier.

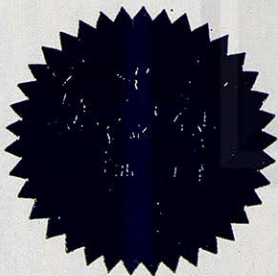
Despite the increase in specialization in this era of complex medical science, there are still more than 2,000 general practitioners in New York State. It is they who offset any trend toward fragmented and depersonalized medical care. It is they who serve as the vital unifying element in the overall spectrum of health facilities in a community.

Although the family doctor may be called upon at any hour of the day, and although we deeply prize his compassionate care when illness strikes, we are inclined amid the pressures of normal daily life to forget the dedicated service he stands ever ready to provide.

NOW, THEREFORE, I, Nelson A. Rockefeller, Governor of the State of New York, do hereby proclaim the week of April 2-8, 1967, as

FAMILY DOCTOR WEEK

in New York State.



GIVEN under my hand and the
Privy Seal of the State at the
Capitol in the City of Albany
this thirteenth day of February
in the year of our Lord one
thousand nine hundred and
sixty-seven.

BY THE GOVERNOR

Secretary to the Governor

Scientific Program (cont.)

TUESDAY, April 4th, 1967

NUCLEAR MEDICINE

SAMUEL LIEBERMAN, M.D., *Moderator*

P.M.

2:00—"PRESENT PRACTICAL USES OF RADIOISOTOPES IN THYROID DIAGNOSIS"
DAVID CHARKES, M.D., *Division of Nuclear Medicine, Temple University Hospital, Philadelphia, Penna.*

2:30—"OTHER USES OF RADIOISOTOPES IN ORGAN FUNCTION STUDIES"
LESTER LEVY, M.D., *Division of Nuclear Medicine, Long Island Jewish Hospital, New Hyde Park, N. Y.*

3:00—VISIT THE EXHIBITS

4:00—"RADIOISOTOPES CYNTA SCANNING OF LIVER, BRAIN, LUNG, KIDNEY, BONE, HEART," ETC.
DRS. CHARKES and LEVY
PRACTICAL DEMONSTRATIONS —
QUESTIONS AND ANSWERS.

*This program has been made possible
by educational grants from*

**Bristol Laboratories, Division of Bristol Meyers
Warner-Chilcott Laboratories
Div. of Warner-Lambert Pharmaceutical Co.
The Upjohn Co.
Sandoz Pharmaceuticals
Smith Klein & French Laboratories**

twenty-four

Scientific Program (cont.)

WEDNESDAY, April 5th, 1967

A.M.

8:30—Registration.

9:20—WELCOME: ADRIAN LAMOS, M.D., *Convention Co-Chairman*

DRUG THERAPY IN PSYCHIATRY — THE DO'S AND DON'T'S

9:25—RAYMOND S. MCKEEBY, M.D., *Moderator*

9:30—"DRUG THERAPY IN ANXIETY REACTIONS"
FRANK J. AYD, JR., M.D., *Editor, International Drug Therapy Newsletter*

10:10—"DRUG THERAPY IN ANXIETY REACTIONS"
ADAM J. KRAKOWSKI, M.D., *Consultant, U. S. Airforce Hospital, Saranac Lake, N. Y.*

11:00—"DRUG THERAPY IN DEPRESSIVE REACTIONS"
EDWIN DUNLOP, M.D., *Director of Research, Fuller Memorial Sanatorium, South Attleboro, Mass.*

12:00 Noon—LUNCHEON—VISIT THE EXHIBITS

*This program has been made possible
by educational grants from*

**Merck Sharp & Dohme
Div. of Merck & Co., Inc.
Roche Laboratories
Div. of Hoffman-LaRoche Inc.**

twenty-five

Scientific Program (cont.)

WEDNESDAY, April 5th, 1967

REHABILITATION MEDICINE

P.M.

2:00—MAX CHEPLOVE, M.D., *Moderator*

2:05—"REHABILITATION IN PERIPHERAL VASCULAR DISEASE"
HEINZ LIPPMAN, M.D., *Associate Professor of Rehabilitation Medicine, Albert Einstein Medical School*

2:45—"REHABILITATION IN STROKE"
JOSEPH BENTON, M.D., F.A.C.P., *Professor and Chairman, Department of Rehabilitation, State University of New York, Downstate Medical Center.*

3:25—VISIT THE EXHIBITS

4:10—"MECHANICAL DEVICES AND TECHNIQUES CURRENTLY USED IN REHABILITATION"
JAMES RAE, JR., M.D., *Department of Physical Rehabilitation, University Hospital Medical School, University of Michigan.*

QUESTIONS AND ANSWERS

*This program has been made possible
by educational grants from*

Geigy Pharmaceuticals
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E. R. Squibb & Sons, Inc.
Westwood Pharmaceuticals
Div. of Foster-Milburn Co.
Dome Laboratories

Scientific Program (cont.)

THURSDAY, April 6th, 1967

A.M.

8:30—Registration.

9:20—WELCOME: LEO J. SWIRSKY, M.D., *Convention Co-Chairman*

CARDIOLOGY

This program co-sponsored by American College of Cardiology
JOHN J. FLYNN, M.D., *Moderator*

9:30—"THE CORONARY CARE UNIT: Treatment of Arrhythmias in Acute Myocardial Infarction."
THOMAS KILLIP III, M.D., F.A.C.C., *Chief, Division of Cardiology, New York Hospital—Cornell Medical Center, New York.*

10:10—"CORONARY ARTERIOGRAPHY: Newer Techniques and Clinical Correlations."
HENRY A. ZIMMERMAN, M.W., F.A.C.C., *Chief of Cardiovascular Section and Director of Cardiovascular Laboratory, St. Vincent's Charity Hospital, Cleveland, Ohio.*

10:50—RECESS—VISIT THE EXHIBITS

11:10—"CARDIAC SURGERY—1967: A Progress Report."
DWIGHT E. HARKEN, M.D., F.A.C.C., *Chief Cardiothoracic Surgeon, Peter Bent Brigham Hospital, and Professor of Surgery, Harvard Medical School, Boston, Mass.*

12:00 Noon—LUNCHEON—VISIT THE EXHIBITS

*This program has been made possible
by educational grants from*
Hoechst Pharmaceutical Company
Division of American Hoechst Corporation

Scientific Program (cont.)

THURSDAY, April 6th, 1967

CARDIOLOGY

P.M.

1:55—LOUIS BUSH, M.D., *Moderator*

2:00—"CURRENT DIURETIC THERAPY: A Clinical Appraisal."
JOHN H. MOYER, M.D., F.A.C.C., *Professor of Medicine and Chairman of Department of Internal Medicine, Hahnemann Medical College and Hospital, Philadelphia, Penna.*

2:40—"PACEMAKER THERAPY OF HEART BLOCK: Newer Methods and Results."
SIMON DACK, M.D., F.A.C.C., *Associate Attending Physician for Cardiology, Mount Sinai Hospital and Associate Clinical Professor of Medicine, Mount Sinai School of Medicine, New York, N. Y.*

3:20—RECESS—VISIT THE EXHIBITS

3:40—"WHAT'S NEW IN CARDIOLOGY?"
SIMON DACK, M.D., *Moderator*, with Doctors HARKEN, KILLIP, MOYER and ZIMMERMAN.
PANEL DISCUSSION



*This program has been made possible
by educational grants from*

**Hoechst Pharmaceutical Company
Division of American Hoechst Corporation**

twenty-eight

SCIENTIFIC EXHIBITS

Aesculapius Award of \$200.00 presented by Mead Johnson Laboratories for the best Scientific Exhibit.

Booth S-1

STATE OF NEW YORK DEPARTMENT OF HEALTH

Six photographs by professional photographer, Joseph Alper, in Schenectady capturing the innocence and vulnerability of childhood, highlight the exhibit. The brief message points out that the widespread use of measles vaccine can eliminate the serious complications of the disease that affects one of every six children that is stricken by the disease. The exhibit measures 8' high and 8' wide and includes phones with taped information to supplement the visual message.

Booth S-2

HORMONAL MANAGEMENT OF THE FEMALE REPRODUCTIVE TRACT

F. P. Rhoades, M.D., Detroit, Michigan

The exhibit depicts the medical management with pro-gestational agents of a number of disorders that afflict the female reproductive tract. The disorders covered are: threatened abortion, habitual abortion, infertility, pre-men-strual tension, dysmenorrhea, secondary amenorrhea, and functional bleeding. Also discussed is the approach to the multiple problems presented by the menopause and its most effective treatment with the use of tranquilizers, diuretics and hormonal agents.

twenty-nine

Scientific Exhibits (cont.)

Booth S-3

PREVENTION AND MANAGEMENT OF PULMONARY COMPLICATIONS BY PERCUTANEOUS POLYETHYLENE TUBE TRACHEOSTOMY

Percutaneous polyethylene tube tracheostomy has been employed by the authors as an aid in the prevention and management of pulmonary complications in clinical patients for four years. The technique as described has proved simple and safe in the hands of both attending and house staff, and there have been no complications in this series of patients.

It is felt that familiarizing more physicians with this technique, together with its indications and contra-indications, would be extremely worthwhile, and perhaps could best be done by means of an exhibit.

Booth S-5

ARTHRITIS FROM AN ORTHOPAEDIST'S VIEWPOINT

Forrest H. Riordan III, M.D.

Graham A. Kernwein, M.D.

Rockford Memorial Hospital, Rockford, Illinois

The surgical and medical management including intra-articular and oral therapy for the treatment of rheumatoid arthritis, ankylosing spondylitis, osteoarthritis of the hip, back and knee as seen by the orthopaedist are presented in detail. The use of anti-inflammatory agents in the peri-articular tissues such as the tendons and ligaments is also reviewed. Tables illustrating the clinical response, treatment schedules, medical illustrations, x-rays and color photographs comprise the graphic presentation.

thirty

Scientific Exhibits (cont.)

Booths S-6, 7, 8, 9

LABORATORY PROCEDURES FOR THE DOCTOR

Kings County Research Laboratories, Inc.

KCRL is the first automated/on-line computerized clinical laboratory in the U. S. It services physicians in the Metropolitan area on a pick-up and delivery basis and nationally by mail. Services are available on an annual fee basis (payable monthly) as well as a per-test basis.

Demonstrated at Booths S-6-7-8-9 is the multi-phasic health screening technique innovated by KCRL, the 10-in-1 Series.

Booth S-10

RECENT ADVANCES IN THE DIAGNOSIS AND TREATMENT OF CONVULSIVE DISORDERS

Samuel Livingston, M.D. and Lydia L. Pauli, M.D.

The Johns Hopkins Hospital, Baltimore

The data presented in this exhibit are based on follow-up studies of approximately 17,000 epileptic patients (adults and children) over the past 30 years. Recent diagnostic and therapeutic advances are presented. The dosages, indications for usage, and untoward reactions of all of the drugs currently being used for the treatment of epilepsy are presented.

Booth S-10A

MEDIC ALERT FOUNDATION, INTERNATIONAL

**Mr. Chester L. Watts, Medic-Alert Foundation,
Turlock, Calif.**

This exhibit is presented to stimulate professional awareness of the Medic-Alert emblem — and in the hope that physicians will urge all ancillary personnel to look for the device (bracelet or necklace) on all individuals they aid in time of emergency. — It also emphasizes the function of the foundation's central answering file, which gives full medical facts about any wearer, without cost, to qualified persons.

thirty-one

Scientific Exhibits (cont.)

Booth S-11

DIAGNOSE GOUT AND TREAT IT

Kenneth M. Kron, M.D., Benjamin Franklin Clinic
Irvin F. Hermann, M.D., Benjamin Franklin Clinic and
Pennsylvania Hospital

This exhibit presents the comprehensive management of patients with Gout with special emphasis on specific detailed therapy for the initial acute attack, subsequent acute attacks and long term management. The patients presenting symptoms are considered and the method of making a diagnosis both presumptive and positive is outlined. Several roentgenograms, photomicrographs and pictures of gross specimens illustrate the basis for a positive diagnosis. With an increased awareness by the physician for a "complete prescription for Gout" effective management of the Gouty patient can be insured.

Booth S-13

TARGET SYMPTOMS: THE KEY TO DIFFERENTIAL DIAGNOSIS AND TREATMENT OF EMOTIONAL ILLNESS

Wilfred Dorfman, M.D., Brunswick Hospital Center
Amityville, L. I., N. Y.

This exhibit stresses the need for careful evaluation of the patient's presenting symptoms, especially those of depression. These symptoms may be more important than the diagnostic categories in evaluating appropriate chemo-therapy and other management considerations.

The combined use of an antidepressant with a tranquilizer will minimize the need for ECT and accelerate the rehabilitation of the patient. The total management of these patients and the role of the non-psychiatric physician as well as the psychiatrist are presented. The use of the doctor-patient relationship, psychotherapy and electroshock are also reviewed.

Scientific Exhibits (cont.)

Booth S-14

CURRENT APPROACH TO ARTERIAL OCCLUSIVE DISEASE

Rudolph Fremont, M.D., Chief, Cardiovascular Section
Brooklyn VA Hospital

This exhibit illustrates the importance of symptom and background evaluation for the differentiation of occlusive and vasospastic disorders, and that of a properly conducted physical examination with particular emphasis on the evaluation of arterial bruits.

It also demonstrates the value of segmental Plethysmography, an easy inexpensive procedure, for the documentation and localization of A.O.D., its differentiation from vasospastic disorders, and for the assay of its therapeutic response.

Finally, modern surgical and medical therapy of A.O.D., is discussed with particular emphasis on the use of newer vasodilator drugs.

Booth S-16

TREATMENT OF MIXED PSYCHIATRIC SYNDROMES

Paul E. Feldman, M.D., Director of Research
Topeka State Hospital, Topeka, Kansas

Combined therapy is based upon the premise that the usual psychiatric patient presents a mixture of both "Hypo" and "Hyper" symptoms. A combination of an antidepressant and a tranquilizer more effectively covers the gamut of symptoms usually seen. Results obtained in the treatment of 200 patients are documented and compared to results obtained with single drug therapy.

Scientific Exhibits (cont.)

Booth S-17

HALOPERIDOL—A MAJOR NEW TRANQUILIZER

Edwin Dunlop, M.D., Attleboro, Massachusetts

A major new tranquilizer, the first of a new butyrophenone series has been evaluated for 4 years. Over 200 patients have received this drug and the scientific exhibit deals with the use of Haloperidol in a nucleus of 90 patients whose treatment was initiated in the hospital. Haloperidol is a major tranquilizer with specific activity in schizophrenic reactions and in maniacal states. It has a wide spectrum of psychotherapeutic applicability with rapid onset of action. Side effects are easily eliminated or controlled.

Booth S-18

TRANQUILIZERS AND ANTIDEPRESSANTS IN GENERAL PRACTICE

S. C. Kaim, M.D.; E. M. Caffey, Jr., M.D.;
L. E. Hollister, M.D.; and C. J. Klett, Ph.D.
Veterans Administration
Department of Medicine and Surgery

Seven types of adult patients with emotional difficulties for which physicians will consider psychotropic drugs represent the wide range of use of these agents. Summarized are the basic antipsychotic, antianxiety, and antidepressant drugs, their indications, and major cautions to be observed. The material has been drawn from the extensive VA Cooperative studies in hospitals and outpatient clinics.



PLEASE REGISTER AT EVERY BOOTH

thirty-four

Scientific Exhibits (cont.)

Booth S-19

CURRENT DIURETIC ARMAMENTARIUM: CLINICAL AND PHARMACOLOGIC APPRAISAL

Albert N. Brest, M.D., Gaddo Onesti, M.D.
Robert Sellar, M.D., Osvaldo Ramirez, M.D.
Charles Swartz, M.D., John H. Moyer, M.D.
Section of Vascular Diseases and Renology
Hahnemann Medical College and Hospital
Philadelphia, Pennsylvania

The purpose of this exhibit is to offer a clinical and pharmacologic appraisal of the current diuretic armamentarium. Sites of action of the various diuretic drug groups are compared. Clinical pharmacology of the potent oral diuretics, anti-aldosterone drugs, ethacrynic acid and mercurials is described, in graphic and verbal form; and data on combined diuretic drug regimens are also presented. Finally the clinical application of diuretic drugs in congestive heart failure and hypertension is summarized.

Booth S-21

"CHEMOTHERAPY OF LIVER CANCER BY PROTRACTED AMBULATORY INFUSION"

Robert D. Sullivan, M.D., Director
Department of Cancer Research, Lahey Clinic Foundation
Rationale, diagnosis and results of a new method of cancer chemotherapy embodying the long-term and continuous arterial infusion of antimetabolite compounds on an ambulatory outpatient basis, using a portable pump apparatus in patients with primary and secondary liver cancer, are presented.

Booth S-22

NEW DRUGS AND THEIR EVALUATION

Harold Aaron, M.D.
The Medical Letter
New York, New York

This display demonstrates the importance to the physician of knowing, when a new drug becomes available, how it compares in terms of benefits and hazards with older agents offered for the same disorders. In its evaluation of drugs, The Medical Letter attempts to give a balanced appraisal of both benefits and adverse effects.

thirty-five

Scientific Exhibits (cont.)

Booth S-23, 24

HOW TO APPROACH AN EYE

Dan M. Gordon, M.D., New York Hospital,
Cornell University Medical College

The exhibit will cover the fundamentals of an eye examination—stressing the conditions which the non-ophthalmologist can and cannot handle, illustrating important diagnostic hints. The differentiation between conjunctival and ciliary injections will be illustrated as well as indications for the use of anti-inflammatory agents with or without antimicrobials. (Conjunctivitis vs. intraocularly induced inflammations), technique of fluorescein staining, tonometry, eversion of the upper lid, control of lids in a possibly perforated eye, immediately first aid of burns, perforated eye traumatic hyphema, lid lacerations, foreign bodies, rust rings, and so forth. A simple eye tray would be illustrated. When to use dilating drops and when not. When to patch, and so forth.

Booth S-25

VISITING NURSE AGENCIES OF GREATER NEW YORK

New York City

Photo exhibit showing how public health nurses provide nursing care on a visit basis to patients in their homes. This care is given when services are prescribed by the physician and under his medical supervision.

Booth S-26

MANAGEMENT OF GYNECOLOGIC CANCER BY CHEMOTHERAPY

Jeanne C. Bateman, M.D., Alexandria, Virginia

This exhibit describes the use of chemotherapy for patients with far advanced, recurrent cancer as well as for those with inoperable cancer of the female genital tract. The results, presented pictorially and graphically, demonstrate that prolonged palliation may be achieved in cases of ovarian tumor. Although the series of patients with uterine carcinoma was limited, results appear to indicate that here too prolonged palliation may be possible.

thirty-six

Scientific Exhibits (cont.)

Booth S-28

MANAGEMENT OF DEGENERATIVE ARTHRITIS OF THE KNEES

Lee J. Cordrey, M.D.

Cole-Cordrey Clinic, Tampa, Florida

Degenerative arthritis of the knee is a common source of disability in patients beyond 50 years of age. As the disease progresses, there may be loss of full extension of the knee and collateral ligament laxity.

This exhibit presents the etiological factors which produce degenerative change, the management by a surgical approach or by conservative medical management. The medical management includes general measures, intra-articular steroid injection and oral non-steroid therapy. A therapy schedule and side effects are also outlined.

Three third dimensional life-size models of degenerative arthritis of the knees presents the progressive pathological changes which will be used in discussion and for teaching purposes.

Booth S-29

PULMONARY FUNCTION STUDIES AND METAPROTERENAL

Jerome Miller, M.D.

Philadelphia, Pennsylvania

The exhibit will portray the value of pulmonary function studies in evaluating the effectiveness of a new bronchodilator drug, Metaproterenal. This will be evidenced by the total vital capacity, one-second vital capacity and the maximum mid-expiratory flow rate findings. The therapeutic effectiveness will be compared with those obtained with a placebo, and in the use of a metered aerosol and tablet. The incidence and type of adverse effects will be tabulated.

thirty-seven

Scientific Exhibits (cont.)

Booth S-30

GOUT

L. Maxwell Lockie, M.D.
Buffalo, New York

Gout always brings to mind recurring severe episodes of painful arthritis.

It is encouraging to know that during the past fifteen years, with appropriate therapy, the number and severity of these attacks are markedly diminished.

Gouty episodes are aborted or brought under control promptly.

It is rare that a gouty patient is unable to carry out his usual daily activities or that he loses any time from work.

The serum uric acid is maintained within a normal range and urate salts are not deposited in body tissues.

The exhibit illustrates important diagnostic and therapeutic procedures.

Booth S-32

MANAGEMENT OF ALLERGIC RHINITIS

Paul Chervinsky, M.D.
New Bedford, Mass.

This exhibit reviews the etiologic factors, diagnosis, infectious rhinitis and drug induced rhinitis and the treatment both specific and symptomatic. Complications encountered as a result of a double blind study using thirty patients with perennial allergic rhinitis are also presented. The exhibit points out with the introduction of new modalities of therapy the physician with a comprehensive understanding of the disorder is now able to offer complete and lasting symptomatic relief while preventing complications.

thirty-eight

Scientific Exhibits (cont.)

Booth S-34

DOSE RESPONSE—KEY TO EFFECTIVE TREATMENT

Fred J. Phillips, M.D.
Quakertown, Penn.

A large segment of patients with arthritis, musculoskeletal and inflammatory problems seen in today's General Practice respond with more predictable results when effective therapy is coupled with a careful dosage program.

A comprehensive management program and the results of our experience with 340 patients over a period of three years employing short as well as long term therapy is presented.

The schedule employed to effect a dose reduction to the smallest maintenance level, thus affording an economic advantage to the patient is outlined.

Booth S-68

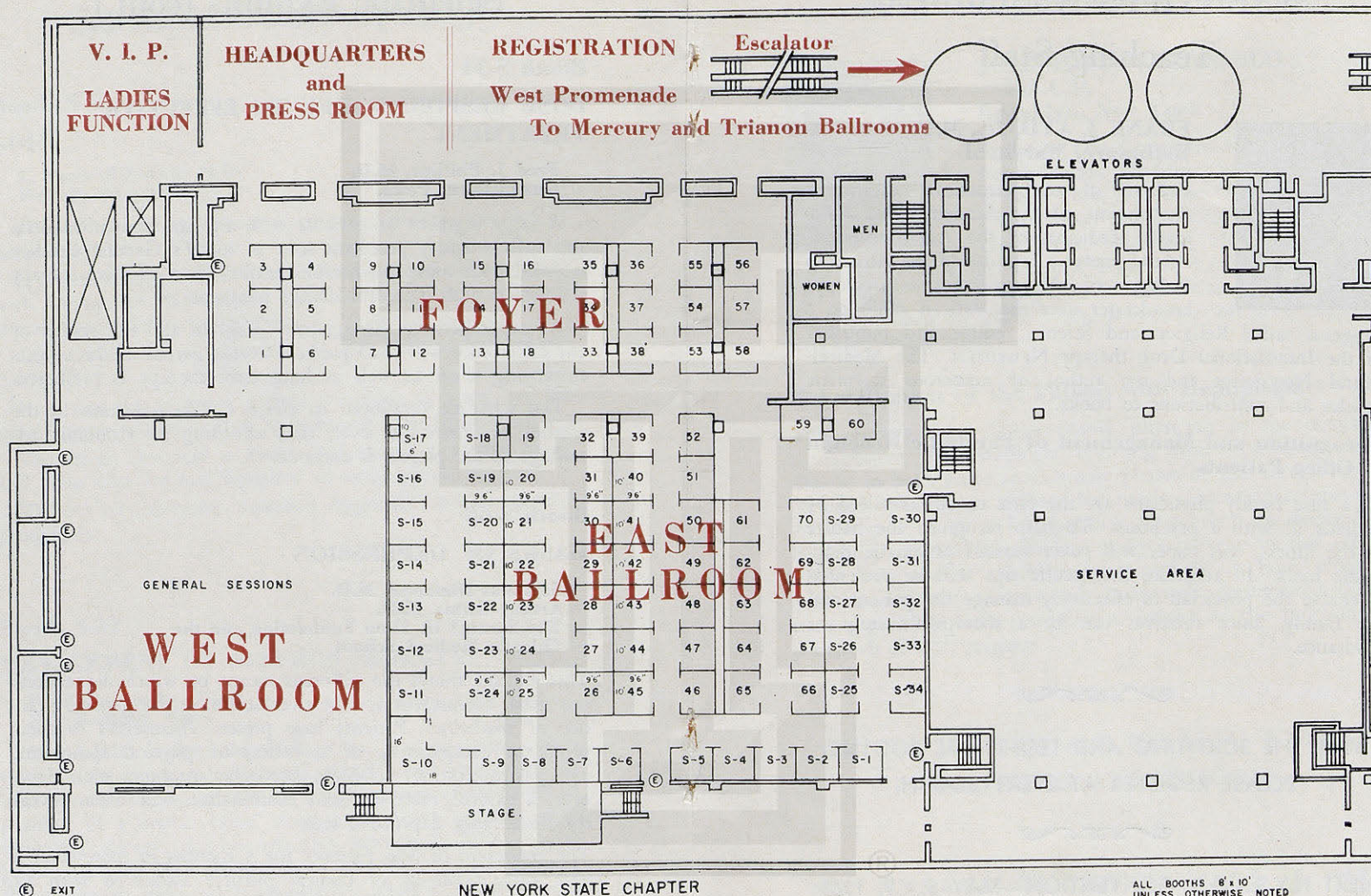
MASKS OF DEPRESSION

Seymour Diamond, M.D.
Arthur Kunis, M.D.
The Samuel H. Flam Foundation and the
Chicago Medical School

This exhibit shows the different means by which depressions can mask themselves and be overlooked in the general practice of medicine. Patients may present themselves to their physician complaining of a variety of physical symptoms, e.g., gastrointestinal disorders, headache, insomnia, etc. However, a careful interview and examination will often reveal the underlying depressive state.

The treatment of 356 patients for 3 months to more than a year with a variety of clinical pictures associated with an underlying depression is presented. Methods of treatment and clinical results are summarized.

thirty-nine



NEW YORK STATE CHAPTER
AMERICAN ACADEMY of GENERAL PRACTICE
APRIL 4-6, 1967
NEW YORK HILTON

ALL BOOTHS 6' x 10'
UNLESS OTHERWISE NOTED
S - INDICATES SCIENTIFIC BOOTHS

SCIENTIFIC ASSEMBLY

Teaching Staff



FRANK J. AYD, Jr., M.D., F.A.P.A.
Batlimore, Maryland

Fellow: of the American Psychiatric Association, of the Academy of Psychomatic Medicine, of the American Geriatrics Society; a founder of the American College of Neuropsychopharmacology; broadcaster over the Vatican radio on a program called Religion and Science; editor and publisher of the International Drug therapy Newsletter, The Medical-Moral Newsletter and the author of numerous scientific articles and contributions to books.

Recognition and Management of Psychotic Reaction in Office Patients

As a rule family physicians are the first to be consulted by patients ill with a psychosis. To help recognize the nature of the illness, this paper will cover various pragmatic diagnostic hints. In addition, therapeutic tips will be presented to enable the physician to effectively manage the patient and the family, since relatives can be a therapeutic help or hindrance.



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NEXT N.Y.S.A.G.P. CONVENTION—MAY 5 - 9, 1968
CONCORD HOTEL, KIAMESHA, N. Y.

Scientific Assembly (cont.)



**JOSEPH G. BENTON, M.D.,
F.A.C.P.**
Brooklyn, New York

Professor and Chairman, Department of Rehabilitation Medicine, State University of New York, Downstate Medical Center; Psychiatrist-in-Chief, State University of New York, University Hospital; Psychiatrist-in-Chief, Kings County Hospital Center, Brooklyn, New York; Dean, College of Health Related Professions, State University of New York, Downstate Medical Center, Brooklyn, New York.

Rehabilitation of the Patient with Hemiplegia

The primary role of the family physician in the clinical management of hemiplegia resulting from cerebrovascular disease in both acute and chronic phases of this increasingly common syndrome is obvious but needs continuing emphasis. As such, he is in a key position to prevent the seriously disabling sequelae that so frequently supervene in this condition. Aspects of rehabilitation treatment in both phases will be discussed since it has been well documented that such approaches have a significant impact on the functional prognosis of such patients.



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Scientific Assembly (cont.)



N. DAVID CHARKES, M.D.
Philadelphia, Pennsylvania

American Board of Internal Medicine; Associate Professor Radiology and Medicine, Temple University Medical Center, Philadelphia, Pa.; Former Adjunct in Nuclear Medicine, Division of Radiology, Albert Einstein Medical Center, Philadelphia, Pa.; Author of numerous articles on Radioisotopes.

Uses of Radioisotopes in Thyroid Disease

An overview of the current status of radioisotopes in the diagnosis of thyroid diseases presented from the point of view of what is practical rather than from research considerations.

Radioisotope Scintiscanning—with Dr. Levy

A summary of the role of isotopic scintiscanning (pictures with isotopes) can play in diagnosis of tumors and other lesions of the liver, brain, kidney and bone. Also will be included discussion of lung scanning for pulmonary infarction, heart scanning for pericardial effusion, etc.

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NEXT N.Y.S.A.G.P. CONVENTION—MAY 5 - 9, 1968
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Scientific Assembly (cont.)



SIMON DACK, M.D.
New York, New York

Associate Cardiologist, The Mount Sinai Hospital, New York; Associate Clinical Professor of Medicine, The Mount Sinai Medical Center, New York; Chief Prenatal Clinic, Mount Sinai Hospital, New York; Lecturer in Medicine and Cardiology, Columbia University, New York; Associate Clinical Professor of Medicine, New York Medical College, New York; Attending Physician, Flower Fifth Avenue Hospital and Metropolitan Hospital, New York; Consultant Cardiologist Prospect Heights Hospital and Saint Josephs Hospital, New York.

The Permanent Transvenous Electrode-Catheter Pacemaker for Treatment of Heart Block

This paper represents the results of long-term pacing of the heart by a transvenous bipolar electrode-catheter wedged into the apex of the right ventricle via the left cephalic or subclavian vein, connected to a generator implanted subcutaneously in the left pectoral area through the same incision. This simple operation, performed under local anesthesia and under fluoroscopic control, obviates the necessity of a thoracotomy for sewing the electrodes into the left epicardial surface. Operative, early mortality and postoperative complications are minimal. Pacemaker failure has been much lower. Recommendations for employment of this method will be completely discussed.

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Scientific Assembly (cont.)



EDWIN DUNLOP, M.D.
Attleboro, Massachusetts

Director of Research, Fuller Memorial Hospital, South Attleboro, Massachusetts.

Depressive Reactions

Depression is second only to schizophrenia in first and second hospitalizations to mental facilities in the United States. It does not give a true picture of the number of depressed patients because five to ten times more depressed patients are being treated on an ambulatory basis in physicians' office than the number hospitalized. More human suffering has resulted from depression than any other single disease which afflicts mankind. During the last decade there has been an unprecedented opportunity for treatment of this type of illness. Emphasis will be placed on the recognition by history, signs and symptoms of what constitutes a depressive reaction and specific therapy for the variety of the depressions described will be suggested.



DWIGHT EMORY HARKEN, M.D.
Boston, Massachusetts

Surgeon, and Chief of Thoracic Surgery, Peter Bent Brigham Hospital, and Mount Auburn Hospital. Consultant in Thoracic Surgery: Veterans' Administration, U. S. Navy and various other hospitals. Clinical Professor of Surgery, Harvard Medical School. Founder of the Board of Thoracic Surgery. Editorial Consultant, The American Journal of Cardiology, member of the Editorial Advisory Board, American Academy of General Practice. Author of numerous scientific papers.

Scientific Assembly (cont.)

Cardiac Surgery—1967: A Progress Report

Recent advances in heart surgery have been most spectacular with reference to the surgery of the coronary arteries, to demand pacemakers for heart block and for striking improvements in prosthetic valves.

This presentation will address itself principally to the above advances. It will be illustrated with colored motion pictures and lantern slides.



THOMAS KILLIP III, M.D.,
F.A.C.C.

Associate Professor, Department of Medicine, Cornell University Medical College, New York; Chief, Division of Cardiology, New York Hospital, Cornell Medical Center, New York; Diplomate American Board of Internal Medicine; Head, Section of Clinical Cardiology; Director, Heart Station; Chairman, Cardiovascular Section ad-hoc Committee on Heart Disease, Cancer and Stroke Proposal of the Medical Center; Director and Coordinator, Cardiovascular Teaching for 2nd, 3rd and 4th year Students; all at Cornell University Medical College-New York Hospital.

Treatment of Arrhythmias in Acute Myocardial Infarction

It is now well established that approximately 90% of patients with acute myocardial infarction have arrhythmias. Some are life-threatening, some are trivial. The sequential effects of arrhythmias, their prevention and treatment will be discussed in detail.

Scientific Assembly (cont.)



ADAM J. KRAKOWSKI, M.D.
Plattsburgh, New York

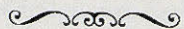
Professor, Department of Medicine and Health Education, Plattsburgh State University College; Consultant in Psychiatry, Plattsburgh State University College; Director, Plattsburgh Child Guidance Clinic; Attending in Psychiatry: Champlain Valley Hospital, Physicians' Hospital, Plattsburgh, New York; Consultant in Psychiatry: Plattsburgh Air Force Base, Will Rogers Hospital, Veterans' Administration Hospital, New York State Department of Education and New York State Civil Service Commission.

Anxiety-Tension States

This presentation will encompass a discussion of the nature of those neurotic reactions which are caused primarily by anxiety-tension states. It will omit affective reactions. Theories of causation including psychodynamics and the neurophysiological concomitants will be reviewed briefly. Diagnosis of clinical forms will be discussed as well as the management including the treatment, referral and rehabilitation.



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Scientific Assembly (cont.)



HEINZ I. LIPPMANN, M.D.,
F.A.C.P.

Bronx, New York

Diplomate of the American Board of Physical Medicine and Rehabilitation; Associate Professor of Rehabilitation Medicine, The Albert Einstein College of Medicine, New York; Director of the Amputee Center and Chief of the peripheral vascular clinic of Bronx Municipal Hospital Center, Bronx, New York; Consultant in Physical Medicine and Rehabilitation to the U. S. Veterans' Administration; Attending Staffs of Montefiore and Misericordia Hospitals.

Rehabilitation in Peripheral Vascular Disease

This will be an eclectic survey of those diagnostic methods required for the evaluation of occlusive arterial disease, that are meaningful and available without use of complicated hardware. The management of disabilities from occlusive arterial disease as well as those from chronic venous insufficiency and its complications will be discussed.



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forty-nine

Scientific Assembly (cont.)



LESTER M. LEVY, M.D.
Queens, New York

Attending Physician-in-Charge, Division of Nuclear Medicine, The Long Island Jewish Hospital, New Hyde Park, Long Island, New York; Clinical Associate Professor in Department of Radiology, State University of New York, College of Medicine at New York City, Brooklyn, New York; Phi Beta Kappa; Former Chief, Metabolic Research Service, Army Medical Research and Nutrition Laboratory, Fitzsimmons Army Hospital, Denver, Colorado.

Other Uses of Radio Isotopes in Organ Function Studies

A practical review of what radioisotopes can do for the general practitioner in diagnosis of organ malfunction, including: the Schilling test for pernicious anemia, the radioisotope renogram for diagnosis of renal hypertension, the isotopic fat studies for differential diagnosis of pancreatic insufficiency and intestinal malabsorption (sprue), the blood volume and red cell mass determination, etc.

Radioisotope Scintiscanning—with Dr. Charkes

A summary of the role of isotopes scintiscanning (pictures with isotopes) can play in diagnosis of tumors and other lesions of the liver, brain, kidney and bone. Also will be included discussion of lung scanning for pulmonary infarction, heart scanning for pericardial effusion, etc.

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Scientific Assembly (cont.)



ROBERT A. MOORE, M.D.
Brooklyn, New York

Medical Director, National Fund for Medical Education; Formerly President and Dean, Downstate Medical Center, State University of New York, Brooklyn, New York.

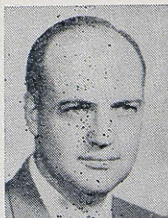
Trends in Medical Education

Medical education is changing from year to year and decade to decade. Discussion is focused on some of the more important trends of the past two decades, during which I served as a dean. Among these are: introduction of sociologic and behavioral sciences into medicine together with increased teaching of psychiatry; addition of new natural sciences such as genetics and biophysics; greater attention to basic principles and processes rather than facts; more time in outpatient teaching; greater emphasis on laboratory and clinical teaching in contrast with lectures; an attempt to focus on comprehensive medicine and continuity of care; and increased attention to health, the environment, the community, and the prevention of disease.

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Scientific Assembly (cont.)



JOHN H. MOYER, M.D.
Philadelphia, Pennsylvania

Professor of Medicine and Chairman, Department of Medicine, Hahnemann Medical College and Hospital, Philadelphia, Pa.; Consultant in Internal Medicine: Veterans' Administration Hospital, Philadelphia Naval Hospital, Philadelphia, Pa.; Consultant, Council on Drugs of AMA; Editorial Consultant, American Journal of Cardiology; Medical Advisor, Social Security Administration; Consultant, Board of Veterans' Appeals; Editorial Consultant, Formulary Medicine; Editor-in-Chief, Cyclopedic of Medicine, Surgery and Specialties, 1963-65.

Current Diuretic Therapy: A Clinical Appraisal

The most generally useful diuretics today are the thiazides and similar potent oral diuretics, conveniently administered with minimal toxicity for long-term use. Mercurial diuretics still provide safe, effective diuresis for patients in acute congestive heart failure. Exceptionally potent for immediate brief action are the new oral diuretics, ethacrynic acid and furosemide.

Useful adjuncts to thiazide therapy for potentiation and potassium conservation are the anti-aldosterone agents. Other available diuretics have only limited use in a few specific conditions.



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fifty-two

Scientific Assembly (cont.)



JAMES W. RAE, Jr., M.D.
Ann Arbor, Michigan

Professor and Chairman, Department of Physical Medicine and Rehabilitation, The University of Michigan Medical School; Medical Director of the Curriculum in Physical Therapy, The University of Michigan; Project Director,

Orthotics Research Project, The University of Michigan, Ann Arbor, Michigan; Medical Director of the Curriculum in Occupational Therapy, Eastern Michigan University, Ypsilanti, Michigan; Medical Consultant to: Veterans' Administration Hospital, Ann Arbor, Michigan; Rackham School of Special Education, Eastern Michigan University, Ypsilanti, Michigan; and many other institutions.

Aids To Independence

Disabled patients frequently turn to their own physician for information and reassurance about rehabilitation in general and assistive apparatus in particular. The physician needs to know what kinds of devices are available, how they are obtained, and approximate costs. A disabled person's independence in self-care and mobility may be facilitated by tools that augment his inherent powers and devices that suitably modify his environment. The most practical of the innumerable possibilities will be illustrated and discussed in this presentation.



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fifty-three

Scientific Assembly (cont.)



S. P. VINOGRAD, M.D.

Director, Medical Science and Technology, Space Medicine Division, NASA Office of Manned Space Flight, Washington, D. C. In this capacity he has developed and now directs NASA's program of inflight medical experiments for manned space flight missions. Since joining NASA in November, 1961, he has served as Space Medicine Headquarters Chief, Biodynamics branch; Chief, Flight Crew Medical Operations Branch; and Assistant Director, Crew Systems Development before assuming his present position.

In-Flight Medical Investigation into Manned Space Flight

The program of in-flight medical experiments, its objectives, approach, operation, scientific content, and reliance on the American medical community are reviewed. The Gemini in-flight medical experiments are described and findings are discussed. In outlining NASA's general approach to the Apollo Applications Program beyond Apollo, the important role of the American medical community is emphasized.

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Scientific Assembly (cont.)



HENRY A. ZIMMERMAN, M.D. Cleveland, Ohio

Chief Cardiovascular Service, St. Vincent Charity Hospital; Director, Marie I. Coakley Cardiovascular Laboratory, St. Vincents Charity Hospital; Consultant in Cardiovascular Disease; St. Alexis Hospital, St. John's Hospital, Marymount Hospital, St. Ann's Hospital and Geauga Community Hospital. Fellow American College of Physicians, American College of Cardiology, American College of Chest Physicians, American College of Angiology. Author of book: Intravascular Catheterization and other medical publications. First to catheterize the left heart in man.

Technique of Cine Coronary Angiocardiology

The technique of cine coronary angiocardiology and the indications and contra-indications, advantages and limitations of the method will be discussed in detail. A motion picture will be shown which will depict the technique as well as the normal coronary circulation and, also, pathological lesions involving the three main coronary arteries; its usefulness in differential diagnosis and clarification of coronary artery disease will be discussed.

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fifty-five

TECHNICAL EXHIBITORS

Booth 1 — Abbott Laboratories

Abbott Laboratories will display Erythrocin, Abbo-Tray, The Urogate products as well as the latest Abbott Laboratories developments in Intravenous Equipment and Solutions.

Booth 2 — Americana Corporation

See the newly revised 1966 edition Encyclopedia Americana and Min/max Teaching Machine.

Booth 3 — Bristol Laboratories

Bristol Laboratories' exhibit features TEGOPEN (sodium cloxacillin monohydrate). Unlike penicillin V or G, TEGOPEN eradicates streptococci, pneumococci, staphylococci, and resistant staphylococci; and is priced comparable to quality brands of penicillin V and G. TEGOPEN is available in three dosage forms 250 mg. capsules, oral solution, and 125 mg. pediatric capsules.

Booth 4 — CIBA Pharmaceutical Company

CIBA Professional Service Representatives will be pleased to discuss Ser-Ap-Es.

Booth 5 — Marion Laboratories, Inc.

PAVABID®

PAVABID is a brand of papaverine hydrochloride 150 mg. Prepared in unique, continuous release Plateau CAPS® to provide relaxation of arterial spasm for 24 hours on a convenient b.i.d. dosage schedule.

Available since 1962, it is primarily employed in the treatment of cerebral, peripheral and myocardial ischemia resulting from vascular spasm.

fifty-six

Technical Exhibitors (cont.)

Booth 6 — The Upjohn Company

"Professional representatives of The Upjohn Company are eager to contribute to the success of your meeting. We are here to discuss with you products of Upjohn research that are designed to assist you in the practice of your profession. We solicit your inquiries and comments."

Booth 7 — Sandoz Pharmaceuticals

Sandoz Pharmaceuticals cordially invites you to visit our display at booth #7, where we are featuring Mellaril, Sansert, Cafergot P-B, Fiorinal and Fiorinal with codeine.

Any of our representatives in attendance, will gladly answer questions about these and other Sandoz products.

Booth 8 — Hiss Pharmacal Co., Inc.

UNICELLES, a method of sustained release which is independent of pH and gastrointestinal motility will be featured. Toin Unicelles (Diphenylhydantoin) Vaso 0-80 Unicelles (PETN 80mg.), Vasoglyn Unicelles (Nitroglycerin 2.5mg.), Asmadil Unicelles (anti-asthmatic) Melfiat Unicelles (anti-obesity).

Booth 9 — W. B. Saunders Company

Saunders will have on display a complete line of their medical books, including many new books and new editions such as the new edition of Artz and Hardy: Complications in Surgery and Their Management; Bakwin and Bakwin: Behavior Disorders in Children; Sodeman and Sodeman: Pathologic Physiology; Everson and Cole: Cancer, and many others.

fifty-seven

Technical Exhibitors (cont.)

Booth 10 — Geriatric Pharmaceutical Corp.

Geriatric Pharmaceutical Corp. will exhibit the first breakthrough in gastrointestinal enzymes; namely, Gustase and Gustase Plus. In addition, we will exhibit Bilezyme for the medical management of gall bladder diseases and the post-cholecystectomy syndrome. Ger-O-Foam, Gaysal, Menic and Testand-B will be available as samples for the physicians.

Booth 11 — McNeil Laboratories, Inc.

Members of the New York State Academy of General Practice are cordially invited to visit our Booth #11. Products to be featured are: BUTISOL SODIUM® (sodium butabarbital), TYLENOL® (acetaminophen) and PARAFON FORTE®.

Booth 12 — Group Health Insurance, Inc.

GHI is the oldest non-profit, community-wide health insurer in the Northeastern United States. The GHI Family Doctor Plan protects the great majority of GHI's almost one million subscribers. It is comprehensive in scope, covering, with relatively few limitations, such physicians' services as home calls, office visits, annual physicals, immunizations, well-baby care, diagnostic examinations and in-hospital medical care.

Booth 13 — Merck Sharp & Dohme

The Merck Sharp & Dohme exhibit has been designed to supplement the physicians therapeutic armamentarium. Technically trained personnel are present to discuss the scope and variety of services offered.

fifty-eight

Technical Exhibitors (cont.)

Booth 14 — Knoll Pharmaceutical Company

Quadrinal in tablet form is proven and preferred treatment in chronic respiratory disease in which thick tenacious mucus and bronchospasm are dominant symptoms and the addition of Quadrinal Suspension makes available the welcome relief of Quadrinal medication to many additional patients. Verequad, an economical companion product to Quadrinal for those patients in whom the iodides are contraindicated. Introducing our *new* bronchodilator/expectorant Theokin Elixir for the symptomatic treatment of bronchial asthma.

Booth 15 — Ayerst Laboratories

Ayerst Laboratories extends an invitation to visit our exhibit located in Booth No. 15 where Premarin is being featured. We will be pleased to discuss this or other Ayerst products with you.

Booth 16 — Schering Corporation

Schering Corporation invites you to visit their exhibit, Booth Space No. 16 where their representatives will be available to discuss with you any questions you may have on GARAMYCIN®, ETRAFON®, AFRIN®, TINACTIN®, CELESTONE® SOLUSPAN (TM) or any other Schering product.

Booth 17 — Endo Laboratories Inc.

ENDO LABORATORIES will present the latest clinical information relating to our products, COUMADIN® (SODIUM WARFARIN), NUMORPHAN® (OXYMORPHONE) HCL, PERCODAN®, PERCODAN®-DEMI HYCOMINE®-COMPOUND, HYCODAN®, VALPIN® (ANISOTROPINE METHYLBROMIDE), VAPIN®-PB (ANISOTROPINE METHYLBROMIDE WITH PHENOBARBITAL).

fifty-nine

Technical Exhibitors (cont.)

Booth 18 — Milex Products, Inc.

Milex will feature Plastic Disposable Spatula, which enables doctors to scrape the squomocolumnar junction and ecto-cervix for maximum cell pick-up in the diagnosis of uterine cancer. Book Program Series, designed as a supplement to personal consultation and to save a busy doctor countless hours of answering questions.

Early Cancer Detection Instruments.

Booth 19 — Smith Kline & French Laboratories

Representatives will be on hand to answer your specific questions and provide information on their products and services.

Booth 20 — United Medical Service, Inc.

United Medical Service, Inc., with the support of the medical profession and through the cooperation and contribution of individual physicians in private practice, enables over 5,000,000 New Yorkers to have the finest medical care available within the traditions of free choice and voluntary prepayment. Representatives will be on hand to discuss specific aspects of the Greater New York Blue Shield Program.

Booth 21 — Merrill Lynch, Pierce, Fenner & Smith, Inc.

Merrill Lynch, Pierce, Fenner & Smith Inc. will maintain an Investment Information Center for doctors attending the convention. The booth will be manned by account executives from the firm's New York City offices and will offer up-to-date price information, securities research reports, and educational publications. A feature of the booth will be the Merrill Lynch Newswire — the largest private news service which provides a steady stream of financial news of interest to investors.

Technical Exhibitors (cont.)

Booth 22 — Eastern School for Physicians' Aides New York City

Licensed and supervised by the University of the State of New York, Education Department. Training School for Medical Assistants, Medical Secretaries, Medical Laboratory Technicians, Medical Receptionists, Medical Transcribers.

Booth 23 — Prestige Products

New revolutionary magic quartz broiler has exactly the same taste as charcoal broiled food, because it is cooked with the same pure energy as glowing charcoal. Magic quartz does a superb job of sealing in the natural juices of meat, fish or poultry. This new concept in broiling is available as a special professional offer. Prestige Products, 100 Doughty Blvd., Inwood, L. I., N. Y.

Booth 24 — Quaker City Pharmacal Company

A special invitation is extended to you to visit us in Booth No. 24 where members of our staff will be glad to discuss problems with you and to present to you clinical samples and literature of the following specialties:

LIPO-K W/HEPARIN — Therapeutic management of circulatory disturbances.

NOMOTENSIN — Hypertension control.

OSSONATE-PLUS — Anti-arthritis control.

PLA-C-DON — Dysmenorrhea; migraine and tension headache.

QUAKERDEX — Obesity; Anxiety; Apprehension.

VIRO-ZYME — Posterior nerve root therapy.

Technical Exhibitors (cont.)

Booth 25 — Encyclopaedia Britannica, Inc.

Encyclopaedia Britannica welcomes delegates to the New York Academy of General Practice and invites them to examine the great new edition of Britannica.

Official delegates may now purchase this magnificent set at an offer only available at our convention exhibits.

Booth 26 — Lederle Laboratories

"Lederle Laboratories is proud to support the 19th Annual Meeting of the New York State Academy of General Practice. As one of the leaders in medical research and quality controlled production, we present for your consideration products such as DECLOMYCIN®, ACHROMYCIN®V, ARISTOCORT®, LEVOPROME®, and others applicable to your practice. Our representatives in Booth No. 26 are also prepared to provide information on our numerous services to medicine."

Booth 27 — State Narcotic Addiction Control Commission

The Narcotic Control Commission will explain the new state law and provide a picture of the program which the commission will undertake beginning April 1, 1967. This law will provide for the treatment and rehabilitation of narcotic addicts, education for the prevention of addiction, and a large scale research program.

Booth 28 — E. & W. Blanksteen

E. & W. Blanksteen, 161 William Street, New York City, Managers of the Professional Group Department of the National Casualty Company, service that company's Society plan of accident and health insurance which is officially endorsed by the New York State Academy of General Practice and has been in effect since 1950.

sixty-two

Technical Exhibitors (cont.)

Booth 29 — Fennell Associates

Maxcil, Inc.

Balmex Ointment, Powder, Lotion. For use in diaper rash, minor skin irritations and wound healing.

Borchardt Co.

Maltsupex, infant and adult constipation. Liquid, Powder, Tablets. Ferromalt Tablets. For Iron Therapy, non-constipating, Syllamalt. Psyllium with Maltsupex, for constipation due to inadequate bulk.

Sardeau, Inc.

Sardo, the most widely used therapeutic bath oil for dry skin, Sardoettes for the shower. Clinically proved.

Ames Fennell would appreciate a visit.

Booth 30 — J. B. Roerig & Company

Representatives of J. B. Roerig & Company will be glad to supply you with complete information concerning our products which are available to the medical profession. Please feel free to request answers to any questions you may have. We will be looking forward to your visiting our booth.

Booth 31 — Yardney Chemical, Inc.

The Yardney COMO™ Contour Moulded Support is the entirely new concept in the relief of low back pain. A semi-rigid moulded insert is enclosed in an elastic belt and provides stability to the lower back. Lightweight, inconspicuous and comfortable, the clinically evaluated Yardney COMO™ allows full body movement.

sixty-three

Technical Exhibitors (cont.)

Booth 32 — Ross Laboratories

Ross Laboratories presents an *expanded* SIMILAC 20 Hospital Infant Feeding Procedure featuring PEDIALYTE, for oral administration to maintain fluid and electrolyte balance. SIMILAC ISOMIL, soy protein isolate formula to satisfy special feeding needs.

PEDIAFLOR, dietary supplement for dental prophylaxis with fluoride.

New RDA STRENGTH VI-DAYLIN, pediatric vitamins. PEDIAMYCIN, cherry-flavored oral antibiotic.

Booth 33 — Mead Johnson Laboratories

The Mead Johnson Laboratories' exhibit has been arranged to give you the optimum in quick service and product information. To make your visit productive, specially trained representatives will be on duty to tell you about their products.

Booth 34 — William H. Rorer, Inc.

William H. Rorer, Inc. takes great pride in exhibiting its fine pharmaceutical products at this convention. Our representative will gladly discuss the merits of these products with you.

Booth 35 — Roche Laboratories

"Continuing Roche research has produced outstanding contributions to medicine since 1909. The personnel at the exhibit welcome your comments, questions or suggestions about our products and services."

Booth 36 — ORTHO Pharmaceutical Corporation

Welcome to Booth No. 36 where ORTHO* is proud to present the most complete line of medically accepted products for the control of conception. Also on display will be our well-known products for the treatment of various forms of vaginitis. Your questions will be welcomed.

Technical Exhibitors (cont.)

Booth 37 — Esta Medical Laboratories, Inc.

The ESTANEEDLE DEVICE provides a RAPID, ECONOMICAL, PAINLESS method of screening a single patient or 450 per hour, for Tuberculin Testing, Vaccinations and Allergy Testing.

The Variables, such as depth of puncture, amounts of materials injected and the subjective readings have almost been entirely eliminated, providing the physician with a much greater validity in the above mentioned procedures.

Booth 38 — Central Bio-Analytical Laboratories, Inc.

Central Bio-Analytical Laboratories, serving the greater metropolitan New York area for years, now offers its UNI-SPEC service to physicians all over the United States. A modern, automated laboratory, staffed by professionals, stands ready to serve your needs. By virtue of its advanced design, it can offer this service to you at less than competitive cost.

Booth 39 — Eli Lilly and Company

You are cordially invited to visit the Lilly exhibit. Our sales representatives in attendance welcome your questions about Lilly products. You may be particularly interested in discussing KEFLIN® Sodium Cephalothin.

Booth 40 — Julius Schmid, Inc.

An interesting and informative exhibit featuring the new SAF-T-COIL Intra-Uterine Contraceptive Device; IMMODIN Vaginal Cream-Jel for use without a diaphragm; RAMSES Flexible Cushioned and BENDEX Diaphragm; RAMSES Vaginal Jelly; VAGISEC Liquid, Jelly and Suppositories (including the Pencil-Slim) for vaginal trichomoniasis therapy; CANDEPTIN (candididin) Vaginal Ointment and Tablets for vaginal moniliasis; XXXX (FOUREX) Skin Condoms, RAMSES and SHEIK Rubber Condoms for the prevention of trichomonal and monilial vaginal re-infection, and the new VAGINOSTIC Kit for differential diagnosis of vaginal infections.

Technical Exhibitors (cont.)

Booth 42 — Medcolator New York

Medco presents . . . Instant Thyroid Test. For testing Euthyroid, Hyperthyroid and Hypothyroid. A routine office test—Quick—Accurate—Ready for instant use—Ideal for Screening. The Medco ACHILLEOMETER is a solid state (transistorized) Computer for the determination of Achilles Reflex Test (A.R.T.) The simplicity of operation permits immediate and accurate diagnosis—answers the ever present problem of patient response to therapy.

The Medco ACHILLEOMETER consists of direct reading A.R.T. Computer, Remote Sensor with connecting cord and Genuine Leather Carrying Case.

Booth 43 — America Academy of General Practice Membership

The Membership and Credentials Committee of the New York State Academy of General Practice will be in attendance to discuss the policies of the Academy with any prospective members.

Booth 44 — H. F. Wanvig Malpractice Insurance Program of the Medical Society of the State of New York

A representative of the office of the Indemnity Representative and of H. F. Wanvig, Inc., the brokerage firm through which this insurance is written, will be on hand to answer questions about the program. Material relating to the program, classification of insureds, and claim prevention will be available for distribution.

Booth 45 — Brookes Research Associates

"Interviews in progress on various subjects of interest to physicians."

sixty-six

Technical Exhibitors (cont.)

Booth 46 — Flint Laboratories

Featured Products are SYNTHROID® and HU-TET® . . . SYNTHROID (sodium levo-throxine) Tablets and Injection, the active principle of the thyroid gland, prepared synthetically in pure crystalline form for predictable and stable therapeutic results.

HU-TET® (Tetanus Immune Globulin-Human), tetanus antitoxin of human origin for virtual freedom from sensitivity reactions. Now available from Flint Laboratories in 250 unit vials for economical and long-lasting protection.

Booth 48 — The Grolier Society, Inc.

Publishers of the New Book of Knowledge. The New Book of Knowledge consists of 20 complete fact-packed volumes.

Booth 50 — Hayden Stone, Inc.

Est. 1822. Member of the New York Stock Exchange; Investment Trust of Boston.

Booth 51 — A. H. Robins Company

You are cordially invited to visit the Robins display and meet our representatives who will welcome the opportunity to discuss products of interest with you.

Booth No. 52 — Winthrop Laboratories

You are cordially invited to visit Winthrop's booth #52, where representatives will be pleased to discuss the products we will feature:

NegGram (brand of nalidixic acid).

Isuprel (brand of isoproterenol) Mistometer.

WinGel — antacid liquid and tablets (hexitol-stabilized aluminum and magnesium hydroxides). Neutralizes 300 times its active weight in gastric acid for fast and prolonged relief.

sixty-seven

Technical Exhibitors (cont.)

Booth 53 — E. R. Squibb & Sons

"E. R. Squibb & Sons has long been a leader in development of new therapeutic agents for prevention and treatment of disease. The results of our diligent research are available to the Medical Profession in new products or improvements in products already marketed.

At booth #53, we will be pleased to present up-to-date information on these advances for your consideration."

Booth 54 — Smith, Miller & Patch, Inc.

SMITH, MILLER & PATCH, INC. will appreciate the opportunity to discuss with you the latest clinical reports concerning LIPOFLAVONOID in vertigo associated with Meniere's disease and in dizziness in the older age group; VITRON-C, KONDREMUL and LIPOTRIAD; and ophthalmic products for conditions frequently encountered in General Practice, including VASOCON-A.

Booth 55 — Hoechst Pharmaceuticals, Inc. Formerly Lloyd Brothers, Inc.

Lasix (furosemide) is a new diuretic characterized by: a high degree of efficacy; rapid onset of action; comparatively short duration of action; ratio of minimum to maximum effective dose higher than 1:10; acts not only in the proximal and distal tubule but also at the ascending limb of Henle's loop; low toxicity when properly used.

Booth 56 — U. S. Vitamin & Pharmaceutical Corp.

The U. S. Vitamin & Pharmaceutical Corporation cordially invites you to visit their exhibit where DBI and DBI-TD with be on display, as well as other leading pharmaceutical specialties and nutritional products.

Professional service representatives will be in attendance to welcome you and to be of help in answering any inquiries pertaining to the products on display, as well as any of their other products.

sixty-eight

Technical Exhibitors (cont.)

Booth 57 — Ayerst Laboratories, distributors for Beecham Research Laboratories, Inc.

You are cordially invited to visit our exhibit featuring PENBRITIN (ampicillin), the new semi-synthetic broad-spectrum penicillin for wider use in major areas of infection.

Booth 58 — Pfizer Laboratories

The Pfizer Laboratories' display has been specifically arranged for your convenience and to give you the maximum in quick service and product information.

To make your visit worthwhile, technically trained Medical Service Representatives will be on hand to discuss with you the latest development in Pfizer research.

Booth 59 — Wyeth Laboratories

Wyeth will feature . . .

SERAX® (oxazepam) Wyeth, Capsules

OMNIPEN® (ampicillin) Wyeth

Full information is available at booth #59.

Booth 60 — G. D. Searle & Co.

You are cordially invited to visit the Searle booth where our representatives will be happy to answer any questions regarding Searle Products of Research.

Featured will be Ovulen for ovulation control and menstrual disturbances, and Flagyl, a potent, new trichomonacidal agent for trichomonal vaginitis, cervicitis, urethritis and prostatitis.

Booth 61 — Geigy Pharmaceuticals

Geigy Pharmaceuticals cordially invites Members and Guests of the Association to visit its exhibit. The exhibit features important new therapeutic developments in the management of cardiovascular disease as well as current concepts in the control of inflammation; hypertension and edema; depression; obesity, and other disorders, which may be discussed with representatives in attendance.

sixty-nine

Technical Exhibitors (cont.)

Booth 62 — Kenwood Laboratories, Inc.

Featured in our display is tablets Papavatal*20, a combination of a vasodilator, pentaerythritol tetranitrate and smooth muscle relaxant, Ethylpapaverine HCL (ethaverine hydrochloride) for the symptomatic relief of angina pectoris.

Booth 64 — Diapulse Corporation of America

Diapulse is a clinically effective, economically sound and completely safe modality, especially valuable in the treatment of wounds, infection and inflammation.

An ideal unit for the general practitioners office, Diapulse furnishes pulsed athermic electromagnetic energy that can safely be used over any area of the body and on patients of any age.

Booth 65 — Parke, Davis & Company

Medical service members of our staff are in attendance at our booth to discuss important Parke-Davis specialties which will be on display.

Booth 66 & 67 — Ward Oliver, M. D.

State of New York Health Dept.

Bureau of Chronic Diseases and Geriatrics

We will present a small exhibit on multiple screening and, in addition, actually perform vision and glaucoma tests on persons who attend the conference.

Booth 70 — Niagara Cyclo Massage

Niagara cyclo massage features a patented, penetrating three-way action which is designed to ease simple nervous tension, increase circulation where applied, relieve minor pains associated with common muscle spasm and generally provide a feeling of well being. This unusual action is built into the furniture and portable equipment for use at home and in the office. It is also available in professional equipment for use in hospitals, etc. Available through Niagara Cyclo Massage, 133 West 33rd Street, New York City.

AU REVOIR

It's au revoir
But not adieu

From every one
Of us to you

And with the help
Of our good Lord

Next year we'll meet
At the Concord

MARTIN MARKOWITZ, M.D., *Editor*
for the Convention Committee

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Wm. R. Liberman, Pitty (Geo. Bro.)
867-0270

"Hospital Practice" Jan. '67
or Feb

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NEXT N.Y.S.A.G.P. CONVENTION—MAY 5 - 9, 1968  
CONCORD HOTEL, KIAMESHA, N. Y.



JANUARY - FEBRUARY  
1967

**DELEGATES NOTICE**

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**SPECIALTY - FUTURE**

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**RE: AMA**

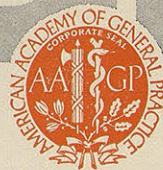
**NYSAGP  
CONVENTION**

APRIL 2-6  
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**VOL. 19**

**No. 1**





# Where did you hear this?

**In Japan, stomach cancer is quite common.  
In the U.S., it is relatively uncommon.**

**More than 90% of those who develop leukemia today have a good chance of surviving the first attack.**

**Current theories of mental depression hold that there is a chemical deficiency (norepinephrine) in the brain.**

**Ultrasound is proving to be a successful tool in curing the vertigo effects of Meniere's disease in 80% of surgical cases.**

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In addition, news articles about each program are released to newspapers, general magazines, and medical journals. Program transcripts are available to them — and to you on request.

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[This foreseeing article appeared eight years ago in this publication. Dr. Howard was then Chairman of the Board and was anticipating a highlight issue at the 10th A.A.G.P. Convention in Dallas in March 1958.]

## FUTURE OF FAMILY PHYSICIAN

by Arthur Howard, M.D.



There is a need in America today for a new type of doctor—a family physician. The concept of this family physician is the most important subject facing the medical profession. Its ramifications involve every general practitioner and every specialist and every medical organization from the American Medical Association to the faculties of the medical schools. The AAGP, at its annual meeting this month, is in a position to make decisions which can greatly influence this concept and help shape its development for the future practice of medicine in this country.

The science and art of medicine is dedicated to the achievement and preservation of a complete state of health of the people. This

complete state of health, physical and emotional, is possible only in the traditional setting of a personal patient-physician relationship where both the patient and the physician have complete freedom of choice and complete freedom of conscience. No third party, be it government, labor unions, hospitals or insurance companies, can be permitted to come between the patient and his physician.

The family physician of the future can be made today. His formal training would start in college, where he would be chosen for his aptitude and social consciousness and where he would be exposed to the cultural history of science and art. In medical school his teachers would be general practitioners, as well as specialists, and he would be taught the basic principles of medicine and surgery with special emphasis on subjects of psychiatry, obstetrics, pediatrics, geriatrics, preventive medicine and the role of the family in modern society. Thus he would learn to prevent, diagnose and treat the common organic and functional illnesses which make up the great bulk of medical disability today. A two-year rotating internship, under the guidance of general practitioners and specialists, would yield sufficient practical experience and maturity of judgment to complete this formal period of training.

This new family physician would then embark upon a career for which he had been specially chosen and trained. He would be capable of assuming complete medical responsibility for those families who placed themselves in his professional care. He would provide competent, comprehensive and continuing care to every member of the family and serve as counselor for the daily problems which arise out of the stresses of our modern complex society. He would adequately handle all of the problems now handled by general practitioners and most of the problems

now handled by specialists. He would be consciously aware of his own personal and professional limitations and would unhesitatingly call upon the more highly developed skills and experiences of the specialists in his community. He would also call upon the local public health personnel for help in controlling infections, malignant and degenerative diseases and the local volunteer agencies for help in auxiliary services, educational projects and rehabilitation of his disabled patients.

The availability of his physician is of paramount importance to the patient. Therefore the family physician would establish a relationship, formal or informal, with another family physician who would be or become acquainted with his practice and assume responsibility for it during those pre-arranged periods when the physician would be away for a vacation or a refresher course. Regularly scheduled postgraduate study would be a requirement for maintenance of the status of family physician. His professional standing would be equal to that of his specialist colleagues, thus neither his prestige nor his financial security would suffer by his title. His hospital privileges would be based on his demonstrated abilities, with periodic evaluations by his peers for up-grading or down-grading, and therefore no certification by a specialty board would be necessary to establish his place in the medical hierarchy.

This concept of the family physician, with whatever modifications seem desirable, can become a reality once the medical profession is convinced of its necessity. In the meantime, the American Academy of General Practice is charged with the responsibility of continuing to improve the quality of medical care rendered the great majority of the American people.

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## PRESIDENTIALLY SPEAKING

MAX CHEPLOVE, M.D., *President*

**"To err is human; to forgive is Divine"**



Pursuant to regulation by the New York City Health Department all physicians who are not on a staff of some hospital or are not a member of the American Academy of General Practice, are to take at least 40 hours postgraduate work by April 1, 1967 in order to receive compensation for treating Medicare patients. In all probability this ukase may be extended to upper New York.

Since promulgation of this edict there has been a steady influx of applications to join the Academy.

Many of the applicants were colleagues who in the past eschewed to have any professional contact with AAGP, for various esoteric reasons of their own. Some actually were our detractors and vilified the organization with their utterances and writings.

And I suppose it is a little wistful to think that it would have been evangelistic fulfillment if the new applicants petitioned to join our ranks from a change in philosophy and belief rather than their proselyting prompted by a Civil Authority Act.

There are some who feel outraged

that these men by their own free will wished to remain beyond the pale of AAGP now wish to join for ulterior motives.

I can fully appreciate the pent up hostility engendered by these men; however, we must not embrace a constricted and narrow view. We must follow our constitution and if these applicants are men in active practice and of good moral and ethical character, they should be screened not unlike any other member in the past, without discrimination, for the following reasons:

- a. There must be many excellent men amongst the non-members who because of ennui and apathy never participated, but not for any pernicious reasons. This group is salvable.
- b. The time is propitious for growth of our organization. We have only attracted 35 per cent of potential GPs in this state.
- c. We must keep in mind the GPs who do not belong to the organization and who do not keep up qualitatively; actually, the image that this group reflects is cast upon us. If that image is wanting, so will ours be. In the fold we can embark on an era of co-operative effort to effect rapprochement with fellow practitioners who wish to join us.

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## OFFICIAL NOTICE

### Welcome To The Congress Of Delegates At Large



**SAMUEL  
WAGREICH, M.D.** at 10:00 A.M. at the New York Hilton Hotel, for the following purposes:

To receive and act upon the reports of Officers and Commissions/Committees

To transact any and all business that may be placed before the Congress of Delegates.

Only duly elected, accredited Delegates sitting in the Congress of Delegates and current Officers and Directors, shall have the right to vote.

#### ELECTED DELEGATES

Each constituent Chapter which has received a charter pursuant to Chapter III of the By-Laws shall be entitled to elect two (2) Delegates by virtue of its charter and first one-hundred (100) members, and One (1) additional Delegate to represent each one-hundred (100) members or fraction thereof above the number of one-hundred (100) reported by the State Secretary to be in good standing as of January 1st, 1967. The constituent chapter shall likewise elect Alternate Delegates in the same number as Delegates. It is suggested that the Secretaries update their membership lists so that they may have proper and fair representation; at the request of the State Secretary, they are to promptly submit the names of the Delegates and Alternates; this will indicate their willingness to serve at the Congress as Delegates and Alternates for the two (2) day session; and at the beginning of the meeting, they will present their credentials

which have been duly authorized and signed by their respective County Chapter Secretary.

#### REFERENCE COMMITTEES

The business of the Congress must go through the hands of the Reference Committees, of which there are five in number—

- Constitution and By-Laws
- Legislation and Public Policy
- Reports of Officers
- Reports of Commissions/Committees
- Miscellaneous

Each Reference Committee will consist of a Chairman, Vice-Chairman and four (4) members; the purpose of this is to involve more and more Delegates in the fundamentals of the business of the Congress and prepare them for future leadership. All reports, resolutions, etc., requiring action by the Congress will be referred to the particular Reference Committee. Notices of meeting rooms and time of meeting will be posted and all persons desiring to appear before the respective Committee should so inform the Chairman. The meetings will commence at 2:00 P.M. on April 2nd, 1967; a Secretary will be present to take minutes and help prepare the final reports. The members of the Reference Committee should make every effort to listen to all who desire to appear—but should check on proof and evidence and not hearsay—and should promptly go into executive session after all the testimony has been heard, discuss all the matters submitted to them and complete the final draft which all the members will sign in preparation for presentation to the Congress by the Chairman of the respective Reference Committee for final action.

#### AVAILABILITY

Officers, Directors. Chairmen and members of Commissions and Com-



mittees should make themselves available to the Reference Committees to supply information pertinent for discussion. The conscientious performance of the duties of the Reference Committees will help in great measure to expedite the work of the Congress effectively and efficiently and at the same time provide the opportunity for all to be heard.

The members of the Reference Committees should be available as Delegates to the Congress to answer questions and make comments concerning any and all matters brought before their Reference Committees.

#### Introduction of Resolutions

Except by an affirmative vote of two-thirds (2/3) of the members of the Congress of Delegates present and voting, no resolutions may be submitted to the Congress of Delegates unless said resolution has been submitted in writing, to the Secretary of the Academy or Speaker of the Congress of Delegates or their local chapters for approval to be introduced by their Delegates in proper order, at least thirty (30) days prior to the meeting at which they are to be acted upon, providing, however, that any resolution proposing an amendment to the Constitution or the By-Laws must be submitted at least sixty (60) days prior to the meeting.

The chapters, Delegates of the Congress and members of the Academy are sincerely reminded of the above and urgently requested to consider introducing their resolutions before the deadline so that they may appear in the Blue Book and receive thoughtful consideration and proper action. The resolutions should be properly and carefully prepared, with title, name of chapter, accurately researched, in clear and simple language, with the 'Whereas' and 'Resolves' clearly and directly related, typewritten in double space and mailed to our Secretary no later than February 25th, 1967. Similarly, reports of Officers, Committees and

Commissions should be promptly submitted to the office of the Secretary so that they may be printed in the Blue Book—and thus made available to all the Delegates.

Early and careful attention to details will insure a thoughtful, successful and fruitful Congress and reflect to the credit of the New York State Academy of General Practice and its membership.

In conclusion, welcome to the Congress of Delegates; your willingness to participate in the activities of the Congress and Reference Committees will guarantee its success.

You will be receiving instructions through the mail regarding Reference Committees, reports of Officers, Committees and Commissions, resolutions and calendar of events. Review this material carefully. We pledge ourselves to encourage discussion and help in every way to expedite the business of the Congress with justice and fairness.

"Roberts Rules of Order," except when the same are in conflict with the Constitution and By-Laws of this Academy, shall control all parliamentary proceedings of the Congress of Delegates.

SAMUEL WAGREICH, M.D.  
Speaker

ROBERT LIPSETT, M.D.  
Vice-Speaker

#### QUEENS COUNTY

On October 17, 1966 the following members were elected to serve as officers in 1967:

President, Helen Kastner, M.D.; President-Elect, Sigismond O. Steil, M.D.; Secretary, Edith Gutman, M.D.; Treasurer, Burt Glass, M.D.

Postgraduate courses are in progress and planned at the Deepdale, Terrace Heights and Physicians Hospitals on Tuesdays and Thursdays from now until June of 1967, on Internal Medicine and various subjects.

ED



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## EDITOR'S NOTES:



CLEMENT  
BOCCALINI, M.D.  
Editor

- After two years of study the ad hoc committee on Education for Family Practice has declared itself in favor of the creation of a new specialty—**Family Medicine.**

This committee of physicians, chaired by William Willard, M.D., suggests three or four years of specialty training beyond medical school. The members were appointed by A.M.A. Council on Medical Education.<sup>1</sup>

- Not to be outdone, the A.M.A. Board of Trustees created a citizens' committee which was named for its chairman, John S. Millis, Ph.D., President of Western Reserve University. Criticizing the fragmentation of medical care because of specialization, it proposes that continuing comprehensive care be rendered by **Primary Physicians.**<sup>2</sup>

- Although the above reports are generating further intensive activity in the AAGP, some of the concepts of the Millis and Willard reports are at variance with those of the AAGP. These reports have not referred to the AAGP's position, in their proposals.

- The *November Medical News* quotes a spokesman (and past president) of the American Academy of Pediatrics as envisioning a further trained pediatrician and/or internist as the "primary physician" who would treat 90 per cent of non-surgical disorders. Pediatricians are now expanding their practices to teen-agers, offering separate entrances and waiting rooms. After 19 years of age this youth would be turned over to the further trained internist (or not—depending on which of the two decided to act as family counselor).<sup>3</sup>

- Recently, spokesmen for the American College of Physicians expressed the opinion that the internist should be the personal physician, or the primary physician; age notwithstanding.

- At the annual meeting of the Association of American Medical Colleges, the dean of Harvard Medical School was quoted as stating that medical schools should become more active in the problem of total care—rather than encourage fragmentation. Now this association will be reviewing the reports of the many recent committees on family practice. And then they will add to the growing list of reports.<sup>4</sup>

- The AAGP has begun (again) a move to change its name to the **American Academy of Family Physicians.** It has accepted as the basis for defining the role of the family practice specialist, its report "Core Content of Family Practice"—a detailed documentary.

<sup>1</sup> NOW the AMA knows, too.

<sup>2</sup> Does that imply other specialists are "secondary physicians"?

<sup>3</sup> We prefer the "family entrance" to the "side entrance."

<sup>4</sup> "Everybody wants to get into the act."

## RX FOR THE GP

(From the *World Journal Tribune* of October 26, 1966)

"The American Medical Association's council on medical education has hit on a remedy, which is to bring back the family doctor under the nomenclature of specialist in general practice. . . .

The plan devised by the AMA group proposes longer and more intensive training for the new breed of GP. . . .

All this should indeed upgrade the GP's image, prestige and earnings to a degree that will induce many more of today's medical students to become tomorrow's family doctors.

The American family will be the beneficiary. . . .

This is not to decry today's GP. Bless the dedication that has kept him

(Continued on Page 30)



## LETTERS TO THE EDITOR

To the Editor:

We will soon be called upon to vote on Mandatory membership in the AMA. Many will decide the issue on the basis of the word 'mandatory' or the \$25.00 increase in AMA dues to a total of \$70.00. However, there are more compelling factors to be considered in making the decision.



MILTON M.  
LOWY, M.D.

Through the years the AMA has taken a negative approach to urgent social problems. All too rarely have positive programs been formulated to meet the national issues which concern the medical profession. Within a generation we have witnessed changes in our economy, in our

attitudes towards individual rights, in our political system and in our culture. We do not live in a static society and to maintain the status quo in the practice of medicine is neither realistic nor desirable. Content to wage a rear guard action, the leadership of the medical profession has accomplished little more than eliminating itself as a factor in the drafting action and administration of new programs. A more creative role would have aided both the profession and the country.

Since the passage of mandatory membership by the State House of Delegates five years ago, our State Medical Society, by its weight of numbers, *may* have increased its influence in the choice of AMA officers and committee members. However, this power has been purely illusory in terms of results; for after 5 years of mandatory membership this increased (?) power has not been translated into positive policies or action.

If we now vote against mandatory membership—as we must—probably we

will not change AMA policies any more than did the initiation of mandatory membership 5 years ago. But we will be lodging an important protest; we will be eliminating the need to be apologetic about AMA policies; we will stop supporting financially and numerically an institution whose prestige is waning, not only among the laity but in the legislatures as well. We will put ourselves on record as men and women who object to policies which discredit the profession; and to an organization which has traded a potentially meaningful voice for mere sound and fury.

MILTON M. LOWY, M.D.

\* \* \*

### EDITOR'S OPINION

Dr. Lowy's arguments will disturb many members and, on the other hand, please many. Let us remember that the Resolution anticipated in the February meeting of the Medical Society of the State of New York, will direct itself to the very two items which the above author too readily minimizes. It will be a protest, not primarily to the increase in fees,—but more so to the A.M.A.'s refusal to satisfy the questions raised by your MSSNY. And even Roget's Thesaurus offers synonyms to "mandatory" which are equally disturbing—such as "commanding" and "obligatory".

But it may be unrealistic to ask the membership to "stop supporting an organization financially and numerically", when in fact they should be doing all in their power to reassure meaningful representation in the A.M.A. If the voice of that organization is to reflect the "positive policies" that have been, and should continue to be, proposed by the author and all who like him desire changes—then it should not be lessened.

How can you have a strong voice in the A.M.A. (the largest medical organization representing physicians in the U.S.A., which the public and the

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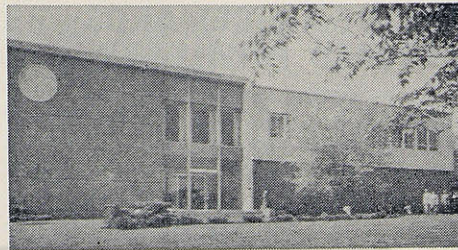
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## AMA HOUSE BACKS FAMILY MEDICINE



The House of Delegates of the American Medical Association just endorsed the recommendations of its *ad hoc* committee on Education for Family Practice at the meeting in Las Vegas, Nev., calling the report "a document of major importance on a subject of vital significance to the health care of the American public."

### Academy Leaders

The House cited the recommendations of the committee, whose membership includes four Academy leaders, for "major efforts to encourage the development of new programs for the education of large numbers of family physicians for the future", "models of family practice" by medical schools and teaching hospitals, "recognition and status equivalent to other medical specialties" and "an appropriate system of specialty certification" for family practice. AAGP members on the committee are Drs. Johnson and Michaelson representing the Academy, Dr. Land the Council on Medical Education and Dr. Lotterhos the AMA Section on General Practice.

President Carroll L. Witten gave the Academy's affirmation to the service concept of the Millis report in a statement to delegates at an open hearing on the report. He cited the report's recognition that there is a body of knowledge on which to base training programs for comprehensive care and stated that the Academy has described this knowledge in a document entitled "The Core Content of Family Medicine." (Dr. George E. Burket, Jr., Academy president-elect, described the "Core Content" to delegates the previ-

ous day at the meeting of the reference committee considering medical education.)

### Other Actions

In other action, the House defeated the recommendation of the Council on Medical Service to provide definitions for "usual", "customary" and "reasonable" charges for professional services, noting that extensive testimony indicated "little likelihood that a set of definitions can be developed at the national level which will prove uniformly satisfactory for use at the state and local levels." However, it upheld "usual and customary" as the "rule-of-thumb" for determining the rate of payment for a physician's services under Medicare.

The House adopted two resolutions, one of them submitted by Dr. Witten, opposing the "dual fee" method. As stated in the resolution, "Such a method of determining payment clearly contravenes the stated policy of the American Medical Association that all third party payment should be based on the physician's usual or customary fees."

Several resolutions concerning the option of direct billing to recipients of aid under Title XIX of the Medicare act, including one presented by Dr. Witten as Delegate from the Section on General Practice, were considered by an AMA reference committee. A substitute resolution, stating that "the American Medical Association strongly supports amendment payments without assignment for medical care of the patient to the provider of services," was adopted by the House.

(Continued on Page 22)



## MICHIGAN DEMANDS ASSURED PRIVILEGES

In reviewing news briefs we noted reference to action taken by the Michigan Academy of General Practice. Your editor communicated with that chapter and received the following details from its Executive Director. A resolution on open staff privileges in that state was submitted to and approved by the Michigan Academy Congress of Delegates. It includes the following in its resolve:

"(1) that the Congress of Delegates of the American Academy of General Practice affirm the desirability, in the public and professional interest, of every licensed medical physician being assured admitting and staff privileges in at least one accredited full-facility hospital, as well as . . . etc.

(2) that every licensed medical physician in good standing . . . be vested with a right to attend his private patients in cases of serious illness in such hospitals as are in reasonable geographic proximity to the locus in which the physician practices."

The Resolution adopted also called for "such privileges to be commensurate with the qualifications and experience of the physician and subject to the requirement of stipulated activity in the educational, clinical and operational functions of the hospital." [as reported by the Bulletin of the M.A.G., November 1966]

The Assistant Secretary for Health and Scientific Affairs of the U.S. Department of H.E.W. is quoted as stating "I believe that all of us should have hospital staff privileges, and this should include the responsibilities that go with such privileges." Dr. Philip Lee concludes that "To prohibit a significant number of physicians from participating in this mainstream of medicine is, in my view, a serious mistake." [The Physician's Legal Brief, November 1966.]

Dr. I. Silver, who presented the resolution to the Reference Committee of

the M.A.G. was preparing a similar resolution for presentation to the A.M.A., as we went to press.

C. BOCCALINI, M.D.

## NEW AAGP PRESIDENT

CARROLL L. WITTEN, M.D.



Hardly biding his time, Carroll Lewis Witten, M.D., has kept himself busy these 18 months as President-Elect of the A.A.G.P.

The youngest President-Elect of the A.A.G.P. was a member of President (L.B.) Johnson's Council, which shaped policy on Medicare and for the other President (Amos) Johnson he headed the (CORE) AAGP Committee. This committee's report is serving as the key in the role of the future family physician.

This young Kentuckian had his studies interrupted by World War II. He flew 27 missions in the Army Air Force, was twice wounded, shot down over Germany, was held prisoner—escaped and was recaptured—several times. He entered the Army as a private, left as a major, and received 17 decorations.

He was President of the Jefferson County Chapter AGP and delegate to the state for ten years. He recently completed his term as President of the Kentucky AGP. Since 1959 (when he was that state's "Family Doctor of the Year") he has been on the AAGP Board of Directors. He founded and was first editor of the Journal of the Kentucky AGP. He has been chairman of the Southern Medical Association.

At present, Dr. Witten is on the faculty of the U. S. Public Health Service School in Phoenix, and an instructor in Medicine at the U. of Louisville. His talent for leadership bids well for the AAGP whose 19th President just became 43 years young.

C. B.

## RESUM

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**RESUME OF MINUTES OF BOARD OF DIRECTORS MEETING****November 6, 1966****EXECUTIVE APPOINTED**

The report of the Screening Committee for an Executive Secretary was read and unanimously accepted. Mr. Lawrence F. Kennedy began his duties as Executive Secretary of the New York State Academy of General Practice on November 1st. The chairman of the Board asked him to report on his activities since he began his duties. Mr. Kennedy said that he had been reading and reviewing the files and other pertinent material to acquaint himself with the organization.



H. LAUGHLIN,  
M.D.  
Chairman of the  
Board

**SECRETARY'S REPORT**

The secretary reported that, since October, we have received approximately 150 applications for membership. He further stated that we have 42 members who have not submitted Medical Study Reports and who were eligible for certification for continued membership as of December 31, 1965. The members and their county chapter secretaries have been notified. Unless reports are received, these members will have to be dropped by the end of this month.



ARTHUR  
HOWARD, M. D.  
Secretary-Treasurer  
NYSAGP

Dr. Howard referred to Resolution 66-3 passed by the Congress of Delegates. The Board agreed that because the article is outdated, no action is required on this resolution.

**ANNUAL CONVENTION**

Dr. Liberman reported for the 1967 convention and said that all plans are going along smoothly. A new highlight

to our convention will be the Ladies Program with one day devoted to the world of ladies' fashions, another devoted to the world of ladies' beauty and third day devoted to the world of art and culture.

**PRESIDENT'S REPORT**

Dr. Cheplove, in his president's report, said that he would like to have all committees represented at our Congress of Delegates, and that perhaps we could have a representative attend one of our Board meetings to see what we are doing. The president also reported that there is a proposed Council of Physicians whose purpose is for liaison between the physicians and legislators and that he would like to appoint one or two members to represent our Academy on this Council. Dr. Cheplove also said that there is an urgent need to train physicians who will be board specialists in comprehensive medicine.

**MEMBERSHIP**

Dr. Nunn reported on a meeting of the Commission on Membership and Credentials which was held September 25, 1966. The commission recommended

Close coordinative procedures with the Commission on Education,

Continuing educational programs at the county chapter level by publicizing in the county bulletins, newsletters and in the New York GP chapter news with a listing of the credit hours for educational requirements,

That the new education forms to be printed with the list of courses and meetings which will serve to supply

(Continued on Page 18)



JAMES NUNN,  
M.D.  
Chairman,  
Membership



# POST CONVENTION GRAND TOUR OF ITALY APRIL, 1967

**adapted to the package tour requirements set by  
SEYMOUR FISKE, M.D., N.Y.A.G.P.**

**In cooperation with: CIT TRAVEL SERVICE, INC.**

**BY REGULARLY SCHEDULED TWA JET AIRCRAFT FROM NEW  
YORK AND RETURN — DEPARTING: THURSDAY, APRIL 6, 1967**

This fully conducted "Grand Tour of Italy" has been prepared especially for the Members of the New York Academy of General Practice, their families and friends and includes Naples, Pompeii, Amalfi, Sorrento, Capri, Rome, Perugia, Florence, Pisa, Bologna, Venice, Padua and Vicenza, with returning flight from Milano on April 20.

The Tour features: Round trip transatlantic Transportation by TWA jet; first class hotels with private bath, every night; continental breakfast and either lunch or dinner every day; the services of an experienced English-speaking Tour Director; ground transportation by private CIAT de-luxe motorcoach; sightseeing, with local guides; free time for shopping and browsing on your own.

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*The New York State Academy of General Practice*

*Cordially invites you to attend the*

*Annual President's Banquet*

*to honor*

*Max Cheplove, M. D.*

*on*

*Wednesday, April 5, 1967*

*Trianon Ballroom N. Y. Hilton Hotel*

*Cocktails at 7:00 p. m.*

*Dinner — Dancing*

*Subscription \$17.50 per person*

*Plan your table*

**BANQUET RESERVATIONS—WEDNESDAY, APRIL 5, 1967**

**TRIANON BALLROOM, NEW YORK HILTON HOTEL  
ROCKEFELLER CENTER, NEW YORK CITY**

**Only \$35 Per Couple — Includes Cocktails, Dinner, Dancing  
Starting at 7:00 P.M.**

**Send check to: M. Theo. Tanenhaus, M.D., Chairman  
5614 - 15th Avenue, Brooklyn 19, New York**

**I have enclosed \$..... for reservation(s) for .....  
(\$17.50 per person)**

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Print Name and Address



The New York State Academy of General Practice  
*announces the*

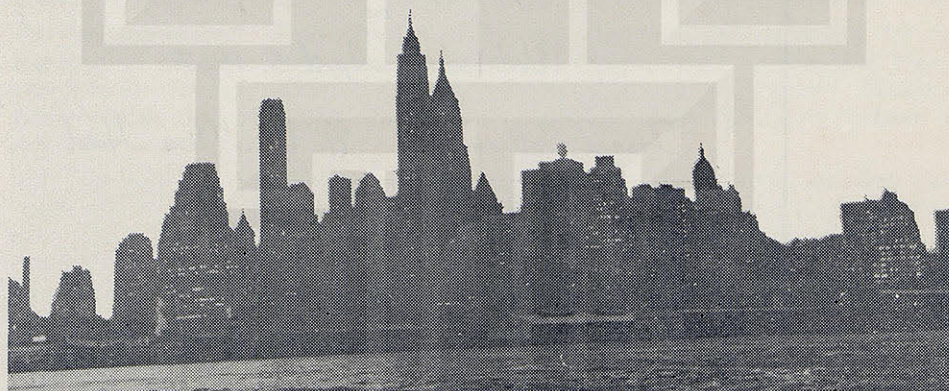
## Nineteenth Annual Convention

HOUSE OF DELEGATES

April 2, 3

## SCIENTIFIC ASSEMBLY

April 4, 5, 6



### THE NEW YORK HILTON HOTEL

Avenue of the Americas, 53 - 54th Street, New York City

Reservations: Single — Room — Double

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## 1967 CONVENTION NYSAGP

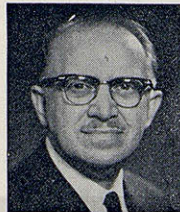
All members and their wives are urged to reserve April 4, 5 and 6th for the Convention at the New York Hilton Hotel.

The 1967 Convention will feature a SCIENTIFIC ASSEMBLY with national authorities on Space Medicine, Nuclear Medicine, Psychodynamics and Psychopharmacology, Rehabilitation Medicine and Cardiology 1967 style.

Technical Exhibits geared to and for the General Practitioner — Medicare and Medicaid Data and fantastic programs for the ladies every day.

I'm looking forward to seeing you and your wife at the 1967 Convention.

GEORGE LIBERMAN, M.D.,  
Chairman



GEORGE  
LIBERMAN, M.D.

### Program Committee Scores In "Space"

After a great deal of effort we have been successful in landing Dr. S. P. Vinograd as our first speaker for Tuesday, April 4th, 1967 from 11-12 noon. The title of his talk will be "Inflight Medical Investigation Into Manned Space Flight". He will discuss the findings to date and the plans for the future. Dr. Vinograd is Director of Medical Science and Technology in The National Aeronautics and Space Administration (NASA) in the Office of Manned Space Flight in Washington, D.C. In this capacity he now develops and directs NASA's program of inflight medical experiments for manned space flight missions.

Dr. Vinograd has a Bachelor's Degree in Zoology from the University of Wisconsin and an M.D. from the University of Wisconsin Medical School. He was a Flight Surgeon in the United States Navy. He was engaged in the private practice of Internal Medicine in Madison, Wisc., for eight years, six of which he served as assistant professor of clinical medicine, University Hospitals. He was actively engaged in extern, student

nurse, intern and resident educational activities.

Since joining the National Aeronautics and Space Administration in November, 1961, he has served as Space Medicine Headquarters Chief, Biodynamics Branch; Chief, Flight Crew Medical Operations Branch; and Assistant Director, Crew Systems Development before assuming his present position. He is the author of several papers and lectures on space medicine. In 1964, he organized and directed a course entitled, "Engineering Aspects of Space Medicine" and in 1966 another course entitled, "Fundamentals of Space Medicine". Both courses were given at the College of Special Studies at the George Washington University at Washington, D.C.

We believe that it is a stroke of good fortune that we are able to get Dr. Vinograd to grace our speakers' platform. It is safe to say that nobody in this country, or better nobody in the world, is better qualified to speak on this subject.

MARTIN MARKOWITZ, M.D.

### LADIES

The 1967 NYSAGP Convention WANTS YOU — THE DOCTOR'S WIFE. Is that a way to run a Convention? YOU BET IT IS. SO COME ON DOWN and spend one day in the World of Fashion, one day in the World of Beauty and one day in the World of Art and Culture. And you will agree that WE MUST BE DOING SOMETHING RIGHT.

Ladies Committee for  
1967 Convention



## DIRECTORS MEETING

(Continued from Page 13)

credit hours for educational requirements,

That New York GP be mailed to all non-affiliated G.P.'s with an application form,

Frequent articles in New York GP listing the courses and credit hours and especially news of the individual chapters,

Educational courses and activity of the chapter should be submitted under chapter news.<sup>2</sup> The report of the Commission on Membership and Credentials was accepted with special thanks to the commission for an excellent job.

## EDUCATION

Dr. Robinson reported for the Commission on Education. All medical schools in the state had been notified concerning details of the Essay Contest. He reported that there has been somewhat of an increase in the number of courses submitted for approval — particularly by some voluntary hospitals. Wherever feasible, these hospitals have been advised to contact the education committee chairman of the respective county chapter before sending their request directly to the state education commission. Also, the reason for the sudden increase in the number of courses is the regulation by the City Health Department requiring all physicians who are not on the staff of some hospital or who are not members of AAGP to take at least 40 hours of postgraduate work by April 1, 1967 in order to qualify to receive compensation for treating Medicaid patients. This may be extended to upper New York State as well. The Academy might possibly be asked to sponsor or



JOSEPH  
ROBINSON, M.D.

supervise courses which would help to qualify physicians in certain categories so that they may receive compensation for treating Medicaid patients.

## MEDICAL ECONOMICS

The report of the Medical Economics Committee forwarded by its chairman Dr. McKeeby was read. The committee sent a questionnaire to the presidents of constituent county chapters requesting answers to specific questions for use in a study of the various general practice fees throughout New York State. The presidents have co-



RAYMOND  
McKEEBY, M.D.

operated in this survey and a good composite picture has been obtained. The report went on to state that we will be dealing with the Health Department starting November 1, 1966 instead of the Welfare Department in regard to the Medicaid Program. The former has already started a state-wide survey of present fees with the idea of reflecting in any new schedule "usual and customary fees". The deadline for a complete revision of the schedule could be expected by July 1, 1967. There have been rumors from the Health Department that the general practitioners are fully satisfied with their present fees. A definite statement should be forthcoming to the Health Department upon this important point. The difference of opinion as to "an equal fee for an equal service", whether it be performed by a specialist or a general practitioner, has already been brought to the attention of the Health Department by leaders of the New York State Academy of General Practice. The fact that membership in our organization is being recognized by the Health Department as a beginning criteria is gratifying to those members who have long watched our progress. The non-members are realiz-

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## SPECIALTY OF GENERAL PRACTICE



MARTIN  
MARKOWITZ, M.D.

In the face of the present medical set-up wherein the medical schools, hospitals and governmental agencies are expending their energies to neutralize the general practitioner, come the reports of the Ad Hoc Committee of the AMA on Family Practice, The National Committee on Community Health Services and The Citizens Committee all of whom have suddenly made the discovery that the family physician is indispensable and that the shortage that exists in this field is "a major national problem." (They could have saved themselves a great deal of time and energy had they read the Kings County G.P. Bulletin over the past few years).\*

## G.P.'s LAMENT

*Medicine presents the riddle  
With the G.P. in the middle  
It seems to us incomprehensible  
That we are told we're indispensable  
We're flattered with the things they  
say of us  
So why the plan to do away with us?*

M. M.

The AMA Ad Hoc Committee envisions a postgraduate training period of from three to five years. At its successful conclusion the doctor will be ready for specialty board certification in Family Practice. We are in full agreement with the above except for the following:

- 1) Certification is advised for a period of five years after which time re-examination to "determine continued competence in Family Practice should be required for recertification." This is fine except that if this rule is adopted it should apply to *all specialties* and not just to Family Practice. 2) There must

be an "iron clad" assurance that specialists in Family Practice will be allowed *full hospital privileges*. Past performances by our hospitals raise much doubt that this will be granted. To date, most voluntary and medical school based hospitals have flouted the rule of the AMA Committee on Accreditation of Hospitals which requires that G.P.s be admitted to their staffs. We know of no hospital that has lost its accreditation as a result of this defiance.

In summary, it is our opinion that future doctors will have little or no incentive to enter the difficult field of Family Practice unless the above conditions are met.

[\* Ed. note: as well as the NYGP.]

## A SALUTE TO READER'S DIGEST

Until reading the October issue of Reader's Digest Magazine, I cannot recall a single magazine article that has not been openly critical, hostile, or at the very least contained some innuendo that was uncomplimentary to the medical profession.

Reading Mr. Albert Q. Maisel's article, "Ten Ways to Cut Your Medical Bills" was like taking in a breath of fresh air. Mr. Maisel states simply but fairly that increased medical costs are the result of increased hospital charges, increased medical insurance premiums as well as higher doctors' fees. He then proceeds in an honest and logical manner to show the public how to institute medical savings.

He stresses the importance of the General Practitioner or Family Doctor as the cornerstone of this project. Having a Family Doctor will eliminate many of the higher Specialist or emergency room fees. He explains the rea-

(Continued on Page 23)



# IF IT DOESN'T WORK IN A WEEK, FORGET IT.

\*"Phenylbutazone has been shown to be effective in relieving the symptoms of rheumatoid arthritis in many patients. In the opinion of many rheumatologists it is the next drug of choice to the salicylates."

Lockie, L.M.: In *Arthritis and Allied Conditions*, 6th ed., J.L. Hollander, ed., Philadelphia, Lea & Febiger, 1962, p.336.

**Contraindications:** Edema; danger of cardiac decompensation; history or symptoms of peptic ulcer; renal, hepatic or cardiac damage; history of drug allergy; history of blood dyscrasia. Because of the increased possibility of toxic reactions, the drug should be used with greater care in the elderly and should not be given when the patient is senile or when other potent chemotherapeutic agents are given concurrently. Large doses of Butazolidin alka are contraindicated in patients with glaucoma.

**Warning:** If coumarin-type anticoagulants are given simultaneously, the physician should watch for excessive increase in prothrombin time. Pyrazole compounds may potentiate the pharmacologic action of sulfonylurea, sulfonamide-type agents and insulin. Patients receiving such concomitant therapy should be carefully observed for this effect.

Use with caution in the first trimester of pregnancy.

**Precautions:** Before prescribing, the physician should obtain a detailed history and perform a complete physical and laboratory examination, including a blood count. The patient should be kept under close supervision and should be warned to report immediately fever, sore throat, or mouth lesions (symptoms of blood dyscrasia); sudden weight gain (water retention); skin reactions; black or tarry stools. Regular blood counts should be made to guard against blood dyscrasias.

**Adverse Reactions:** The most common adverse reac-

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In rheumatoid arthritis, Butazolidin alka needs only a week's trial. If it doesn't work in a week, forget it.

With indomethacin, the trial period may be a month or longer.

A short trial period may spare patients weeks of discomfort. That's one reason why Butazolidin alka seems the logical choice when aspirin fails.

K, You'll know quickly if it works. Most of the time, it will.\*

And with less chance of G.I. upset because of its antacid buffers.



tions are nausea, edema and drug rash. Moderately lowered red cell count may sometimes occur due to hemodilution. The drug has been associated with peptic ulcer and may reactivate a latent peptic ulcer. Infrequently, agranulocytosis, exfoliative dermatitis, Stevens-Johnson syndrome or a generalized allergic reaction may occur and require withdrawal of medication. Stomatitis, salivary gland enlargement, vertigo or languor may occur. Leukemia and leukemoid reactions have been reported but cannot definitely be attributed to the drug. Thrombocytopenic purpura and aplastic anemia are also possible side effects.

Confusional states, hyperglycemia, agitation, headache, blurred vision, optic neuritis and transient hearing loss have been reported, as have hepatitis, jaundice and several cases of anuria and hematuria. With long-term use, reversible thyroid hyperplasia may occur infrequently.

**Dosage:** Initial: 3 to 6 capsules daily in divided doses. It is usually unnecessary to exceed 4 capsules daily. A trial period of 1 week is adequate to determine response; in the absence of favorable response, discontinue.

**Maintenance:** An effective level is often achieved with 1 or 2 capsules daily; do not exceed 4 daily.

For complete details, refer to full prescribing information. 6509-V(B)

Geigy Pharmaceuticals, Division of Geigy Chemical Corporation, Ardsley, New York

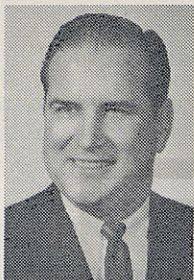
### **BUTAZOLIDIN® ALKA GEIGY**

Phenylbutazone, 100 mg.; dried aluminum hydroxide gel, 100 mg.; magnesium trisilicate, 150 mg.; homatropine methylbromide, 1.25 mg.

BU-46835



## NEW EXECUTIVE SECRETARY APPOINTED



MR. LAWRENCE F.  
KENNEDY

The appointment of Lawrence F. Kennedy as Executive Secretary of the New York State Academy of General Practice was made effective November 1, 1966 by the Board of Directors.

Mr. Kennedy is forty years of age. He is married and the father of three children. He is a graduate of Canisius College having majored in Chemistry. He has attended and participated in various sales seminars.

He comes to our organization with sixteen years of pharmaceutical sales and marketing experience. Most recently he has been with Wallace Laboratories as the New York State Field Service Manager. He has attended innumerable medical conventions providing him with a wealth of background information in promoting conventions and seminars. He has had experience with several advertising agencies.

With this background, we feel that Mr. Kennedy will provide us with the necessary tools to increase attendance of pharmaceutical companies at our conventions, and increase the advertising in our journals. We can look forward to a stimulus in our membership drives. In general, we feel that all of his activities will help promote our organization into the number one spot in the American Academy of General Practice.

**NEXT NYGP ISSUE  
DEADLINE FEB. 1st**

## KINGS COUNTY

The Kings County Chapter held its final regular meeting of the year at the auditorium of the Kings Highway Hospital in Brooklyn on November 16, 1966. A most informative lecture supplemented by a sound film was presented through the cooperation of International Business Machines, entitled "The Computer and the General Practitioner." Our chapter president, Adrian C. Lamos, M.D., welcomed the new elected members and urged their immediate participation in the activities of the local chapter, their community and our State convention. Great emphasis was placed on the role of the general practitioner in this present medical crisis. All current chapter officers and committee chairmen were introduced to the overflow audience. During the twelve months our membership was increased by over 122 physicians, making our current enrollment the highest in the state. The recent surge in membership is in part due to the new Medicaid law which accepts membership in the American Academy of General Practice as a primary requisite for participation in the welfare plan.

During the past two years, Kings County Chapter's members have been very active in the various committees of the County Medical Association serving in the capacity of chairmen and members of the executive committee. Continued progress is anticipated from the forthcoming administration.

PHILIP SCOPPA, M.D., Secretary

## AMA HOUSE

(Continued from Page 11)

In other important action, the House reaffirmed its policy concerning hospital privileges. The adopted resolution states that the House "reaffirms its support of the principle that every ethical licensed doctor of medicine who needs and desires them should have staff privileges, commensurate with his training and skill, in at least one accredited community hospital." [See MICHIGAN AGP]

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## COMMITTEE ON EXERCISE

ROYAL DAVIS, M.D.

### AND PHYSICAL FITNESS

An exploratory meeting was held by the A.M.A. in New York City on November 21, 1966. Each organization presented a page long "position paper" describing its activities.

The AAGP was represented by Dr. Royal S. Davis, Chairman, Commission on Environmental Medicine, NYSAGP.

Dr. Davis suggested that there is need for more training of physicians, both at the graduate and postgraduate level in the field of "what constitutes physical fitness." How much and what type of exercises should be recommended for those who are essentially normal, those who need corrective exercises, those who are recovering from a serious illness, such as, myocardial infarction, etc. Everybody agreed that this was the situation and that there was a great deficiency in our knowledge in this whole field, even for Physiatriests. It was agreed that the Medical Schools should be approached. Dr. Davis also pointed out that physical education programs in our schools were frequently deficient in facilities for corrective exercises, as well as for modified programs tailored to the individual requirement. Because of these defects, the average physician, be he GP, Pediatrician or Internist, is often puzzled in attempting to prescribe proper physical exercise routines and also when confronted by parental, as well as pupil request for "an excuse from gym."

However, standards are being worked out. Voluntary community groups are being studied along somewhat the same lines as the Framingham study. All the organizations represented are active and it was a very worthwhile preliminary meeting. Reduplication of

effort may be avoided and a positive team work approach established. It is suggested that other organizations could well be included, such as the American Society of Internal Medicine and the Insurance Industry. Sixteen national health and social organizations were represented.

### ROCHESTER

The Rochester Regional Chapter held its November meeting at the Passport Restaurant in Henrietta on November 13th. President Gerald Manley conducted an informal discussion on the topic: "Medicaid and Medicare This Far."

The 18th Christmas party for this group was held at Oak Hill Country Club in Rochester. Among those present were nine of the original members and their wives: Dr. and Mrs. Gerald Manley of Geneseo, Dr. and Mrs. Ernest Sanders of Lima, Dr. and Mrs. Harold Collins of Brockport, Dr. and Mrs. H. Jacob and Dr. and Mrs. Melville Hare of Caledonia, Dr. and Mrs. Fred Grainer of Spencerport, Dr. and Mrs. E. Deuel of Penfield, Dr. and Mrs. G. Lynch of Avon, and Dr. and Mrs. F. V. Oderkirk of Victor.

F. V. ODERKIRK, Secretary

### SALUTE

(Continued from Page 19)

sons patients should try to visit a doctor *in his office* whenever possible. He points out the fact that whenever indicated a family doctor may be able to arrange a more equitable specialist's fee when the financial status of the patient warrants it.

Though the article does not present any material not already well known to all doctors, it is gratifying to say the least, to find something in public print that does not "tear the medical profession apart." We thank Mr. Maisel for giving us "a fair shake." Read this article and what is more important see that your patients do likewise.

MARTIN MARKOWITZ, M.D.



## IS YOUR PROFILE SHOWING?



SAMUEL  
LIEBERMAN, M.D.

The fiscal agents for the government in the payment of Medicare Fees have set their own standards for the customary and usual fee. They have arrived at this from the fees you have been charging your patients, under the various plans that they have sold and more particularly in accord with the latest contract, which most doctors have refused to accept for service benefits. We all know that the cost of office operation increases, taxes increase, as do the salaries of your help, supplies and your own living expenses. If you are supporting a few children you have additional expense; all of which you consider when you decide what your income must be to keep you solvent. Unfortunately there are only twenty-four hours in a day, so you can't work longer than that to increase your income. You therefore arrive at the decision that you must charge "x" number of dollars for your services, with variations here and there for people whom you consider needy and worthy of help from you. This is your right in a free and democratic society.

The Medicare Law states that there shall be no service benefits; yet one of the fiscal agents sets the fee you will get, at the rate it pays in one of its Service Benefit Contracts, which they have based on your profile over the years. So far as they are concerned nothing ever changes, so you had best point out the change to them.

**"IS YOUR PROFILE SHOWING?"**

If so, like the ladies, you had better lift it!

## "CHASING A BUCK"

*(From the Bronx County Chapter Bulletin)*

A short time ago practicing physicians were accused of "chasing a buck." Let's look at the record:

The hospital from which the phrase emanated has established its own panel of physicians to service 200 families, members of a certain union, in the Bronx. Would one call this solicitation "chasing a buck"?

July 1st brought Medicare, and joy to many hospitals which no longer would be called upon to accept sub-standard payment from the city for the care of those over 65. By all means available these oldsters were notified that the hospitals would be happy to care for them. Could they possibly be accused of "chasing a buck"?

Along came Title 19 and again notice to and solicitation of people to tell them that they could receive care at the various out-patient departments. Does anyone doubt that the hospitals will be paid retroactively when Title 19 becomes effective? "Could they possibly be chasing a buck?"

This unjust buck chasing accusation has been used before. There is no need for the practicing physician to "chase a buck." Years of negotiation have finally brought a raise in Workmen's Compensation fees. Medicare fees recognize the reasonable fee. Medicaid fees will in all probability be along the lines established by the relative value scale.

While we continue to render to the people of the community, high quality medical care there is no need "to chase after a buck." As for us, we are no longer puzzled as to who is actually "chasing the buck."

DR. SAMUEL LIEBERMAN



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GENERAL PRACTITIONERS HAVE SELECTED

**THE STATE SOCIETY MALPRACTICE  
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**Stability**.....a strong insurance company and a program, now in its 45th year, that has provided continuous protection during that period.

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## MEMBERSHIP CHANGES

### NEW MEMBERS

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 Morris H. Hadler, M.D.  
 Solomon Reich, M.D.  
 Louis Green, M.D.  
 Abraham Braverman, M.D.  
 M. Stuart Adler, M.D.  
 Manuel Conde, M.D.  
 Michael J. Williams, M.D.  
 Ralph Imperato, M.D.  
 Naomi P. Zelmanowicz, M.D.  
 Simon Brandvain, M.D.  
 Ludwig Wolfermann, M.D.  
 Isidore Koulack, M.D.  
 Arthur Koppen, M.D.  
 Irving Rosenstein, M.D.  
 Bernard Schwam, M.D.  
 Philip H. Smith, M.D.  
 Solomon Berger, M.D.  
 Harry H. Kaufman, M.D.  
 Herman H. Seidman, M.D.  
 Harry S. Friedlander, M.D.  
 Alfredo Clorofilla, M.D.  
 Adolf Scharf, M.D.  
 David Sigall, M.D.  
 Renato G. Tomasulo, M.D.  
 Morris Kimberg, M.D.  
 Adolph Gherman, M.D.  
 Margot Hoffman, M.D.  
 Arnold Palm, M.D.  
 Justin A. Rubin, M.D.  
 Sophie P. Levin, M.D.  
 Samuel P. Schwartzfarb, M.D.  
 Munio Schmid, M.D.  
 Richard Gottlieb, M.D.  
 Frank D. Valenti, M.D.  
 Hanna E. Margulies, M.D.  
 Harry Barlin, M.D.  
 Frank Viggiani, M.D.  
 Louise E. Carter, M.D.  
 Maurice J. Stone, M.D.  
 Samuel Greenstein, M.D.  
 Herbert Kubel, M.D.  
 Benjamin A. Margulis, M.D.  
 Daniel Mound, M.D.  
 Vincent G. Princietta, M.D.

Anthony J. Corrato, M.D.  
 Ethel D. Stoliar, M.D.

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 Henry Mason, M.D.  
 Lewis Whitehouse, M.D.  
 Max Jaeckel, M.D.  
 Alfred Feldbau, M.D.  
 Helen G. Jaeckel, M.D.  
 William Osterman, M.D.  
 Henry Alicandri, M.D.  
 George Metz, M.D.  
 Seymour Glasser, M.D.  
 Leonard Kramer, M.D.  
 William Goldstein, M.D.  
 Abraham Cheron, M.D.  
 Arthur Wein, M.D.  
 Michael Goldstein, M.D.  
 Herbert L. Halper, M.D.  
 Benjamin E. Carmal, M.D.  
 Max Brahms, M.D.  
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 Maurice M. Dinowitz, M.D.  
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 Nat Kanner, M.D.  
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 Walter Rubin, M.D.  
 Max Sholod, M.D.  
 Howard N. Lesser, M.D.  
 Nathaniel Copulsky, M.D.  
 Saul S. Hauser, M.D.  
 Morris Greenberg, M.D.  
 Morris Zeichner, M.D.  
 Jacob Damaszek, M.D.  
 Lewis J. Herold, M.D.  
 Morris Crilihas, M.D.  
 Anthony C. Saeli, M.D.  
 Morris H. Geshwind, M.D.  
 Anthony R. Aurello, M.D.  
 Hyman Ruchamkin, M.D.  
 Philip Rosenberg, M.D.  
 Harold Jacobs, M.D.  
 Eric S. Bannister, M.D.

**FOCUS YOUR ATTENTION ON THE 1967 CONVENTION**

Theo  
 Mari  
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 David  
 Natha  
 Georg  
 Rubin  
 Manah  
 Adolp  
 Emily  
 Georg  
 Jacob  
 John  
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 Mortin  
 Angel  
 Max K  
 Isidore  
 Franc  
 Herber  
 Harry  
 Natha  
 Louis  
 Eugen  
 Stepha  
 Carl D



(Asso.)

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 Irving Wyle, M.D.  
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 Aaron Germaine, M.D.  
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 Eric G. Altschul, M.D., Jackson  
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 Attilio Morpurgo, M.D., Jackson  
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Joseph Greenberg, M.D., Forest Hills

Mark L. Grinstein, M.D., Buffalo

Sol Hirschman, M.D., N.Y. City

Manning M. Melton, M.D., Bronx

Michael R. Orlandi, M.D., N.Y. City

Henry A. Rogan, M.D., Hallandale, Florida

Herbert F. St. John, M.D., Rochester

### WHEN

9/6/66 to  
6/20/67

9/8/66 to  
6/29/67

10/27/66 to  
4/13/67

11/2-4/66

11/16/66

12/1/66 to  
6/15/67

12/3/66 to  
3/25/67

12/7 & 14,

12/16/66

1/5/67 to 3

1/5/67 to 4

1/11/67 to

2/8/67 to 3

3/16/67 to

4/3/67 to 5

4/5/67

4/18/67 to

9/29/66 to

11/3/66

11/3/66 to  
12/29/66

11/15/66 to

Dec. 1966

12/1/66

12/1/66 to



# **COURSES APPROVED BY THE AMERICAN ACADEMY OF GENERAL PRACTICE**

## **Required Group**

| WHEN                | WHERE                                           | WHAT                                                        | HOURS |
|---------------------|-------------------------------------------------|-------------------------------------------------------------|-------|
| 9/6/66 to 6/20/67   | Booth Memorial Hospital<br>New York City        | Pulmonary Conferences                                       | 42    |
| 9/8/66 to 6/29/67   | Booth Memorial Hospital<br>New York City        | Gastroenterology Rounds                                     | 39    |
| 10/27/66 to 4/13/67 | Booth Memorial Hospital<br>New York City        | Recent Advances in Surgery and<br>Surgical Physiology       | 24    |
| 11/2-4/66           | N.Y. University PG Med. School<br>New York City | Cardiac Auscultation Course<br>#547                         | 21    |
| 11/16/66            | Schrafft's, Binghamton                          | Symposium on Trauma                                         | 3     |
| 12/1/66 to 6/15/67  | Wyckoff Heights Hospital<br>Brooklyn Branch     | Basic Science Lectures                                      | 27    |
| 12/3/66 to 3/25/67  | Astoria General Hospital,<br>Queens             | Varied Topics                                               | 20    |
| 12/7 & 14, 1966     | Nassau Academy of Medicine<br>Garden City       | Pediatric Cardiology                                        | 2     |
| 12/16/66            | Brookdale Hospital Center<br>Brooklyn           | Seminars for the General<br>Practitioner                    | 15    |
| 1/5/67 to 3/9/67    | Mt. Sinai Hospital<br>New York City             | Clinical Chest Diseases —<br>Med. Course PM 51              | 15    |
| 1/5/67 to 4/20/67   | Terrace Heights Hospital, Queens                | Postgraduate Lecture Series                                 | 24    |
| 1/11/67 to 4/19/67  | Nassau Academy of Medicine<br>Garden City       | Fundamentals in Electrocardiography                         | 15    |
| 2/8/67 to 3/15/67   | Nassau Academy of Medicine<br>Garden City       | Pediatric Surgery — Surgical<br>Decisions for the Physician | 6     |
| 3/16/67 to 5/4/67   | Downstate Medical Center<br>Brooklyn            | Diseases of the Heart in<br>General Practice                | 10½   |
| 4/3/67 to 5/8/67    | Nassau Academy of Medicine<br>Garden City       | Pediatric Allergy                                           | 9     |
| 4/5/67              | Downstate Medical Center<br>Brooklyn            | Rehabilitation Medicine in<br>General Practice              | 12    |
| 4/18/67 to 5/23/67  | Doctors Hospital, Freeport                      | Ophthalmology Lecture Series                                | 6     |

## **Elective Group**

|                     |                                            |                                                                       |    |
|---------------------|--------------------------------------------|-----------------------------------------------------------------------|----|
| 9/29/66 to 6/15/67  | Williamsburgh General Hospital<br>Brooklyn | Medicine in Review                                                    | 23 |
| 11/3/66             | W.C.A. Hospital, Jamestown                 | Clinical Day and Cancer<br>Symposium                                  | 6  |
| 11/3/66 to 12/29/66 | Parkway Hospital, Queens                   | New Advances in Diagnosis and<br>Treatment of Cardiovascular Diseases | 8  |
| 11/15/66 to 8/15/67 | Physicians Hospital, Queens                | Lecture Series in Internal Medicine                                   | 59 |
| Dec. 1966           | St. Luke's Hospital, N.Y. City             | Continuing Education Institute                                        | 40 |
| 12/1/66             | St. Peter's Hospital, Albany               | Second Cardiovascular Teaching Day                                    | 3  |
| 12/1/66 to 1/19/67  | Brooklyn State Hospital<br>Brooklyn        | Clinical Case Presentations of<br>Psychiatric Problems                | 16 |



**DIRECTORS MEETING**

(Continued from Page 18)

ing this, evidenced by the number of new applications. There is much work to be done before the general practice of medicine will again seem orderly, but it is hoped that the information contained in this report will assist in our further negotiations and establish a definite and concerted action.

**RX FOR THE GP**

(Continued from Page 9)

in the general field. The main trouble is that there aren't enough of him to go 'round.

While the new GP, as envisioned by the AMA planners, would bring more complex skills to his profession, he would also have to bring no less dedication than the best of his predecessors."

**LETTERS TO THE EDITOR**

(Continued from Page 10)

government have repeatedly accepted as the voice of organized medicine.) — I repeat, how can you have such a voice if you choose to default?

A drop in membership would necessarily mean a drop in representation in "an organization which," Dr. Lowy states, "has traded a potentially meaningful voice for mere sound and fury" and which might then become a mere whisper.

CLEMENT BOCCALINI, M.D.

**Nominating Committee**

1967 appointments were announced: Drs. Robert Lipsett, Chairman; Louis Schneider, Charles Shlimbaum, James Kingsland, Samuel Lieberman. Alternates: Kurt Grainer, Armand D'Errico, Stanley Greenwald.

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EDITOR

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PRESENTATION TO  
VETERANS ADMINISTRATION  
16<sup>th</sup> ANNUAL VA MEDICAL RESEARCH CONFERENCE  
CINCINNATI, OHIO  
1 DECEMBER 1965

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Ladies and gentlemen, I am indeed pleased with this opportunity to present to the distinguished members of <sup>our</sup> ~~a~~ sister government agency a review of a somewhat different form of medical research, the NASA program of in-flight medical investigation. Space Medicine, like other forms of environmental medicine, differs from clinical medicine in that it deals with normal man in an abnormal environment. On the other hand, it shares with clinical medicine an abiding interest in the distinction between normal and abnormal human responses, the study of both, and the prevention and correction of undesirable physical or mental changes. It also shares with clinical medicine a commitment to the application of <sup>THE</sup> ~~the~~ principles of scientific objectivity in the separation of truth from superstition, ~~and fact from fancy~~. I would like to begin this discussion by reviewing some of the important general concepts which form the framework of the program, then discuss the specifics of the Gemini experiments program, and finally describe our present thinking with respect to medical investigation in the Apollo program and beyond.

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The fundamental issue with which we are confronted in <sup>LAUNCHING MAN INTO</sup> ~~this over-all~~  
<sup>SPACE</sup> ~~endeavor~~ is the ability of man and machine to support prolonged manned space flight missions. The method elected by NASA Manned Space Flight to resolve this issue is what is known as the incremental approach, the extension of our manned space flight experience in step wise fashion to progressively longer duration and more complex missions. Medical information obtained from flight crews during these missions can be thought of as consisting of two types. (1)

The first provides real time information concerning the welfare and safety of the crew, and is, therefore, known as medical safety monitoring. Medical safety parameters consist of the ECG, respiration, temperature and blood pressure (and one should also add voice communication since this is recognized as an extremely important medical monitoring device). This type of information serves as the basis for immediate and important operational decisions on the part of ground based medical monitors, such as go-no go and flight abort decisions, and also therapeutic instructions which might have to be given the flight crew.

The second type of medical information is more fundamental in nature. Although it may be of less or even little importance to the successful completion of the particular mission from which it is gathered, it is essential to the planning of subsequent missions and future space programs. It is to the second area that the medical experiments program is primarily addressed. It emphasizes the health, welfare, and safety of the astronauts on future missions. Its goal is to gain maximum insight into man's physiological and functional integrity as effected by prolonged existence in the space environment, and to determine how best his mission in space can be



extended. Consistent with the incremental approach, it is incumbent upon the medical experiments program to take maximum advantage of each progressive mission to spot potential problem areas, establish quantitative trends, and be prepared with effective preventive measures.

The investigation of man's responses to space flight has four key objectives. These are to determine the human effects of space flight, <sup>AND THE TIME COURSE OF THESE EFFECTS,</sup> the mechanisms by which these effects are manifested, means of predicting the onset and severity of these effects, and the most effective and practical means by which potentially untoward effects can be prevented and/or corrected.

Perhaps unique to any experiments which are to be accomplished in an operational setting is the requirement that it be feasible to accomplish them within the constraints of that operational setting, as well as the standard requirement that they have sufficient scientific merit. Space flight experiments, therefore, must be good experiments in that they contribute significantly to our objectives, and they must also be performable within the limitations or constraints of the mission. Proposed in-flight medical experiments are, therefore, first screened for scientific merit, i.e. from the standpoint of relative importance to our goals, validity and reliability of experimental design, etc; and then evaluated from the point of view of technical and operational feasibility, i.e. the ability of spacecraft, flight crew, ground crew, and mission to accommodate them.

Mission constraints, upon which feasibility determinations are based, in general arrange themselves into two categories: engineering constraints,



and operational constraints. Together, they define the capabilities of flight vehicles and missions to accommodate experiments. Among the more important of these are such technical or engineering factors as volume, weight, power, and telemetering or tape recording requirements; and such operational factors as ease of accomplishment by the flight crew, training requirements, flight crew time requirements, non-interference with other major mission objectives, and ground crew support requirements.

Of all of these, one of the most difficult is the very long lead time required for any experiment to be incorporated into a projected flight. Except in unusual instances, the deadline for acceptance of an experiment for a particular flight precedes that flight by  $1\frac{1}{2}$  to 2 years. This important consideration makes it necessary for us to prognosticate problems as well as solutions as realistically as possible far in advance of each flight.

In order to meet this problem and maintain a state of readiness to meet unforeseen events should they occur, we have developed a program of in-flight medical investigation which now consists of a rather substantial nucleus of potential ~~in-flight~~ medical experiments and measurements. The sources of this program are shown on this slide. Although <sup>SEVERAL</sup> ~~some~~ experiments have been contributed by individual investigators, most of the <sup>CONTRIBUTION TO PROGRAM PLANNING HAS SO FAR BEEN THE</sup> ~~technical content of the program is a~~ result of <sup>IN-HOUSE, AND CONSULTANT, AND CONTRACTUAL</sup> group activity. (description). Certainly, <sup>A</sup> ~~the~~ major contribution of the American medical community was that of the Space Medicine Advisory Group.



5

This was a working group of 20 prominent physicians, physiologists, and psychologists representing some 16 specialties and subspecialties which met for a series of eight-two day meetings in 1964. Their names are shown on this slide. The work of the SPAMAG consisted of the establishment of the medical requirements for an orbiting research laboratory on the hypothesis that the group was given the prerogative to design one for medical purposes only. I hasten to add that this was only a working hypothesis and not a fact. The study was completed in three phases. The first was to make recommendations on all aspects of the support of the flight crew, i.e. atmosphere selection, space suits, hazard protection, food, water and waste systems, etc. The second phase consisted of the identification of medical measurements and experiments to be performed. These were established on the basis of need, and were described in detail, together with their prerequisite space flight and ground based research and development. The third phase was essentially a translation of the first two phases into engineering and operational terms. It consisted of a ~~description of requirements~~ <sup>RECOMMENDATIONS RELATING TO</sup> for the design and operation of an optimal orbiting research laboratory for medical purposes. All of these recommendations resulted in a book-sized document, soon to be published as a NASA publication. It represents a highly productive and carefully considered "first cut" evaluation by ~~the American scientific community~~ <sup>A REPRESENTATIVE MEDICAL SEGMENT OF THE COUNTRY</sup>.

Concerning the medical content of this program, this subject is perhaps most clearly outlined by calling upon a technique which we have used successfully as an analytical method for the ~~design of experiments~~ <sup>PHASE II PORTION</sup> and ~~establishment of priorities~~ <sup>OF</sup> in the SPAMAG effort. The technique

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consists of first defining the gamut of environmental factors or stresses to which astronauts are exposed; then examining the potential effects of each of these stresses on each of the body functions and systems. By examining the interfaces between the two areas of potential difficulty, the degree of likelihood of their appearance, and their severity as a function of duration of flight can be identified and evaluated with relative simplicity and clarity.

Upon carefully reviewing a rather comprehensive list of potential stresses, one must conclude that <sup>VIRTUALLY</sup> the only stress factor of space flight which cannot be duplicated in an earth environment is prolonged weightlessness. Consequently, the major stress effect problems which warrant in-flight medical experiments are weightlessness, itself, and combinations of it with other factors. It may be observed that even with respect to such little known conditions as ionizing radiation, magnetic field alterations, and the micrometeoroid hazard, once the environment is defined, these questions, complex as they may be, <sup>FOR THE MOST PART</sup> can be rather thoroughly studied on the ground. Upon reviewing a similar list of combined stresses which may be considered to have uniquely troublesome effects, all of these, at least during the course of our studies, have contained weightlessness as one of the factors in question.

Reviewing now the groups of body functions, it is perhaps safe to say that of the possible effects of prolonged weightlessness on man, those most seriously anticipated are cardiovascular deterioration, bone demineralization, muscular atrophy, and dehydration. With the exception of dehydration, all of these are disuse phenomena which have been observed repeatedly during bedrest and water immersion studies, as well as during many years of



clinical observation. With respect to disuse phenomena, the consensus of current thinking is that overt manifestations, if they develop at all, would be most likely to occur during the multiple G stress of reentry or the sustained one G stress of terrestrial existence resumed upon landing, rather than during the period of exposure to weightlessness. The phenomenon of dehydration has been observed in all manned space flights to date. Whereas in Mercury it might have been due in large measure to ~~the~~ inadequacies of ~~the~~ environmental control system, the same has not been true of the Gemini series. Temperature and humidity control in the Gemini spacecraft has been excellent. Yet, dehydration continues to be demonstrated. This lends support to the concept that loss of body water is probably initiated by the redistribution of body fluids in the weightless state and mediated, at least in part, by the Gauer and Henry reflex. To briefly explain this rationale, in weightlessness, blood is no longer drawn to the lower extremities by gravity. This allows a greater proportion of the total blood volume to <sup>CIRCULATE WITHIN</sup> ~~be present~~ in the thorax. Stretch receptors in the auricles are then stimulated, which initiate a reflex mediated by the vagus, resulting in a decreased output of ADH by the <sup>POSTERIOR</sup> pituitary <sup>THEREBY</sup> producing an increased urinary output, and a compensatory reduction of thoracic blood volume <sup>BY REDUCING TOTAL BLOOD VOLUME.</sup> Further effects of space flight on blood volume will be alluded to later in this discussion with the presentation of Gemini findings. Although the four effects mentioned have received the greatest emphasis, other possible effects <sup>CANNOT BE</sup> ~~are far from~~ excluded from consideration. <sup>DESPITE THE FACT THAT THERE HAVE BEEN NO OVERT MANIFESTATIONS OF THEM IN ANY OF OUR FLIGHTS THRU GEMINI 5, OUR MOST RECENT ONE.</sup> Among these are <sup>POSSIBLE</sup> respiratory, vestibular, metabolic, and peristaltic effects, effects upon ciliary action with particular reference to the respiratory tract, effects upon alertness, and, of comprehensive importance, effects upon total performance. All of these are receiving attention and study.



The evaluation of flight experimental data is contingent not only upon the accuracy of the in-flight data, itself, but also upon the validity and adequacy of the control or base line data, with which it must be compared. For most in-flight medical experiments, the flight crew ~~will~~ serve as their own controls, and base line data ~~will~~ then, ~~as in the past, will~~ consist of astronaut information obtained during the process of medical selection, during centrifuge runs, pressure chamber runs, simulation and trainer activity, numerous physical examinations, and special pre-flight control studies for specific in-flight medical experiments.

An active program of ground based medical experiments involving non-astronaut subjects serves as an important source of additional base line data. These experiments are designed to parallel some aspect or aspects of space flight in order to study their effects, or to distinguish specific factors as causative of effects which might have been observed during space flight. Some of these are bed rest studies in which absolute bed rest is used as a simulator of weightlessness. At bed rest, the cardiovascular system is not required to support the weight of the column of blood, nor the musculoskeletal system the weight of the body in the long axis. Bed rest studies provide a great variety of data concerning many of the body functions and systems, such as the cardiovascular, endocrine, and musculoskeletal systems, metabolism, and fluid and electrolyte balance. THESE ~~Bed rest~~ studies also enable us to calibrate certain testing procedures and preventive techniques prior to their use during an actual mission.



Other ground-based efforts range in scope from the study of the EEG as a measure of alertness and depth of sleep, to the study of phonoelectrocardiographic and similar methods to time the phases of cardiac activity.

A rather unusual, but very pertinent direction of study is the medical monitoring of individuals under stress during sports events, such as skydiving, sports car racing, hockey, and even bull fighting. These studies have shown, among other things, that heart rates of normal individuals can rise ~~considerably~~ <sup>WITHOUT THE EFFECT.</sup> beyond levels previously considered <sup>BY MANY CLINICIANS TO BE</sup> the top limit of normal. These studies have also shown that tilt table responses in normal subjects can be just as altered after a 12 hour sports car race as after a 34 hour space flight, a fact which clearly demonstrates the importance of this type of information to maintaining perspective in ~~the~~ interpreting space flight findings.

<sup>CONCLUDING</sup> Before ~~turning to the Gemini program~~, I would like to say that <sup>THE</sup> ~~this~~ <sup>OF INFLIGHT MED. INVESTIGATION</sup> program is a national endeavor. As such, it is open to any professionally qualified individual in the United States, as well as those from friendly foreign nations. We have actively solicited such participation on several occasions in the past, and I would like to take this opportunity ~~to~~, once again, <sup>TO</sup> encourage anyone interested in designing and submitting an experiment which he considers pertinent, to proceed actively to do so. Proposals for in-flight medical experiments are received by the Medical Science and Technology Division of Space Medicine, <sup>IN</sup> NASA Headquarters, on a form which has been drawn up for that purpose. The review for scientific merit is currently accomplished by a council of medical consultants to this division known as the Medical Advisory Council. In the <sup>VERY</sup> near future, we hope we will have completed arrangements for the <sup>EVALUATION</sup> ~~processing~~ of proposals for

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<sup>MEDICAL</sup>  
in-flight experiments through the NIH study section system prior to final  
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Turning now to the Gemini program, medical safety monitoring ~~will~~ consists of the same four measurements which were recorded during Project Mercury, i.e. temperature, blood pressure, ECG, and respiration. The equipment, <sup>has been</sup> however, ~~will be~~ somewhat modified. Gemini bioinstrumentation incorporates the use of miniaturized signal conditioners inserted into the circuit, and <sup>WORN</sup> ~~one~~ inside the pressure suit. These have been shown to result in an improved signal and a greater degree of accuracy and reproducibility of the records obtained. Shown here are the breadboards and final products of several signal conditioners. They are, in effect, small amplifiers placed close to the source of the signal. <sup>TNIS</sup> ~~The following~~ illustration is a close-up view of a typical signal conditioner. (10)

The Gemini biomedical tape recorder is capable of recording seven channels of information for a total of 100 hours. It is very light-weight and compact, measuring approximately 3 x 5 x 8 inches. It is used to record both medical experimental data and medical safety information. (11)

The Gemini program consists of a series of 12 flights, the first two of which were unmanned. Among its primary aims are to provide training in orbital rendezvous and docking, and experience with extravehicular activity. One of <sup>ITS</sup> ~~the~~ major objectives ~~of the Gemini series~~ is to determine the effects of prolonged space existence upon man. This has been accomplished by increments, <sup>THE PROGRAM</sup> and <sup>FLIGHT</sup> will achieve its maximum duration of 14 days with the forthcoming Gemini mission. (12)

The Gemini in-flight medical experiments program consists of a total of 8 experiments and one operational procedure, formerly experiment M-2. (13)

This is the tilt table procedure and evaluation of body fluid compartments,



which, as an operational procedure, is performed on most missions of the Gemini series. Of the remaining 8 experiments, 4 are additional cardiovascular experiments, 2 are concerned with bone metabolism and electrolyte balance, 1 is an evaluation of sleep during flight, and the remaining one is an investigation of otolith function. Because Gemini 7 is the longest flight of the series, it is heavily medically oriented and will carry all of the Gemini in-flight medical experiments and operational procedures.

Experiment M-1 is the evaluation of a countermeasure against cardiovascular deconditioning as observed by the tilt table and other procedures. It consists of the regularly cycled intermittent inflation and deflation of pneumatic cuffs about the thighs. The cuffs, which are incorporated into the undergarment, are applied to one astronaut and the results of his cardiovascular evaluation are compared with those of the other. This method is based upon the work of Graveline who in 1961 demonstrated the effectiveness of similar, ~~intermittently inflated~~ pneumatic cuffs about all four extremities, in preventing the degradation of tilt table tolerance following water immersion. While he used <sup>AN</sup> inflation <sup>PRESSURE OF</sup> ~~to~~ 50 mm of mercury <sup>APPLIED</sup> alternately one minute on and one minute off throughout the period of immersion of his subjects, the procedure as used in Gemini applies a pressure of 80 mm of mercury, two minutes on and four minutes off. The inset photograph is a picture of one of Graveline's original subjects. The next slide illustrates the Gemini automatic programmer and oxygen bottle, and the location of the inflatable cuffs. The technique is thought to mediate its effect by preventing or slowing the redistribution of blood volume within the body, as well as by exercising the venous network of the lower extremities to maintain tone.



The experiment was flown on Gemini 5, but unfortunately, a small leak developed in the system, and the oxygen supply was depleted after ~~92~~ <sup>4</sup> ~~hours and 26 minutes~~ <sup>DAYS</sup>. The system and method will <sup>be</sup> improved for Gemini 7 as a result of <sup>THIS</sup> ~~our Gemini 5~~ <sup>AND</sup> experience. <sup>NOW</sup> The equipment will <sup>1</sup> operate from the cabin oxygen supply system rather than its own source. Throughout the flight, the cardiovascular responses of the two astronauts were not significantly different. ~~It is interesting, however, that~~ <sup>among the</sup> post-flight evaluations, the tilt table response changes, plasma volume changes, and pooling of blood in the lower extremities were <sup>SLIGHTLY</sup> ~~less~~ marked in the astronaut wearing the cuffs. This <sup>MAY</sup> ~~could~~ very well <sup>BE DUE TO</sup> ~~represent only~~ individual variation, however, and, ~~therefore~~ <sup>SMALL</sup>, one can only conclude, at this point, that the significance of these <sup>1</sup> differences remains to be determined.

Experiment M-2, the now operational tilt table procedures and body fluid studies, were performed pre- and post-flight on Gemini 4 and 5. <sup>THE TILT TABLE PROCEDURE ABOVE WAS PERFORMED IN GEMINI 3.</sup> The tilt table <sup>STUDY</sup> ~~procedure~~ is essentially a cardiovascular provocative test designed to bring out incipient changes in cardiovascular responsiveness. A series of these tests are done pre-flight and post-flight in a manner somewhat similar to that used during the Mercury program for the Cooper flight, MA-9. In Gemini, however, the period of vertical tilt has been expanded from 5 minutes to 15 minutes, the tilt board has been fitted with a saddle-like seat, and the introduction of the Flak test during tilt has been eliminated. This slide indicates how the Stokes litter was used as a tilt board during the Mercury program. In this procedure, the astronaut supported himself on his feet during the period of tilt. The next slide illustrates the Flak tester which is a device used to perform a calibrated Valsalva maneuver.



The subject, blowing into it, with sufficient pressure to match the red line on the piston to the red line on the cylinder exerts a pressure of 40 mm of mercury. As utilized during the Mercury program, the Flak test was introduced at the fourth minute of vertical tilt and the subject maintained the maneuver for 15 seconds to provide an additional cardiovascular stressor. The next slide illustrates the use of the saddle tilt table during a bed rest study. This is ~~essentially~~ the table used in Gemini to eliminate use of the <sup>SUBJECT'S</sup> legs for <sup>1715</sup> support, <sup>DURING TILT.</sup> ~~It has been shown~~ <sup>APPEARS RECENT STUDIES HAVE INDICATED</sup> that this measure renders the test perceptibly more sensitive by obviating the assistance given venous return ~~to the heart~~ by even this minimal activity of the lower extremities. DISCUSSION - MA-9 TILT TABLE TEST RESULTS, GEMINI 4

TILT TABLE TEST RESULTS, AND GEMINI 5 TILT TABLE RESULTS.

Gemini 4 - 21 hrs 8 hrs 5 tilts 52 hrs (3rd 4th tilt Normal - (23-32 hrs))  
 Gemini 5 - 3 hrs 12 hrs 6 tilts 130 hrs (4th tilt - (48-56 hrs))

In conjunction with the tilt table studies performed on Gemini 4 and 5, blood volume, plasma volume, and red blood cell mass determinations have also been made. In both missions, the RISA technique utilizing iodine 125, was used for determinations of plasma volume. In Gemini 4, blood volume was calculated from the hematocrit determination <sup>AND PLASMA VOLUME.</sup> and red cell mass estimates were made by subtraction of the plasma volume from the <sup>CALCULATED</sup> blood volume. In Gemini 5, tagging of red cells with chromium 51 permitted a direct determination of red cell mass, as well as a determination of red blood cell survival. In Gemini 7, red blood cell tagging with C-14 labeled DFP will be added, in order to eliminate the problem of elution and better identify the cause of the diminution of red blood cell <sup>mass</sup>, i.e., whether based on a diminished production or augmented destruction of red blood cells. The results of these determinations on Gemini 4 and Gemini 5 are illustrated on this slide. DISCUSSION OF THE NEXT THREE SLIDES.

|          |    |      |      |
|----------|----|------|------|
| HCTs     |    | 65.4 | 65.5 |
| C.P. pre | 43 | 43   | 45   |
| post     | 41 | 42   | 42   |
| P. pre   | 44 | 47   |      |
| post     | 44 | 42   |      |

18

19 20  
3 1/4 x 4"  
SLIDES



M-3 is the exercise experiment performed with a bungee cord as in Project Mercury. It is an evoked response experiment whose purpose is to measure cardiovascular responses to the same fixed stimulus as the flight continues.

As programmed in Gemini, the M-3 exercise is not a cardiovascular conditioning procedure.

<sup>ALTHO THIS WILL BE EXPLORED IN APOLLO.</sup> The force required to stretch the cord is <sup>APPROXIMATELY</sup> 60 pounds, and the stretch distance is limited to <sup>ABOUT</sup> one foot. The work completed per full stretch is, therefore, <sup>APPROXIMATELY</sup> 60 ft.-lbs. Each exercise period has consisted of

a single stretch per second for 30 seconds. Four such exercise periods were performed by each astronaut throughout each day on both Gemini 4 and

Gemini 5. As shown on the slide, in Gemini the cord is held by means of a loop about the feet, rather than attached to the floor of the vehicle, as

it was in Mercury. ~~This was~~ simply to facilitate storage. <sup>THIS</sup> ~~The next~~ slide illustrates the use of the cord by an astronaut in the spacecraft.

In both Gemini 4 and Gemini 5, the flight crews showed no significant change <sup>IN</sup> of cardiovascular response to this exercise as the flight progressed, nor were there significant differences between in-flight cardiovascular responses and those obtained from similar measurements on the ground. The fact that this method does not appear to be exceptionally sensitive might render it valuable as a predictive device.

Experiment M-4 is the in-flight phonoelectrocardiogram. By recording the phonocardiogram simultaneously with the electrocardiogram, the intervals between electrical stimulus and a fixed point of myocardial response, as indicated by valve closure, are determined for each heart beat. By thus timing the events of mechanical systole, an indication of the status of the



myocardium, and its responsiveness, is gained. Illustrated in this slide is the microphone and signal conditioner used for the phonocardiogram. The next slide shows the approximate placement of this equipment on the astronaut.

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This experiment, whose principal investigator is Dr. Carlos Valbona of the Texas Institute of Research and Rehabilitation <sup>IN HOUSTON, TEXAS</sup> at ~~Baylor University~~, was flown on both Gemini-4 and Gemini-5. The data ~~has~~ not yet been completely reduced from the Gemini-5 mission, but present indications are that no significant changes have been observed in either flight crew.

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M-5 is the analysis of body fluids for various hormonal assays and other determinations. Assays of particular interests are the steroids, catecholamines, and antidiuretic hormone. The experimental procedure calls for the analysis of both blood and urine samples pre- and post-flight, and of urine specimens obtained during flight. <sup>ON GEMINI 7,</sup> 75 cc urine specimens will be collected from each mixture of two successive voidings and stored for post-flight analysis. Urinary output will be determined by mixing the urine in the mixing bag with a fixed amount of tritium before filling the specimen bag. Urinary output calculations will then be made <sup>DURING LABORATORY ANALYSES AFTER THE FLIGHT</sup> by determining the concentration of tritium in the specimen. This experiment will be flown for the first time on Gemini-7. The slide shows the equipment which will be used. <sup>EXPLAIN</sup> It consists of a valve, tritium container, common

mixing bag, and specimen bags. The remainder of the urine after sampling will be dumped overboard. The next slide shows a specimen bag. You might find it of interest <sup>that</sup> / even this small item of equipment must be flight qualified. Its most critical qualification test is its resistance to burst

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in a high vacuum environment, for obvious reasons.

Experiment M-6 is the measurement of bone density by means of a special x-ray technique which is performed pre-flight and post-flight. Shown here is the principal investigator of the experiment and the originator of the technique, Dr. Pauline Berry Mack of Texas Women's University. Although the technique is highly specialized, it employs standard x-ray equipment and a metal wedge densitometer to determine the density of the Os Calsis and middle phalanx of the fifth finger before and after flight. A photo-scanner is used to determine bone density from the x-rays, and pre- and post-flight films are compared. A diminution of bone density was noted in both bones of all four Gemini-4 and Gemini-5 astronauts, by means of this technique. Dr. Mack has reported her Gemini-4 findings of a reduction of Os Calsis density of <sup>APPROXIMATELY</sup> 7 and 10 per cent, and <sup>ABOUT</sup> 10% of finger density. As would be anticipated, all of these values return to normal within a few weeks after the flight. Experiment M-6 will be repeated along with a complimentary experiment, the calcium balance experiment, M-7, on Gemini-7, ~~the long-duration flight~~.

Experiment M-7 is the calcium balance study, perhaps more accurately described <sup>as</sup> an electrolyte balance study. It is a very closely controlled total intake and output study which will identify changes in the mobilization and metabolism of calcium and other electrolytes, under weightless conditions. The principal investigators are Dr. G. Donald Whedon, Director of the National Institute of <sup>ARTHRITIS</sup> Metabolism and <sup>METABOLIC</sup> Arthritic Diseases, Dr. William Newman of the University of Rochester Medical School, and Dr. Leo Lutwak of Cornell University Medical School. This experiment will be flown for the first time on Gemini-7, and the 10 day pre-flight period of study <sup>FOR THIS MISSION</sup> is presently



near completion at Cape Kennedy. Electrolytes which will be evaluated in addition to calcium are nitrogen, phosphorus, potassium, sodium, chloride, and magnesium. As the primary amino acid constituent of bone matrix, hydroxyproline output will also be assayed. Pictured here is the plastic fecal receptacle utilized in Gemini to <sup>INDICATE</sup> ~~illustrate~~ that urine, feces, and sweat will be carefully collected and subjected to quantitative laboratory analysis <sup>POST-FLIGHT</sup>.

Experiment M-8, also to be flown for the first time <sup>on</sup> Gemini-7, is an 29 assessment of depth of sleep during weightless flight as measured by ~~the~~ electroencephalography. The principal investigator is Dr. Peter Kelloway <sup>here</sup> of Baylor University Medical School. Pictured <sup>are</sup> the electrodes and signal conditioners for the bilateral parieto-occipital leads which are to be recorded. The next slide illustrates the leads in position <sup>WORN BY</sup> 30 one of our laboratory technicians at the Manned Spacecraft Center in Houston. As many of you are aware, depth <sup>HAS</sup> of sleep ~~has~~ been directly correlated with a slowing of the electrical activity of the brain. On Gemini-7, one astronaut will wear these electrodes <sup>AND BE RECORDED</sup> <sup>1</sup> for the first four days of the flight.

Experiment M-9 is the otolith function experiment designed by Capt. Ashton Graybiel <sup>AND DR. EARL MILLER</sup> <sup>1</sup> of the Naval School of Aviation Medicine, Pensacola, Florida. The otolith mechanism is primarily a sensor of linear acceleration. Since this is a gravity sensing and gravity-dependent mechanism, the question of the possible development of changes in sensitivity of the otolith in the absence of gravity has been raised. This experiment is designed to evaluate otolith function by means of two methods, which constitute the two parts of the experiment. The first is the determination of egocentric visual localization 31



of the horizon <sup>TAL</sup> in flight. The equipment for this measurement has been incorporated into the equipment for another in-flight experiment. It consists of a light-proof goggle with a rotatable illuminated white line in front of one eye. During flight, the astronaut attempts to rotate the white line to what he considers the horizontal position, i.e., the position parallel with the pitch axis of the spacecraft. His ability to do this is a function of the integrity of otolith responsiveness. The position of the white line is read by the other astronaut by means of external calibrations on the surface of the actuating ring. The second part of the experiment consists of the measurement of ocular counter-rolling pre- and post-flight. This is done by tilting the astronaut to the side in a very precise fashion. With this movement, the ~~eyeballs~~ <sup>GLOBES/EYES</sup> normally rotate very <sup>SLIGHTLY</sup> ~~slowly~~ in the opposite direction in an attempt to maintain alignment with the horizon. The degree of counter-rolling reflects the sensitivity of the otolith mechanism. The amount of sideward tilt is an exact 50 degrees, hence the use of the ~~FRAME~~. The head is held very still by supporting cushions while the camera which is fixed to the frame in front of the eyes takes a series of still pictures to enable the measurement of counter-rolling in minutes of ~~arc~~. The counter-rolling frame is shown on this slide, and the next slide is a close up <sup>SHOWING A BETTER VIEW OF</sup> ~~indicating~~ the position of the camera with the relation to the head. (32)

This experiment was flown on the Gemini-5 mission and a report of findings will be made by the principal investigators after the reduction of the Gemini-7 data (although it is possible that a preliminary report <sup>OF THE GEMINI 5 FINDINGS</sup> may be given by them at an earlier date). I will not preempt their report, but since there is ~~considerable~~ <sup>ON THE PART OF</sup> interest in this area ~~by~~ some individuals, I think I might be permitted to say that the 8 day mission has produced no cause for alarm with respect to otolith function. (OFF)



It should be noted that none of the Gemini flight crews to date have exhibited any overt manifestations in the form of symptoms or signs of adverse effects. The findings which have been discussed in this review of the Gemini in-flight medical investigations have been obtained from specific tests and <sup>LABORATORY</sup> ~~specific~~ measurements ~~which~~ which have been performed for the purpose of obtaining trend information. We are particularly looking forward to Gemini-7 to add significantly to our store of knowledge.

Most of these Gemini experiments will be repeated during the Apollo program since Apollo will offer the opportunity of obtaining physiological information from flight crew members who are ~~more~~ mobile during their ~~period of~~ exposure to weightlessness. Additional medical investigations planned for the Apollo program are: a study of ~~the~~ cytogenetic and immunological effects on blood elements, the use of exercise as a cardiovascular preventive measure, vectorcardiographic studies <sup>UTILIZING</sup> ~~incorporating~~ the Frank Lead system, <sup>INFLIGHT MEASUREMENTS OF METABOLISM</sup> ~~metabolic studies~~, evaluation of lung volumes, a continuation of the <sup>red</sup> blood cell <sup>SURVIVAL</sup> ~~revival~~ studies ~~initiated in Gemini~~, and, depending upon the its level of development the use of lower body negative pressure device. (34)

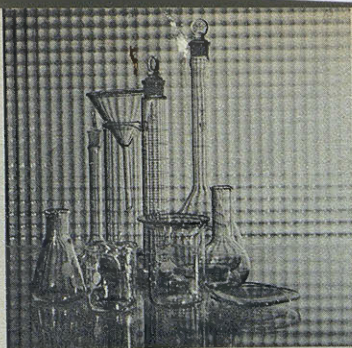
This device, shown in this illustration in a <sup>CLEARLY</sup> ~~purely~~ non-flyable form, is being investigated by the Air Force School of Aviation Medicine. As its name implies, the principle involves the application of lower-body negative pressure to the lower portion of the body to increase the relative volume of blood in the lower extremities. This can be used as a <sup>KIND OF</sup> gravity substitute with respect to the circulatory system in flight and therefore can be applied as an in-flight tilt-table test or as a cardiovascular preventive measure. (OFF)



The flight program currently envisioned as the follow-on to Apollo is the Apollo Applications Program. This is presently in the planning stage<sup>1</sup>, and has not yet been approved as a full-scale flight program. It would therefore be premature to launch into a detailed discussion of the medical plans for this program. However, <sup>WHEN</sup> ~~it~~ approved, it will provide the first form of orbiting research laboratory, as well as <sup>THE OPPORTUNITY FOR</sup> more extensive lunar exploration. As currently <sup>VIEWED</sup> ~~planned~~, the medical experiments for this program fall into 8 categories ~~of investigation~~, namely: behavioral ~~studies~~, neurological, cardiovascular, respiratory, metabolic, endocrine, hematological, and microbiological investigations. Since clinical laboratory procedures will be performed on board the spacecraft, presently planned research and developmental efforts ~~will probably~~ emphasize the development of <sup>micro</sup> techniques, and <sup>CLINICAL LABORATORY</sup> techniques which do not require the use of wet reagents. <sup>IN ADDITION,</sup> THERE WILL BE ~~AN INTENSIFICATION OF EFFORTS~~ A CONTINUING EFFORT TOWARD THE DEVELOPMENT OF NEW BIOMONITORING TECHNIQUES AND EQUIPMENT IMPROVEMENT, FURTHER STUDIES TO DEFINE RANGES OF NORMAL ~~RESPONSES~~ PHYSIOLOGIC RESPONSES OF MAN UNDER DYNAMIC CONDITIONS, AND CONTINUED INVESTIGATION OF THE USE OF THE COMPUTER AND <sup>THE</sup> IMPROVEMENT OF DISPLAY SYSTEMS IN THE HANDLING OF MEDICAL DATA.

<sup>ADD PARA.</sup> In conclusion it has been my pleasure to present to you this account of the NASA program of inflight medical investigation. <sup>AS HAS BEEN SHOWN,</sup> Associated <sup>THE FLIGHT PROGRAM</sup> with ~~it~~ is a ground based program which will call for still further development of new techniques and their validation. It seems logical <sup>A SIGNIFICANT PORTION</sup> that ~~much~~ of this ~~can~~ be accomplished <sup>WITHIN</sup> ~~utilizing~~ the existing facilities <sup>RECOGNIZED</sup> and abilities of the VA hospital system. Your continued support will do much to advance the program, and to facilitate <sup>UTILIZATION OF THIS</sup> the benefits to clinical medicine which <sup>ARE LIKELY TO</sup> ~~will~~ accrue.





*The  
American Journal  
of Medical  
Technology*

January 12, 1967

Sherman P. Vinograd, M. D.  
Director, Medical Science and Technology  
Space Medicine, Manned Space Flight  
National Aeronautics and Space Administration  
Washington, D. C. 20546

Dear Dr. Vinograd:

In accordance with your conversation with Mr. Stephen B. Friedheim, Executive Director of the American Society of Medical Technologists, and with your letter of December 1, 1967, enclosed is a copy of the edited version of your talk entitled, "Medical Technology and the Space Age." This is a revision of the transcript taken at the 35th Annual Convention and Exhibit of the Society held in Miami Beach, Florida last June, and is submitted for your final review.

We sincerely hope that this copy meets with your approval and that it can be returned to us by February 1 so that we can meet our planned schedule of including it in the April issue of the American Journal of Medical Technology.

Sincerely,

(Mrs.) Jo Hamilton  
Director of Publications

JH:jm

Enclosure



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## MEDICAL TECHNOLOGY AND THE SPACE AGE

Sherman P. Vinograd, M.D.  
Director, Medical Science and Technology  
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Washington, D. C. 20546

The following presentation was made at the 35th Annual Convention and Exhibit of the American Society of Medical Technologists in Bal Harbour, Miami Beach, Florida, Wednesday Morning, June 24, 1967 by Dr. Sherman P. Vinograd. Dr. Vinograd is Director of Medical Science and Technology of the Office of Manned Space Flight of NASA and also director of the postgraduate program in space medicine in the college of General Studies, George Washington University in Washington, D. C. Dr. Vinograd is also an internist and flight surgeon. The session was presided over by Miss Teddy Anderson, MT(ASCP), Convention Program Co-Chairman.

### INTRODUCTION

Miss Chairman, members and guests of the American Society of Medical Technologists, I am genuinely honored and pleased to have been invited to make this presentation to you today. I am honored because of the important aspect of medicine which you represent, and I am pleased because of the opportunity I now have to acquaint you with the rather unique activities of the field of space medicine and with its future needs.

To say that many of these needs may relate directly to you, I do not intend to imply that NASA is now recruiting medical astronaut technologists. When that Utopian day arrives, I will somehow manage to be on the selection panel. But rather, these needs are in the realm of <sup>LABORATORY</sup> new techniques and equipment ~~development~~ to expand our medical evaluative capabilities during extended flights of the future.

To acquaint you with the field and with its future requirements, I would like to review the role and activities of the medical experiments program, the Gemini medical findings and elements of our planned activity in Apollo and the very important follow-on Apollo Applications Program.



## TWO SOURCES OF MEDICAL INFORMATION

Medical information from space flight comes from two primary sources. First, there is medical monitoring for the safety of the astronaut. We have used sources of in-flight information for this purpose. This means, of course, that the information must be telemetered, it must be given to medical monitors in real time, and of course, immediately. The parameters measured in Mercury and Gemini will probably be used in Apollo with the electrocardiograms, blood pressure, temperature and respiration.

An additional important factor considered by many people in medical operations---the people that man the consoles around the world---is the voice communication. This harks back to our old clinical adage about the importance of history taking. However, many, many feel that they learn more from the astronaut by direct communication than by any of these measures, although these are extremely important.

The second source of information is more fundamental in nature, and that is the medical experiments program. Now that term may be, in some ways, arguable. But these are controlled measurements which are essentially the constituents of an experiment. The medical experiments are part of an overall NASA experiments program.

I might say at this point that among other things we have been using and are continuing to encourage is the support and actual participation of qualified people in the scientific community in the United States, and even of other nations, by submitting proposals for in-flight medical experiments. One other aspect while I am talking of this category, is that information from medical experiments is obtained by a little deeper probing than the other category of medical operation, and that the information is directed toward the continuation and extension of space flight in the future.

So, while it is not nearly as important to the particular flight from which it is obtained as is the medical safety monitoring information, these medical experiments are extremely important from the standpoint of planning future missions. Most of the information for the medical experiments, incidentally, is taped rather than directly transmitted.



## OBJECTIVES OF MEDICAL INFORMATION

In addition to the overall objectives we were able to accommodate in the Gemini and Apollo, there is another category we will shortly begin to accommodate. This is the assistance to scientific research which is going on on the ground; assistance which may be able to be afforded by the unusual aspects of the environment. In other words, if there is some research going on in an area which can advantageously utilize the weightless characteristics of space flight, these type studies will be included even though it has nothing to do with space flight itself. So, the advancement of science, to put it briefly, is another major category of objectives which we will be able to accommodate with the advent of the Apollo Applications Program.

In the operational realm, as opposed to the scientific research realm, we have four subobjectives which are really quite self explanatory. First is to determine the effects of space flight on man and to determine any trend patterns that we see, in order to enable us to predict longer range space flight. This is highly important. Second is to determine the mechanisms which, by these effects, are manifested, and third is the means of predicting these effects while flight is continuing because many of these effects involve an adaptation to space flight which, at the same time, is a loss of adaptation or a de-adaptation to earth conditions. Whereas the crew might be expected to do very well as long as they are in space flight, weightlessness is a relatively easy situation, they may have some difficulties on return. At least this is a possibility and consequently predicted means become very important.

Lastly, the determination of the most effective remedial or preventive measure to counteract any undesirable effects.

## CRITERIA OF EXPERIMENTS

Experiments are received by our office and they are then reviewed from two basic standpoints before they are proposed for flight. The first is scientific merit, and for our scientific merit review we have utilized the services of the NIH Study Section System. This has been a very effective system and works very advantageously for us as well.



There is a second portion to this scientific validity review, and this is accomplished by the Medical Advisory Council, which is a council of consultants to NASA who meet regularly for the purpose of reviewing experimental proposals.

The second category of review is for feasibility or compatibility. Can it be flown? In other words---this is essentially a review against the background of the constraints of space flight. This category is also divided into two categories. One is technical, or engineering, and the other is operational. Of the engineering constraints, you have probably all heard about the volume constraints, weight and power; all of these are limited.

In terms of the operational group, there are many limiting factors also; astronaut training time, time to accomplish these things in flight, noninterference with other major mission objectives and so forth. There are many of these and, I might say, overall the space flights are a very constraining set of circumstances. One of the most difficult constraints we have is the question of lead time. This is an engineering term and some of you may not be entirely familiar with it, but it means simply the time required to prepare an experiment for space flight once it is approved. In the Gemini Program in which the medical experiments program really got its start, the lead time required was approximately once and a half to two years. It has remained a difficult problem and I think we have got a way to get around it.

As to subjective content of the Gemini program, in our attempts to prognosticate the future, we have used a schema. The schema is simply considered a list of environmental space factors on the one hand and a list of body factors on the other and a look at the intervals between the two in a very systematic way. By doing this, one could envision areas of potential change. We constructed tentative experiments for each of the problem areas.

#### EXPERIMENTAL FACTORS

On the one hand, there is a list of single environmental factors. Now we also went through this and looked at combinations to see which might have a unique or adjunctive effect on each other and augment the overall effect of the combination. But



looking at the single factors and having evaluated this on many occasions, the major point, not the only point of course, which seems to warrant the carrying of space flight experiments is weightlessness - prolonged weightlessness. The reason simply being that we can't duplicate it on earth. We can get 30 seconds of actual weightlessness in an airplane flying a parabolic trajectory, but this isn't nearly enough. In addition, there are other questionable areas. Many of them require space flight, but theoretically at least, once the environment is known, which is a problem in many of these situations, many of them should be able to be duplicated on the ground.

For example, if we knew the radiation environment precisely with which the astronauts would be confronted during space flight, we would be able to duplicate it reasonably on earth and determine the effects of that environment. All I am emphasizing really is that the primary problem area, not the sole problem area, is weightlessness and combinations of other factors with weightlessness like the combination of radiation and weightlessness. Nothing is known about this, and there have been several experiments designed to ferret out these details.

#### FACTORS OF BODY FUNCTIONS

Interestingly enough, in the area of environmental factors, there is no list of body functions; we had to make one up ourselves. It is not a laundry list, but a laundered list in that it has been gone over many times and changed. But, it seems to be holding together quite well. If you ever need one, just write me and we will help you out.

At any rate, in considering the list of body functions and, at this time, only weightlessness, the primary areas of question that we have are in the area of cardiovascular function. This is based primarily on the tilt-table changes. There has been a tendency toward orthostatic hypotension, a mild one actually. In fact I might say at this point, I have got to say it, we have had no overt manifestations of illness or ill effect from space flight so far. They have felt tired, a little bit dehydrated, but other than that they have felt quite well. So all these findings then are simply test findings. As mentioned earlier, the cardiovascular system is an area of interest because of the tendency toward orthostatic hypotension, changes in the tilt-table tolerance and so on.



For those of you who don't know what a tilt-table study is, it's a provocative test. It provokes the cardiovascular system, and it does this merely by removing one of the primary forces which returns blood from the lower extremities to the heart. This is muscular activity of the legs.

In the tilt-table study, the subject is placed in a horizontal position. Blood pressures and heart rates are taken repeatedly, and of course, the heart rates are taken continuously with the electrocardiogram. When these readings become stable, the subject is then tilted to the upright position. He doesn't move a muscle, this is highly important. He is tilted passively to the upright position, actually we use the 70 degree tilt for upright position, and he is just kept in that position. Heart rates and blood pressures continue to be taken. The duration of the tilt varies. In Mercury we used a five minute period; in Gemini we used a 15 minute period of observation. He is then returned to the horizontal position.

This doesn't seem like much of a stress, but it is. In the upright position, the muscular activity of your legs is very important in returning blood to the heart, augmenting venous return.

The muscular area skeletal function then, or if you wish to combine them, muscular-skeletal function, because of our experience in clinical medicine with the phenomena of disuse, atrophies through disuse. The area of fluid balance is of increasing importance, as I think you will see, and also, interestingly enough, the area of hematology. So these are our major considerations at the present time.

There are many others, however, and essentially what we are attempting to do is to evaluate not only the areas where we have seen some degree of change, but also to more or less monitor in depth most of the body functions in order to spot problems early before they do have clinical manifestations if they are going to. This is, of course, what we have been doing in the past as well. There are other unknown possibilities also. We have seen nothing, for example, in the vestibular area, yet we are keenly interested in this area for several reasons. We don't know the effects of long-term weightlessness on



peristaltic activity. For example, does gravity have an effect? Also, ciliary activity; over a long period of time, will cilia lose their directionality? This is question that has been posed.

These questions may sound a little supercilious, but they really aren't when one considers that we have evolved and grown up with gravity as a constant factor, and in the absence of gravity, "What happens?" is quite a logical question.

#### AN EXPERIMENT IS NO BETTER THAN ITS CONTROLS

We have been doing a great deal of ground-based work, some of which has been to accumulate control data on the astronauts. In most of these experiments, the astronauts serve as their own controls, and our control data or base-line data come from the procedures which the astronauts go through during their training.

Selection, of course, is a primary procedure, and much information is gained from selection. Centrifuge and simulation and so on are all part of the normal course of their activity. We do obtain medical information by monitoring the astronauts during these procedures. Specific preflight determinations are made for specific studies, such as the tilt-table studies. We do a series of tilt-table studies, frequently associated with specific procedures, before and after a prolonged simulation to obtain base-line data.

There are other base-line studies and ground-based efforts in which we are engaged. These are simulation procedures to test out equipment, to determine mechanisms on the ground, to be able to foresee as well as we can what might occur during space flight. In these, bed rest is used most commonly as a weightless simulation. In the horizontal position, the cardiovascular system is not required to support the weight of the column of blood, similar to the weightless environment. Similarly, we use water emersion. Frequently it produces the same facts, but a little faster with respect to the cardiovascular system.

On the other hand, bed rest also serves as a simulator for other reasons as well. If you continue it long enough, you get changes in the bones and muscles. We also had some additional equipment in the Gemini program. We used signal conditions. These are nothing more than simple small amplifiers placed close to the source of the signal



to render the signal reproduceable, more accurate. They are little packages about the size of a small match box. There is one for blood pressure and one for electrocardiogram, one for temperature and one for respiration. This last one is worn in a pocket in the undergarments of the astronaut. Also included in this program was a Gemini tape recorder. It records seven channels of information and operates for over 100 hours on one spool of tape. It has been very valuable and is quite small; it's about three by five by eight inches.

Now, turning to the medical experiments program within the Gemini flight, there were nine experiments carried out. Actually there were only eight, one was a series of operational procedures. The first four were related to the cardiovascular system, including the operational procedures. The fifth experiment was protean. It covered everything from dandruff to athlete's foot, as we used to say, because it involves biochemistry of urine and blood and so forth. Experiments six and seven related to the muscular-skeletal system and eight to the evaluation of sleep in flight by means of electroencephalogram. Number nine was a vestibular experiment.

#### BLOOD PRESSURE CUFFS FOR GEMINI

The cardiovascular conditioning experiment sought to evaluate a remedial measure, a countermeasure against the effects of weightlessness and the effects of space flight on the tilt-table response. This was a technique which was originated by Dr. Duane Graveline when he was in the Air Force at Wright-Patterson Air Force Base. This work was done in 1961. In this experiment, he immersed subjects in water for a period of six hours and did tilt-table studies on them before and after water immersion without any remedial measure of any sort.

Of course, in every case, he found a deterioration of tilt-table tolerance. This is not unusual. There are many things that will reduce tilt-table tolerance, but these were quite clear cut. He then used four cuffs, they are nothing more than blood pressure cuffs, one around each upper arm and each thigh. These cuffs were inflated to pressures of 50 millimeters of mercury, one minute on and one minute off throughout the period of



immersion. As a result of this procedure, he found no tilt-table change in every one of his, I think, four subjects, and he repeated this on others.

At any rate, this technique seemed to be worthy of trial, and Dr. Lawrence Dietlein of our NASA Manned Spacecraft Center in Houston proposed the experiment. By using bed rest evaluations, he worked out a technique that was compatible with the spacecraft. Even then it wasn't exactly compatible. Because of constraints, he was limited to using the cuffs only about the thighs, and by actual measurement determined that 80 millimeters of mercury pressure was more effective so 80 millimeters of pressure was used instead of 50. The intervals were two minutes on and four minutes off.

This cuff experiment was flown on Gemini 5 and Gemini 7 on the pilot, not on the command pilot and the two responses were compared. The cuffs were built to fit around the undergarment. In Gemini 5, because of difficulties which I won't explain, the experiment had to be discontinued at the end of the four days of flight. That was an eight day flight. Nevertheless, at the end of that time there seemed to be a very slightly better tilt-table response in the astronaut who was wearing this equipment as opposed to the other one. It was a very slight change, and maybe we were grabbing at straws at that point, I think we probably were.

There were problems about this equipment. In the first place it is confining. When we got into larger spacecraft in which the men could move about freely, they were constrained by all the necessary tubing. Furthermore the equipment tended to be noisy and it was slightly irritating to the skin, being constantly inflated and deflated around their legs.

#### TILT-TABLE STUDIES EVALUATED

At the end of the Gemini 7 flight a tilt-table was transported to the recovery sight. The Gemini tilt-table was little different from the Mercury one. It had a saddle on it eliminating the need for the crew member to support his weight on his own feet. The first postflight heart rate response was considerably higher. This is characteristic. Whereas the blood pressure response to tilt was normal systolic prior to flight and normal



diastolic response to tilt prior to flight, both of these responses as well as the pulse rate were quite noticeably increased immediately after flight. There was also an indication of venous pooling in the lower extremities, which one would expect during the tilt.

Now we thought that we had a nice trend at the Gemini 5 flight because of the blood pressure cuffs, and nobody quite expected it, but it looked good. We are, of course, looking for trends or changes that are measurable in terms of heart rate, heart rate post-flight as compared to preflight tilts, but at least part of the bubble burst. In post-flight tests of the command pilot we found characteristic tilt-table responses. Actually his heart rate response was not quite as pronounced as the Gemini 4 astronauts, that is less than we have seen before, nor was the blood pressure response, but this was characteristic and he began returning to normal quite rapidly. At the 3rd of 24 hours he was completely normal and this was true of the other astronaut too. However, when we look at the other astronaut's first postflight tilt response, there is where the trend is broken. His blood pressure dropped, but the heart rate was no longer able to compensate and he went into a presinkable state. This was at the 11th minute of the test. The tilt-table had to be aborted, that is, he was immediately lowered. He didn't actually pass out, but he didn't feel very good for a minute or so. Then, of course, about ten hours later, his response was about the same as the other astronaut and he also returned to preflight levels in 24 hours.

In terms of heart rate change over preflight response, he fell completely off the curve. In terms of duration of response, he was again way off the curve. In terms of severity of response, he was again way off the curve. In terms of severity of response, this man had an exaggerated response and could be considered very much on the curve. So, as I say, the bubble partially burst. We simply have to accumulate more information and when we do I think we will find the curve will be readjusted several times before it finally might reach anything like an interpretable level or form.

#### PLASMA VOLUME STUDIES

In both of the Gemini 4 and 5 flights, the plasma volumes were measured using RHISA with Item 125 and this was done preflight and post postflight. In Gemini 4 the blood



volume calculations were done on the basis of peripheral hematocrit measurements, and so the red cell mass changes were done on the basis of calculations in Gemini 4. Because we saw a loss of red cell mass on the basis of calculations, we actually did tag a man with Chromium 51 as well as continuing with the direct measurement of plasma volume and found more pronounced changes.

For all practical purposes, the blood volume is taken as the sum of the two, the plasma volume and the red cell mass. The command pilot in Gemini 4 showed a loss of 11 percent of red cell mass, the pilot a loss of 13 percent. The plasma volume losses appeared to be very small, but more pronounced in one astronaut and this made sense because he was our extravehicular astronaut who wore a heavier suit. He was thermally insulated a great deal better than the other astronaut, or worse in terms of thermal stress, and of course there was a loss of blood volume.

In Gemini 5, the eight day flight, there was greater loss of red cell mass. This time, by actual measurement using Chromium 51 a 20% loss in each case, again a very small loss of plasma volume.

In the Gemini 7 flight we had a new phenomenon. Instead of a plasma volume loss, there was a plasma volume gain in both individuals, and in each case the amount was almost exactly right for compensating for the loss in red cell mass so that ultimately there was no change in the circulating blood volume. This is probably why the tilt-table response changes were not as pronounced in the Gemini 7 astronauts. One might ask why did this happen, and I can't tell you why. We can postulate two general types of explanations. One is that a compensatory change took place as the duration of the flight continued, and this might be considered a normal circle. The other possible explanation is that the Gemini 7 people flew under much better circumstances. They drank more religiously, they ate more religiously, they ate well, I should say. They exercised well and very importantly, they did not wear their suits. One other point I would like to make is the interesting finding that all of our astronauts, every one of them, has come down dehydrated. Not severely dehydrated, but clinically, and thirsty. This, then, is a rather unusual finding in that it signifies dehydration with hemodilution rather than hemoconcentration, because we have a loss of red cell mass and unchanged circulating blood volume.



## CORPUSCULAR VOLUME CHARTED

Also, I want to point out that the command pilot's reticulocyte counts were normal, the mean corpuscular volume was within the normal range, and the red cell survival was normal, averaging 25 days. In our laboratory, between 83 and 89 is felt to be within normal range for corpuscular volume, whereas normal range for red cell survival was 22 to 29 days. In postflight findings, we find a reticulocyte count increase a few weeks later which is probably significant. Remember the red cell mass loss? Now, this is what we are getting at: the mean corpuscular volume was increased, and these figures are considered to be significant by the people who did the study. You are always leading with your chin when you try to make too much out of a mean corpuscular volume, we are fully aware of this and most of our data must be refurbished and augmented by a continued effort in this area. But these are the indications now. We do have bigger cells, apparently, postflight. The red cell survival is down, remember 22 to 29 days was the normal range by this method, to 18.5.

So by measurement, using Chromium 51, we have a shortened life span in every instance in which we have measured, and the spleen-liver ratio is up 30%. This is probably not significant. It may be a trend that is worthy of note at this point. This would seem to indicate that of the two possibilities, increased red cell destruction or decreased production, at least we have an indication that there is increased destruction.

The stress of decreased production has not really been accomplished. We don't know how much of a factor that is, but it's quite certain at this point, by putting this information together with other information, that is the osmotic fragility test, they showed an increased fragility. There is a peroxide fragility test which was done by Dr. Mangel at Ohio State University Medical School, and this showed an increased fragility also, so the cells do become more fragile. The mechanism for this is being worked out. It has to do with the resistance of the red cell membrane to peroxides which form as a result of the high partial pressure in the environment.

Tests show that there was an increase of white cell counts, of course. Back in Mercury, it was thought that this was due to dehydration. It has not become apparent that this is the same kind of thing you see in people engaged in sports activities of various kinds, and is due, apparently, to adrenal cortical activity.



## THE PROBLEM OF MEASUREMENT

The M5 experiment is the bane of our existence. This one involves the evaluation of blood and urine pre- and postflight and of urine samples collected in flight. In other words, the urine samples are collected in flight and evaluated postflight. The problem here has been the simple measurement of urinary output in flight. We can't use graduated cylinders or volumetric flasks. They just don't work the way liquids behave in space flight. We have gone through several prototypes, some would really make you laugh. In a very serious and sincere effort to get around this problem, we wound up, in Gemini, with a plan which theoretically should have worked well.

This plan utilized a fixed amount of tritiated water as a dye, and it was a concentration-dilution method. Urine was collected through a tube which came from the astronaut. The juncture was by means of a rubber conduit. It came into a red urinary collection bag, and of course a valve was set at the right position. The man voided into this. Because of stowage problems, we let them combine two specimens in the collection bag and then sample them. The valve was then turned to the next notch and a fixed amount of tritiated water was injected into the sample. This was mixed by hand, the valve was turned again after the sample bag was attached and the bag was squeezed, filling the sample bag. The valve was turned again and the remainder of the contents went outside the spacecraft into space, forming what Wally Schirra dubbed as "uricicles" on the outside of the spacecraft. He said they were very pretty, by the way, in case you are interested.

At any rate, this should have worked very well by determining the concentration of tritiated water in the specimen, we could then theoretically back calculate and determine the output of the individual. The only problem was that fluids don't mix as well in space flight, and the weightless problem is a real one unless the astronauts are particularly careful, and of course we didn't know this until later.

Consequently, with inadequate mixing, on one flight, and I won't mention which one, it wasn't any of the ones we were discussing, we came back with a reading of a prodigious output of 12 liters in one man, one voiding. We didn't really quite believe it. They are



good people, but I don't know anybody that good. The data from the Gemini 7 weren't quite sensible until we used a presumption and calculated on the basis of that presumption. This was that the output of creatine was fixed and I don't know if that is valid or not, but it did convert the data obtained into seemingly sensible data.

I will only describe the M5 findings in a very cursory way since I don't know how valid they are at this moment. Not that they weren't carefully done; they were very carefully done, but we did have trouble. In general, the hydroxycorticosteroids were reduced during flight and were increased in the urine immediately postflight, probably indicating that the fellows were quite relaxed up there. The immediate postflight findings showed an increase, which was expected because this was the time of alertness. There was fluid retention and electrolyte retention postflight also.

Then there was the problem of developing a defacation bag. I am always asked how this is done in space flight and, in a word, this is how it is done. It is just a double bag with a sleeve on it and the bag is held in the appropriate place, and afterward paper is attached, at least in one model. There are several models and versions of this. Then the sleeve is simply turned insideout, automatically closing off the bag. The bag, like the urine samples, is very practically stored in the food compartment. It was the only place in Gemini.

#### BONE MINERALIZATION CHECKED

The M6 experiment was an evaluation of the mineralization of bone or changes in the mineral content of the bone by means of x-ray densitometry. Dr. Pauline Mack's technique is to use standard x-ray equipment and use a metal wedge densitometer. Pictures were taken of the astronauts' hands and feet, nonweight-bearing and weight-bearing bones respectively, preflight and postflight. A reduction in bone density was noted. There seemed to be less of a reduction of our Gemini 7 astronauts, the 14-day astronauts, than in the others. None of this was serious, but these were trends. There were calcium balance experiments and they showed positive balance prior and after flight, in-flight response showed a negative calcium balance. There was a somewhat greater indication of negative phosphate and nitrogen balance in flight, both resumed normal balance postflight.



## SOME GENERALIZATIONS ABOUT THE FUTURE

The Apollo program of medical experiments will consist essentially of gathering confirmatory pre- and postflight data, since Apollo flight durations will not exceed the maximum duration Gemini flight. There will be some changes however. Pre- and post-flight tilt-table studies will be replaced at some point by lower body negative pressure evaluations. This involves the application of negative pressure to the lower portion of the body as a substitute for tilt. The tilt, remember, is dependent upon gravity and can't be used in flight. Lower body negative pressure can. We do have, at this point, a collapseable kind of lower body negative pressure equipment which can be stored in flight.

Pre- and postflight immunological studies and lymphocyte karyotyping will be added in Apollo, and finally, the inflatable cuff technique will be replaced by the addition of an anti-deconditioning garment. That will essentially be an elastic leotard worn over the central portion of the body.

Certainly the greatest opportunity to learn of the effects of space flight on man and of the means by which we can support and extend his activities in space, is in the Apollo Applications Program. This series of flights will utilize Apollo equipment and technology to accomplish longer and more complex orbital missions and extended lunar exploration. The primary purpose of the whole AAP now is scientific gain. By means of the cluster technique, the third stage of the Saturn launch vehicle, which is the S IV-B, will be utilized as a habitable spacecraft. Its volume measures approximately 20 feet in diameter by 30 feet in length, for a total of 10,000 cubic feet of available space. This is pure luxury. We have always been very cramped for space.

By means of a multiple docking adapter which will be transported into orbit in place of an Apollo lunar module, the command module will dock by means of this adapter with the S IV-B. The environmental control system and equipment of the S IV-B will be contained in the multiple docking adapter. The gaseous atmosphere provided in the AAP will now be a five psi two-gas system of 69% oxygen, or roughly sea level partial oxygen, and 31% nitrogen. Flight durations of up to 30 days, and up to 60 days, respectively, are now



planned early in the program. At the completion of the AAP, we hope to have incrementally obtained flight durations of up to one year.

#### FROM THE MEDICAL POINT OF VIEW

Plans for the 30- and 60-day missions include all of the investigational efforts begun in Gemini and Apollo, utilizing improved methods and techniques. Additional investigations presently planned for these flights are the evaluation of metabolic requirements, respiratory function, a test of semicircular canal function, and task performance in space as compared with the earth by means of a time and motion study. There is an additional technique which will be added, and this is a Frank lead system of electrocardiography which is a triaxial system, and from it we can get vectorcardiograms. We will also get, if we wish, the roughly standard 12-lead ECGs with which we are so familiar clinically.

Habitability evaluations will be given strong emphasis as flights become progressively longer. Technique and equipment improvements will be made, such as the development of a bicycle ergometer for space flight; an accurate and flyable gas chromatograph for measuring oxygen, carbon dioxide and water vapor; and, very probably, a new device especially designed for space use for the determination of specimen and human body mass. This mass measurement technique, which actually consists of two pieces of equipment, one for small and one for large masses, employs the principle of inertial oscillation to achieve a very high degree of accuracy. The small mass measurement device is accurate to something like 0.03%, and the human measurement device to 0.1%.

As flights continue to expand into longer periods of time, an increased medical investigative capability will be required. It is for this purpose that we have now initiated the early developmental stages of a medical laboratory for space flight. To facilitate maximal flexibility, it will be designed in modular form. In this way older techniques can be quickly replaced and new and improved ones as they are developed can be rapidly switched, as may be indicated by late flight information. This would obviate lead time problems with which we have been plagued in the past. The major component evaluative capabilities of the flight laboratory will consist of physiological, behavioral, microbiological, biochemical and data management subsystems.



Research and developmental efforts are needed in each of these areas to advance the state of the art in order to increase versatility and capability of equipment and procedures, improved sensitivity, accuracy, reproduceability and ease and speed or performance and to decrease volume, weight and power requirements.

#### IN SUMMARY

With particular reference to medical technology in the field of biochemistry, liquid reagents, because of their behavior in weightlessness and because many of them are toxic, must either be used in minute quantities absolutely contained, or completely avoided. If they are to be avoided, existing methodologies must be replaced by physical chemical techniques, and new development possibilities in this realm are presently being, and will continue to be investigated. The handling of specimens for biochemical determinations will most probably require cathode ray tube techniques, which together with several other techniques are being evaluated for further study and development.

A third research and development effort of importance in your field is the problem of sample preservation for postflight analysis. This, again, is not a simple problem, for there will be many samples of all human products accumulated over a period of months to years of future flights.

Finally, a fourth area of challenge is the technique which will enable us to determine changes in microbial ecology within the closed environment of the spacecraft over long periods of time.

Each of these areas will require continuing and multiple research efforts. Each of them is a challenge to your profession and to the ingenuity of you, its members. As is true of our space effort in general, space medicine has, by virtue of its unique problems and unique findings, contributed to its parent field either directly or by giving impetus to specific kinds of endeavor.

As future requirements are met, they themselves, and ramifications of the effort which they engender should find increasing application to clinical medicine. This is true of many medical specialties, but in none more prominently, or promisingly than in the field of medical technology. Thank you.



File for me  
8-23-68  
ms

22 May 1968

MEMORANDUM

TO: Lecturers in the 1968 Bio-Space Technology Training Program

FROM: Richard L. Jennings, Bio-Space Program Director

SUBJECT: Reimbursement for Travel Expenses and Housing Arrangements during the Bio-Space Training Program

1. Enclosed are two (2) Tax Exemption Certificates to be used when purchasing airline tickets for travel to and from the Bio-Space Technology Training Program at Wallops Station, Virginia. The State of Virginia will only reimburse tax-exempt travel expenses.

Other modes of transportation are reimbursable including rental car, train, or bus as long as ticket stubs are submitted when requesting travel expense reimbursement. Use of private auto is reimbursable at the rate of 7¢ per mile.

After your lecture at Wallops, if you will submit to me a travel voucher listing your transportation (and associated, such as motels, meals, tolls) expenses, I will arrange for these expenses to be reimbursed. The appropriate travel voucher forms can be obtained from the Bio-Space Secretary (Mrs. Linda Sheffield) at Wallops Station.

2. Enclosed also is a list of motel and cottage housing in the Wallops area. If you wish to stay in this type of housing, please make your own advance reservations. There is housing available for single men on the Station in the Officer's Quarters for \$2.00 per night. The room charge includes linens, towels and blankets. The rooms are air conditioned. If you request us to do so, we will reserve a room for you in the Officer's Quarters for the dates you specify.
3. Also enclosed for your information are:
  - a) List of Program participants
  - b) List of Program lecturers
  - c) The Class Lecture Outline. Please check the date for your presentation. Last year, several speakers arrived a day late and caused considerable confusion as well as personal embarrassment.
  - d) Biographical Sketch Form. Please fill out and return as soon as possible.



I look forward to seeing each of you at Wallops Station in August. I hope that each of you can stay overnight at Wallops, either prior to, or after, your lecture. This will give the students the opportunity to interact with you on a person-to-person basis during the evening. These informal evening sessions have proven to be extremely stimulating and profitable for students and speakers alike.

If you need any assistance please call me in Charlottesville, Virginia. The number is AC 703/ 296-9233.



OFF-STATION  
LODGING  
(Prices Tentative)

Please make your own reservations

Beach Road Motel  
Maddox Boulevard  
Chincoteague, Va. 23336  
703-336-6562

Five minutes by car from ocean beach. Completely furnished cottages with air conditioning and TV for \$15.00 per day. \$12.00 for double occupancy

Birchwood Motel  
573 South Main Street  
Chincoteague, Va. 23336  
703-336-6133

Approximately six miles from Station  
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Nice beach ten minutes away  
Motel rooms, no kitchen  
One small room, double bed \$10.00  
Larger room, two beds 14.00

Camps

There are several camping sites on Chincoteague Island. For information about them, please write to:  
Department of Information  
Chincoteague Island, Va. 23336

The Haven Cottages  
170 Maddox Boulevard  
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Five minutes by car from ocean beach. Two bedrooms, bath, kitchen, living room and screened porch. Linens, dishes, silverware, cooking utensils and TV included. \$75.00 per week. Approximately six miles from Station.

Holiday Cottages  
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Cottages and apartments. Furnished with linens, TV, complete house-keeping facilities. Family rates (up to six people) \$100.00 per week. Five minutes by car from ocean beach. Approximately six miles from Station.

Holiday Inn of Pocomoke City  
U. S. Route 13, South  
Pocomoke City, Maryland 21851  
301-957-3000

Restaurant  
Single (1 person) \$ 9.00  
Single (2 persons) 12.00  
Double (1 person) 9.00  
Double (2 persons) 14.00  
Approximately ten miles from Station

Holiday Inn  
Salisbury, Maryland 21801  
301-742-7194

Single (1 person) \$ 9.00  
Single (2 persons) 12.00  
Double (1 person) 10.00  
Double (2 persons) 14.00  
Approximately 45 miles from Station



The Inlet  
Box 207  
Chincoteague, Va. 23336  
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Camping, cottages, swimming, boats,  
motors, restaurant, launching  
ramps. Approximately six miles  
from Station. Includes boat:  
\$12.00 per day for two people,  
75.00 per week  
\$14.00 per day for four or more  
85.00 per week

The Marina Motel  
(South Main Street)  
P. O. Box 83  
Chincoteague, Va. 23336

One bed, \$10.00 per day, \$55.00  
per week  
Two beds, \$14.00 per day, \$75.00  
per week  
Apartment with two beds, \$16.00  
per day, \$90.00 per week  
\$2.00 per person per day over  
four in apartment and two bedroom  
Approximately six miles from Station

The Mariner Motel  
Ocean Beach Boulevard  
Chincoteague, Virginia 23336  
703-336-5044  
Mrs. Martha Lemard  
Approximately six miles  
from Station

Room with double bed \$10.00 per  
day, \$55.00 per week  
Room with two double beds \$14.00  
per day, \$75.00 per week  
Two bedroom apartments, \$18.00  
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Air conditioned, TV, apartments  
completely furnished

The Owl Motel  
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| Motel            | Cottages w/o kitchen |
|------------------|----------------------|
| 1 person \$10.00 | 1 person \$7.00      |
| 2 persons 12.00  | 2 persons 9.00       |
| 3 persons 14.00  | 3 persons 10.00      |
| 4 persons 16.00  | 4 persons 11.00      |

Quality Courts Motel  
Route 2  
Pocomoke City, Maryland 21851  
301-957-1300  
Richard S. Tull, Manager  
Approximately ten miles  
from Station

Restaurant next door  
Room with one bed for one person  
\$8.00. Room with one bed for two  
persons, \$10.00. Room with two  
beds for two persons, \$12.00  
For each additional person \$1.00  
Cribs \$1.00. No charge for  
children under 12 years of age

Sea Shell Motel  
Willow Street  
Chincoteague, Va. 23336  
703-336-6589  
Bob and Nancy Conklin  
Approximately six miles  
from Station

| Swimming Pool        | Daily       | Weekly  |
|----------------------|-------------|---------|
| Motel Rooms          | \$12.00     | \$72.00 |
| Efficiencies         | 15.00       | 90.00   |
| Additional rollaways | \$2.00 each |         |



Twin Towers Motel  
Pocomoke City, Maryland 21851  
301-957-2111  
Approximately ten miles  
from Station

Whispering Pines Motel  
Accomac, Virginia  
703-787-1300  
Approximately twenty  
miles from Station

Restaurant  
Single \$7.00 and \$9.00  
Double (2 persons) \$10.00 - \$12.00  
(3 persons) 12.00 - 15.00

Single (one person double bed)  
\$7.00  
Single (two persons double bed)  
\$8.50  
Twin (two persons two double beds)  
\$10.00  
Twin (three persons two double beds)  
\$12.00



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NASA Headquarters  
Washington, D. C. 20546



Version 6  
3/18/68

CLASS LECTURE OUTLINE  
THE FOURTH NASA-UVA BIO-SPACE TECHNOLOGY TRAINING PROGRAM

AUGUST 5 - 23, 1968  
Wallops Station, Virginia

August 5--Monday

- |     |            |                  |                                                                                                                                                              |
|-----|------------|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.1 | 7:30 a.m.  | Richard Jennings | Introduction to the Bio-Space Program                                                                                                                        |
| 1.2 | 7:45 a.m.  | Robert Krieger   | Welcome to Wallops Station                                                                                                                                   |
| 1.3 | 8:00 a.m.  | Nello Pace       | History, Purpose and Scientific Objectives of the Bio-Space Technology Training Program                                                                      |
| 1.4 | 10:00 a.m. | Wallops Staff    | Bio-Space Training Aid Introduction: Arcas Environment, Flight Characteristics, Payload and Recovery System, Telemetry System. Film: "In the Years to Come." |
| 1.5 | 1:00 p.m.  | Wallops Staff    | Tour of Wallops Facilities (launch site, radar, telemetry, control center, meteorology: cursory inspection, no lectures)                                     |
| 1.6 | 3:00 p.m.  | George McAlpine  | Communications Theory                                                                                                                                        |

August 6--Tuesday

- |     |            |                                     |                                    |
|-----|------------|-------------------------------------|------------------------------------|
| 2.1 | 8:00 a.m.  | George McAlpine                     | Information Theory                 |
| 2.2 | 10:00 a.m. | Charles Blocher                     | Radar and Optical Tracking Systems |
| 2.3 | 1:00 p.m.  | Charles Blocher                     | Telemetry                          |
| 2.4 | 3:00 p.m.  | George Ludwig                       | Data Acquisition and Processing    |
| 2.5 | 4:30 p.m.  | (McAlpine, Blocher, Seminar Ludwig) |                                    |

August 7--Wednesday

- |     |           |               |                                                                                                            |
|-----|-----------|---------------|------------------------------------------------------------------------------------------------------------|
| 3.1 | 8:00 a.m. | Wallops Staff | FIRST LAUNCH*                                                                                              |
| 3.2 | 1:00 p.m. | Participants  | Participants engage in ground testing of backup animal, interpret telemetry data from morning launch, etc. |

\*NOTE: On the first three launch days, students rotate between 3 sites: 1. control center; 2. telemetry; 3. blockhouse and radar. At these sites, they will receive detailed lectures with particular reference to Wallops equipment.



August 8--Thursday

|     |           |                          |                                             |
|-----|-----------|--------------------------|---------------------------------------------|
| 4.1 | 8:00 a.m. | Jerry Stuart             | Role of Bioinstrumentation in Space Biology |
| 4.2 | 1:00 p.m. | Raymond Kado             | Bioinstrumentation, continued               |
| 4.3 | 4:00 p.m. | Wallops Staff            | Post-flight Review of First Launch          |
| 4.4 | 4:15 p.m. | (McAlpine, Stuart, Kado) | Seminar                                     |

August 9--Friday

|     |            |                    |                                             |
|-----|------------|--------------------|---------------------------------------------|
| 5.1 | 8:00 a.m.  | Vincent DeLiberato | Environmental Simulation and Ground Testing |
| 5.2 | 10:00 a.m. | Karl Lange         | Gravity Preference Experiment               |
| 5.3 | 1:00 p.m.  | Joseph Saunders    | The NASA Biosatellite Program               |

August 12--Monday

|     |            |                     |                                               |
|-----|------------|---------------------|-----------------------------------------------|
| 6.1 | 8:00 a.m.  | George Matthews     | Trajectories and Orbital Mechanics            |
| 6.2 | 10:00 a.m. | Frederick de Serres | Biosatellite Radiation Experiments            |
| 6.3 | 11:00 a.m. | Donald Ekberg       | Biosatellite Cellular Zero-G Experiments      |
| 6.4 | 1:00 p.m.  | Stephen Gray        | Biosatellite Plant Experiments                |
| 6.5 | 3:00 p.m.  | George Matthews     | Trajectories and Orbital Mechanics, continued |

August 13--Tuesday

|     |            |                    |                                               |
|-----|------------|--------------------|-----------------------------------------------|
| 7.1 | 8:00 a.m.  | George Matthews    | Trajectories and Orbital Mechanics, continued |
| 7.2 | 10:00 a.m. | James Kerley       | Acceleration and Impact                       |
| 7.3 | 1:00 p.m.  | James Kerley       | Shock, Vibration, Noise                       |
| 7.4 | 3:00 p.m.  | George Matthews    | Trajectories and Orbital Mechanics, continued |
| 7.5 | 4:30 p.m.  | (Matthews, Kerley) | Seminar                                       |

August 14--Wednesday

|     |           |               |                                 |
|-----|-----------|---------------|---------------------------------|
| 8.1 | 8:00 a.m. | Wallops Staff | SECOND LAUNCH                   |
| 8.2 | 1:00 p.m. | Participants  | Ground testing of backup animal |

August 15--Thursday

|     |            |                                 |                                             |
|-----|------------|---------------------------------|---------------------------------------------|
| 9.1 | 8:00 a.m.  | George Matthews                 | Propulsion                                  |
| 9.2 | 11:00 a.m. | William Haughey                 | NASA Launch Vehicles                        |
| 9.3 | 1:00 p.m.  | Wallops Staff                   | Use of Sounding Rockets for Experimentation |
| 9.4 | 3:00 p.m.  | John Vehrencamp                 | Thermal Design                              |
| 9.5 | 4:00 p.m.  | Wallops Staff                   | Post-flight Review of Second Launch         |
| 9.6 | 4:15 p.m.  | (Matthews, Haughey, Vehrencamp) | Seminar                                     |



August 16--Friday

|      |           |                 |                              |
|------|-----------|-----------------|------------------------------|
| 10.1 | 8:00 a.m. | George Matthews | Aerodynamics and Stability   |
| 10.2 | 1:00 p.m. | Robert Fischell | Spacecraft Control Systems   |
| 10.3 | 4:00 p.m. | Robert Fischell | Space Electric Power Systems |

August 19--Monday

|      |           |               |                                 |
|------|-----------|---------------|---------------------------------|
| 11.1 | 8:00 a.m. | Wallops Staff | THIRD LAUNCH                    |
| 11.2 | 1:00 p.m. | Participants  | Ground testing of backup animal |

August 20--Tuesday

|      |           |                                 |                                     |
|------|-----------|---------------------------------|-------------------------------------|
| 12.1 | 8:00 a.m. | Richard Young                   | Earth Atmosphere Environment        |
| 12.2 | 9:00 a.m. | Richard Young                   | Space and Planetary Environments    |
| 12.3 | 1:00 p.m. | Cyril Ponnampertuma             | Chemical Origin of life, Exobiology |
| 12.4 | 3:00 p.m. | Lawrence Hall                   | Contamination and Sterilization     |
| 12.5 | 4:00 p.m. | Wallops Staff                   | Post-flight Review of Third Launch  |
| 12.6 | 4:15 p.m. | (Young, Hall,<br>Ponnampertuma) | Seminar                             |

August 21--Wednesday

|      |           |              |                                    |
|------|-----------|--------------|------------------------------------|
| 13.1 | 8:00 a.m. | Participants | FOURTH LAUNCH**                    |
| 13.2 | 1:00 p.m. | Participants | Ground testing of backup payload** |
| 13.3 | 4:30 p.m. | Participants | Launch Evaluation**                |

August 22--Thursday

|      |            |                             |                                                      |
|------|------------|-----------------------------|------------------------------------------------------|
| 14.1 | 8:00 a.m.  | Gilbert Levin               | Life Detection Systems                               |
| 14.2 | 11:00 a.m. | Richard Young               | Voyager Biological Lab. (VBL)                        |
| 14.3 | 1:00 p.m.  | Enrico Mercanti             | Systems Concept Approach to<br>Space Experimentation |
| 14.4 | 4:30 p.m.  | (Young, Levin,<br>Mercanti) | Seminar                                              |

August 23--Friday

|      |            |                  |                                  |
|------|------------|------------------|----------------------------------|
| 15.1 | 8:00 a.m.  | Sherman Vinograd | U.S. Bioastronautic Program      |
| 15.2 | 9:30 a.m.  | Don Flickinger   | U.S.S.R. Bioastronautic Program  |
| 15.3 | 11:00 a.m. | Richard Jennings | Program Critique by Participants |
| 15.4 | 12:00 noon |                  | Program Conclusion               |

\*\* On the fourth launch day, the participants prepare payload, and add modifications (if any). They also develop the afternoon ground testing, and present the post-flight review.



Major Lecture Areas (Resident Consultants)

- 1st week: Telemetry, bioinstrumentation, ground simulation and testing of payload (McAlpine)
- 2nd week: Space mechanics, mechanical and structural engineering, spacecraft control (Matthews)
- 3rd week: Exobiology, life detection, contamination and sterilization, systems approach (Young)

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Wednesdays

& 3rd Monday - Launch, ground-test backup animal, post-flight review

Tuesdays and Thursdays - seminar days

- 8/6 Seminar on basic radio communications (McAlpine, Blocher, Ludwig)
- 8/8 Seminar on bioinstrumentation, environmental simulation, ground testing (McAlpine, resident consultant in ground simulation, resident consultant in space biology, Stuart, and Kado)
- 8/13 Seminar on aerospace engineering (Matthews and Kerley)
- 8/15 Seminar on selection of launch vehicles for bioexperimentation (Matthews, Haughey and Vehrencamp)
- 8/20 Seminar on life detection (resident consultant in bio-engineering Young, Hall and Ponnampuruma)
- 8/22 Seminar on exobiology (Young, Levin, and Mercanti)

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SOCIAL ACTIVITIES

|                     |              |                                                 |
|---------------------|--------------|-------------------------------------------------|
| August 5--Monday    | 8-12 p.m.    | Informal Get-Acquainted Party at Officer's Club |
| August 13--Tuesday  | 7:30-11 p.m. | Picnic at Wallops Station Pool                  |
| August 22--Thursday | 7:00 p.m.    | Banquet at Officers Club                        |



1968 BIO-SPACE TECHNOLOGY TRAINING PROGRAM PARTICIPANTS

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BIO-SPACE TECHNOLOGY TRAINING PROGRAM

THORNTON HALL  
UNIVERSITY OF VIRGINIA  
CHARLOTTESVILLE, VIRGINIA 22901

703-296-9233

6 May 1968

Dr. Sherman P. Vinograd  
Space Medicine Division  
NASA Headquarters  
Washington, D. C. 20546

Dear Sherm:

Plans are being finalized for the 1968 Bio-Space Technology Training Program at Wallops Station. We are compiling notebooks for the participants which will include copies of each speaker's presentation.

I would like to ask you to submit to me by 15 June one of the following:

- a) one typed copy of your presentation suitable for reproduction by photo-offset process; or
- b) sixty-five copies of a previously published paper (or report) which is reasonably close in content to the topics to be covered in your presentation.

Please keep in mind during your preparation that your audience will be composed of fifty life scientists from about twenty different disciplinary backgrounds, with a nationwide geographical distribution. The group will be young (average age less than thirty); most of the participants will be graduate students or recent recipients of doctorates. They will have little, or no, background in mathematics or physics.

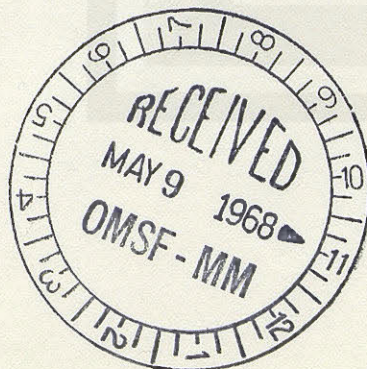
Almost any type of visual aid you might require will be available in the lecture room. We have a movie projector, vue-graph, opaque projector, slide projectors (2" x 2" as well as lantern slides), blackboard, etc. All lectures will be tape recorded. The lecture room has a loud speaker system and is air conditioned.

Thank you for your cooperation.

With warmest regards,

*Dick*

Richard L. Jennings  
Director



RLJ:lts

enclosure



Version 6  
3/18/68

CLASS LECTURE OUTLINE  
THE FOURTH NASA-UVA BIO-SPACE TECHNOLOGY TRAINING PROGRAM

AUGUST 5 - 23, 1968  
Wallops Station, Virginia

August 5--Monday

- |     |            |                  |                                                                                                                                                              |
|-----|------------|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.1 | 7:30 a.m.  | Richard Jennings | Introduction to the Bio-Space Program                                                                                                                        |
| 1.2 | 7:45 a.m.  | Robert Krieger   | Welcome to Wallops Station                                                                                                                                   |
| 1.3 | 8:00 a.m.  | Nello Pace       | History, Purpose and Scientific Objectives of the Bio-Space Technology Training Program                                                                      |
| 1.4 | 10:00 a.m. | Wallops Staff    | Bio-Space Training Aid Introduction: Arcas Environment, Flight Characteristics, Payload and Recovery System, Telemetry System. Film: "In the Years to Come." |
| 1.5 | 1:00 p.m.  | Wallops Staff    | Tour of Wallops Facilities (launch site, radar, telemetry, control center, meteorology: cursory inspection, no lectures)                                     |
| 1.6 | 3:00 p.m.  | George McAlpine  | Communications Theory                                                                                                                                        |

August 6--Tuesday

- |     |            |                                     |                                    |
|-----|------------|-------------------------------------|------------------------------------|
| 2.1 | 8:00 a.m.  | George McAlpine                     | Information Theory                 |
| 2.2 | 10:00 a.m. | Charles Blocher                     | Radar and Optical Tracking Systems |
| 2.3 | 1:00 p.m.  | Charles Blocher                     | Telemetry                          |
| 2.4 | 3:00 p.m.  | George Ludwig                       | Data Acquisition and Processing    |
| 2.5 | 4:30 p.m.  | (McAlpine, Blocher, Seminar Ludwig) |                                    |

August 7--Wednesday

- |     |           |               |                                                                                                            |
|-----|-----------|---------------|------------------------------------------------------------------------------------------------------------|
| 3.1 | 8:00 a.m. | Wallops Staff | FIRST LAUNCH*                                                                                              |
| 3.2 | 1:00 p.m. | Participants  | Participants engage in ground testing of backup animal, interpret telemetry data from morning launch, etc. |

\*NOTE: On the first three launch days, students rotate between 3 sites: 1. control center; 2. telemetry; 3. blockhouse and radar. At these sites, they will receive detailed lectures with particular reference to Wallops equipment.



August 8--Thursday

|     |           |                          |                                             |
|-----|-----------|--------------------------|---------------------------------------------|
| 4.1 | 8:00 a.m. | Jerry Stuart             | Role of Bioinstrumentation in Space Biology |
| 4.2 | 1:00 p.m. | Raymond Kado             | Bioinstrumentation, continued               |
| 4.3 | 4:00 p.m. | Wallops Staff            | Post-flight Review of First Launch          |
| 4.4 | 4:15 p.m. | (McAlpine, Stuart, Kado) | Seminar                                     |

August 9--Friday

|     |            |                    |                                             |
|-----|------------|--------------------|---------------------------------------------|
| 5.1 | 8:00 a.m.  | Vincent DeLiberato | Environmental Simulation and Ground Testing |
| 5.2 | 10:00 a.m. | Karl Lange         | Gravity Preference Experiment               |
| 5.3 | 1:00 p.m.  | Joseph Saunders    | The NASA Biosatellite Program               |

August 12--Monday

|     |            |                     |                                               |
|-----|------------|---------------------|-----------------------------------------------|
| 6.1 | 8:00 a.m.  | George Matthews     | Trajectories and Orbital Mechanics            |
| 6.2 | 10:00 a.m. | Frederick de Serres | Biosatellite Radiation Experiments            |
| 6.3 | 11:00 a.m. | Donald Ekberg       | Biosatellite Cellular Zero-G Experiments      |
| 6.4 | 1:00 p.m.  | Stephen Gray        | Biosatellite Plant Experiments                |
| 6.5 | 3:00 p.m.  | George Matthews     | Trajectories and Orbital Mechanics, continued |

August 13--Tuesday

|     |            |                    |                                               |
|-----|------------|--------------------|-----------------------------------------------|
| 7.1 | 8:00 a.m.  | George Matthews    | Trajectories and Orbital Mechanics, continued |
| 7.2 | 10:00 a.m. | James Kerley       | Acceleration and Impact                       |
| 7.3 | 1:00 p.m.  | James Kerley       | Shock, Vibration, Noise                       |
| 7.4 | 3:00 p.m.  | George Matthews    | Trajectories and Orbital Mechanics, continued |
| 7.5 | 4:30 p.m.  | (Matthews, Kerley) | Seminar                                       |

August 14--Wednesday

|     |           |               |                                 |
|-----|-----------|---------------|---------------------------------|
| 8.1 | 8:00 a.m. | Wallops Staff | SECOND LAUNCH                   |
| 8.2 | 1:00 p.m. | Participants  | Ground testing of backup animal |

August 15--Thursday

|     |            |                                 |                                             |
|-----|------------|---------------------------------|---------------------------------------------|
| 9.1 | 8:00 a.m.  | George Matthews                 | Propulsion                                  |
| 9.2 | 11:00 a.m. | William Haughey                 | NASA Launch Vehicles                        |
| 9.3 | 1:00 p.m.  | Wallops Staff                   | Use of Sounding Rockets for Experimentation |
| 9.4 | 3:00 p.m.  | John Vehrencamp                 | Thermal Design                              |
| 9.5 | 4:00 p.m.  | Wallops Staff                   | Post-flight Review of Second Launch         |
| 9.6 | 4:15 p.m.  | (Matthews, Haughey, Vehrencamp) | Seminar                                     |



August 16--Friday

|      |           |                 |                              |
|------|-----------|-----------------|------------------------------|
| 10.1 | 8:00 a.m. | George Matthews | Aerodynamics and Stability   |
| 10.2 | 1:00 p.m. | Robert Fischell | Spacecraft Control Systems   |
| 10.3 | 4:00 p.m. | Robert Fischell | Space Electric Power Systems |

August 19--Monday

|      |           |               |                                 |
|------|-----------|---------------|---------------------------------|
| 11.1 | 8:00 a.m. | Wallops Staff | THIRD LAUNCH                    |
| 11.2 | 1:00 p.m. | Participants  | Ground testing of backup animal |

August 20--Tuesday

|      |           |                                 |                                     |
|------|-----------|---------------------------------|-------------------------------------|
| 12.1 | 8:00 a.m. | Richard Young                   | Earth Atmosphere Environment        |
| 12.2 | 9:00 a.m. | Richard Young                   | Space and Planetary Environments    |
| 12.3 | 1:00 p.m. | Cyril Ponnampereuma             | Chemical Origin of life, Exobiology |
| 12.4 | 3:00 p.m. | Lawrence Hall                   | Contamination and Sterilization     |
| 12.5 | 4:00 p.m. | Wallops Staff                   | Post-flight Review of Third Launch  |
| 12.6 | 4:15 p.m. | (Young, Hall,<br>Ponnampereuma) | Seminar                             |

August 21--Wednesday

|      |           |              |                                    |
|------|-----------|--------------|------------------------------------|
| 13.1 | 8:00 a.m. | Participants | FOURTH LAUNCH**                    |
| 13.2 | 1:00 p.m. | Participants | Ground testing of backup payload** |
| 13.3 | 4:30 p.m. | Participants | Launch Evaluation**                |

August 22--Thursday

|      |            |                             |                                                      |
|------|------------|-----------------------------|------------------------------------------------------|
| 14.1 | 8:00 a.m.  | Gilbert Levin               | Life Detection Systems                               |
| 14.2 | 11:00 a.m. | Richard Young               | Voyager Biological Lab. (VBL)                        |
| 14.3 | 1:00 p.m.  | Enrico Mercanti             | Systems Concept Approach to<br>Space Experimentation |
| 14.4 | 4:30 p.m.  | (Young, Levin,<br>Mercanti) | Seminar                                              |

August 23--Friday

|        |            |                  |                                  |
|--------|------------|------------------|----------------------------------|
| ✓ 15.1 | 8:00 a.m.  | Sherman Vinograd | U.S. Bioastronautic Program      |
| 15.2   | 9:30 a.m.  | Don Flickinger   | U.S.S.R. Bioastronautic Program  |
| 15.3   | 11:00 a.m. | Richard Jennings | Program Critique by Participants |
| 15.4   | 12:00 noon |                  | Program Conclusion               |

\*\* On the fourth launch day, the participants prepare payload, and add modifications (if any). They also develop the afternoon ground testing, and present the post-flight review.



Major Lecture Areas (Resident Consultants)

- 1st week: Telemetry, bioinstrumentation, ground simulation and testing of payload (McAlpine)
- 2nd week: Space mechanics, mechanical and structural engineering, spacecraft control (Matthews)
- 3rd week: Exobiology, life detection, contamination and sterilization, systems approach (Young)

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Wednesdays

& 3rd Monday - Launch, ground-test backup animal, post-flight review

Tuesdays and Thursdays - seminar days

- 8/6 Seminar on basic radio communications (McAlpine, Blocher, Ludwig)
- 8/8 Seminar on bioinstrumentation, environmental simulation, ground testing (McAlpine, resident consultant in ground simulation, resident consultant in space biology, Stuart, and Kado)
- 8/13 Seminar on aerospace engineering (Matthews and Kerley)
- 8/15 Seminar on selection of launch vehicles for bioexperimentation (Matthews, Haughey and Vehrencamp)
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- 8/22 Seminar on exobiology (Young, Levin, and Mercanti)

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SOCIAL ACTIVITIES

|                     |              |                                                 |
|---------------------|--------------|-------------------------------------------------|
| August 5--Monday    | 8-12 p.m.    | Informal Get-Acquainted Party at Officer's Club |
| August 13--Tuesday  | 7:30-11 p.m. | Picnic at Wallops Station Pool                  |
| August 22--Thursday | 7:00 p.m.    | Banquet at Officers Club                        |



| FROM<br><b>Richard L. Jennings</b>                                                                                                                                                                                        |                                   | DATE OF DOCUMENT<br><b>8 Jan 68</b>                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | DATE RECEIVED<br><b>10 Jan 68</b>           |             | NO.<br><b>22/8</b> |           |             |           |      |                 |            |                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| TO<br><br><b>Dr. Vinograd</b>                                                                                                                                                                                             |                                   | CHECK WHETHER<br><input type="checkbox"/> ACTION COPY <input type="checkbox"/> INFO. COPY |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | ACTION COPY TO                              |             |                    |           |             |           |      |                 |            |                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| DESCRIPTION (MUST BE UNCLASSIFIED)<br><b>wants Dr. Vinograd to give lectures on U.S. Manned Space Flight Program, at a program to be held August 5-23, 1968 at Wallops Station. Wants a reply before January 20, 1968</b> |                                   |                                                                                           | REFERRED TO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | REC'D. BY                                   | DATE        | REFERRED TO        | REC'D. BY |             |           |      |                 |            |                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| <b>Vinograd</b>                                                                                                                                                                                                           | <b>yeh</b>                        | <b>1/10/68</b>                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                             |             |                    |           |             |           |      |                 |            |                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ENCLOSURES                                                                                                                                                                                                                |                                   |                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                             |             |                    |           |             |           |      |                 |            |                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| REMARKS                                                                                                                                                                                                                   |                                   |                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                             |             |                    |           |             |           |      |                 |            |                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| <input type="checkbox"/> REPLY NECESSARY                                                                                                                                                                                  |                                   | DATE ANSWERED<br><b>1-17-68</b>                                                           | BY<br><b>ADK P</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <input type="checkbox"/> NO REPLY NECESSARY |             |                    |           |             |           |      |                 |            |                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

NASA MAIL CONTROL

FORM NASA 416A  
(JUNE 1959)



BIO-SPACE TECHNOLOGY TRAINING PROGRAM

THORNTON HALL  
UNIVERSITY OF VIRGINIA  
CHARLOTTESVILLE, VIRGINIA 22901

703-296-9233

20 March 1968

Dr. Sherman P. Vinograd  
Space Medicine Division  
NASA Headquarters  
Washington, D. C. 20546

Dear Sherm:

This is to acknowledge receipt of your detailed outline for presentation to the 1968 Bio-Space Technology Training Program. Please thank your fine secretary, Miss Joyce Patterson, for forwarding the outline to me. I appreciate the prompt response to my request.

I have also received a copy of Don Flickinger's outline. Don enclosed a note indicating that he had reached an agreement with you concerning the distribution of time between your presentation and his. He suggested a total of ninety minutes for each presentation and question period. This is quite satisfactory with me.

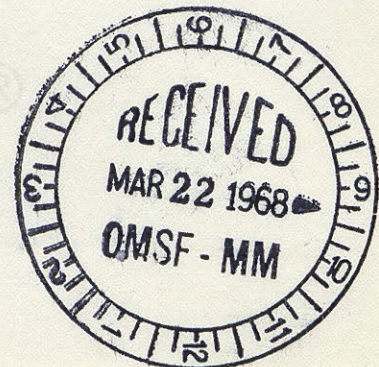
After careful review of your outline, I must confess that ninety minutes appears inadequate for the scope of your presentation. I regret that I cannot allot more time for your most important subject. It will be necessary for each speaker to adhere closely to his allotted time period this year since we have eliminated all night sessions, thus severely cramming the daytime presentations into short time segments. I trust that you will take this factor into consideration as you prepare your talk.

With warmest regards,

*Dick*

Richard L. Jennings  
Director

RLJ:lts





MM

14 March 1968

Dr. Richard L. Jennings, Director  
Bio-Space Technology Training Program  
University of Virginia  
Charlottesville, Virginia 22903

Dear Dr. Jennings:

Enclosed is a copy of the outline for Dr. Vinograd's presentation to be given on August 23, 1968. As Dr. Vinograd is presently out of town, he asked that I forward this to you to avoid any further delay.

If you have any questions regarding the outline, he can be reached in the office on Monday, 18 March 1968.

Sincerely yours,

15/  
(Miss) Joyce M. Patterson  
Secretary to S. P. Vinograd, M.D.  
Director, Medical Science & Technology  
Space Medicine, Manned Space Flight

Enclosure



## U. S. MANNED SPACE FLIGHT PROGRAM

(Outline for Bio-Space Technology Training Program Presentation)

August 23, 1968

### I. GENERAL PRINCIPLES

#### A. Two purposes of in-flight medical information:

1. Medical safety in-flight (mission at hand)
2. Determine effects of space flight (future missions).  
Primary purpose of in-flight medical experiments.

#### B. Incremental approach is method of NASA manned space flight to determine feasibility of prolonged manned flight.

#### C. Experiments must be:

1. Valid
2. Reliable
3. Technically and operationally feasible:
  - (a) Technical (engineering) constraints

##### Examples:

- (1) Volume
- (2) Weight
- (3) Power
- (4) TM requirements
- (5) On-board recording requirements
- (6) Long lead time

#### (b) Operational constraints

##### Examples:

- (1) Time
- (2) Non-interference with astro freedom of motion



- (3) Non-interference with other mission objectives
- (4) Ease of performance
- (5) Ground support requirements

D. Medical problems requiring experiments:

1. Stress factors

- (a) Prolonged weightlessness and combinations of others with it are only ones that cannot duplicate terrestrially
- (b) List of stress factors of prolonged flight (barring launch)
  - (1) Weightlessness
  - (2) Ionizing radiation
  - (3) Confinement
  - (4) Social restriction
  - (5) Monotony
  - (6) Threat of danger
  - (7) Artificial atmosphere
  - (8) Toxic substances
  - (9) Particulate contamination of atmosphere ("floating" particles)
  - (10) Micro-organisms
  - (11) Change in circadian rhythms
  - (12) Magnetic fields
  - (13) UV light
  - (14) IR exposure
  - (15) Noise
- (c) All except weightlessness and combined effects can be investigated on ground once measured.



## 2. Stress effects on man:

### (a) Most important (present status)

- (1) Cardiovascular deterioration
- (2) Bone demineralization
- (3) Muscle atrophy
- (4) Dehydration
- (5) Red cell mass decrease and body fluid compartment shifts

Phenomena  
of Disuse

### (b) Other important effects possible:

- (1) Respiratory
- (2) Vestibular
- (3) Metabolic
- (4) Peristaltic
- (5) Ciliary
- (6) Alertness
- (7) Performance

### (c) Disuse phenomena a potential problem on return to G environment primarily

## E. In-flight medical experiments objectives:

- 1. Determine human effects of prolonged space flight
- 2. Mechanisms of effects
- 3. Means of predicting on-set and severity
- 4. Means of prevention and/or remedy

## F. Method - comparison of in-flight with baseline data

### 1. Sources of baseline data

- (a) Astronaut selection, medical surveillance, and training procedures
- (b) Ground based studies (non-astronaut subjects)



- (1) Bed rest studies
- (2) Studies validating methods and hardware
- (3) Stress studies (subjects instrumented during stressful activity)

2. Purposes of baseline data

- (a) Control for comparison of in-flight data
  - (1) To determine validity of observed changes
  - (2) To distinguish space flight factor as cause of observed change
- (b) Validity of measurements and methods planned or used in flight
- (c) Establish normal range during stress

II. MERCURY PROGRAM

A. Medical measurements - Project Mercury

- 1. Safety medical monitoring
  - (a) Temperature
  - (b) Respiration
  - (c) ECG
  - (d) Blood pressure
- 2. Medical Experiments
  - (a) Xylose absorption
  - (b) Calibrated exercise
  - (c) Tilt table - flack test
  - (d) Urinary calcium output
  - (e) Hormone assays, steroids, adrenalin, catecholamines
  - (f) Radiation dosimetry



#### B. Medical Findings - Project Mercury

1. Cardiac arrhythmias (physiological) (critical periods)
  - (a) Ectopic beats
  - (b) Tachycardia
2. Transitory circulatory change (weightlessness not proven cause)
  - (a) MA-8, mottling of skin and venous distension of ankles
  - (b) MA-9, near syncope, reduced tilt table tolerance
3. Dehydration
4. Norepinephrine reduction (needs confirmation)
5. Reversal of neutrophile-lymphocyte ratio post-flight MA-9, cause unknown, probably not significant
6. Negative findings: calcium excretion, xylose absorption, calibrated exercise

#### III. GEMINI PROGRAM

- A. Safety medical monitoring same as Mercury; equipment improved
- B. In-flight medical experiments
  1. M-1 - Venous Cuffs; preventive measure
  2. M-3 - Calibrated Exercise
  3. M-4 - Phonoelectrocardiography
  4. M-5 - Hormone Assays
  5. M-6 - X-ray Densitometry
  6. M-7 - Calcium and other Electrolyte Balance
  7. M-8 - EEG
  8. M-9 - Vestibular Experiment
  9. (Operational) Tilt Table and Fluid Compartments



IV. APOLLO PROGRAM

- A. Medical experiments
- B. Operational procedures

V. APOLLO APPLICATIONS PROGRAM

- A. General characteristics
- B. Medical experiments - early flights

VI. PRESENT PROGRAM OF SPACE FLIGHT MEDICAL INVESTIGATION

A. Past studies

- 1. BEWG
- 2. Contracted studies
- 3. SPAMAG
- 4. TAC

B. Technical content of program of space flight medical investigation

- 1. Eight areas of body function
- 2. Measurements within each

C. Program Effort

1. Experiments

(a) Definition phase/development phases

(b) Evaluation of scientific merit

(1) Space Medicine Directorate, OMSF

(2) NIH Study Sections

(3) Biomedical Subcommittee

(c) Administrative processing

(1) Evaluation for flight compatibility

(2) MSFEB

(3) Flight program offices



(d) Development and operations

2. R&D support

(a) IMBLMS

(b) Parallel development

(c) Ground based studies

D. Future program direction





FROM

Richard L. Jennings

DATE OF DOCUMENT

16 Feb 68

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19 Feb 68

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TO

Dr. Vinograd

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CLASSIFICATION

SUSPENSE DATE

28 Feb 68

POST OFFICE REGISTRY NO.

DESCRIPTION (MUST BE UNCLASSIFIED)

wants one-page outline of your presentation entitled: U.S. Manned Space Flight Program. Wants it by 15 March.

ENCLOSURES

REMARKS

☐ REPLY NECESSARY

DATE ANSWERED

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BY

SAV

☐ NO REPLY NECESSARY

NASA MAIL CONTROL

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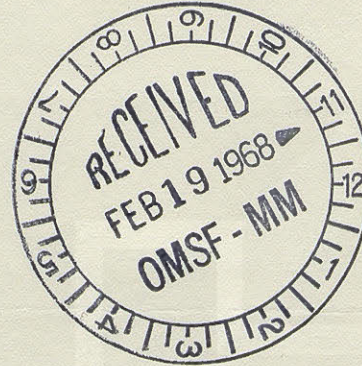
BIO-SPACE TECHNOLOGY TRAINING PROGRAM

THORNTON HALL  
UNIVERSITY OF VIRGINIA  
CHARLOTTESVILLE, VIRGINIA 22903

GEORGE A. MCALPINE, CHAIRMAN  
703-293-9765

RICHARD L. JENNINGS, DIRECTOR  
703-295-2166, EXT. 3238

16 February 1968



Dr. Sherman P. Vinograd  
Space Medicine Division  
NASA Headquarters  
Washington, D. C. 20546

Dear Sherm:

With but two exceptions, all of the speakers for the 1968 Bio-Space Technology Training Program have accepted our invitation to participate. I am now writing to each speaker personally to request submittal to me of a one-page outline covering the assigned lecture area. I am making this request because I wish to coordinate the various presentations. Hopefully, a review of the outlines will uncover any areas of topical duplication as well as areas of inadequate coverage.

Accordingly, will you please forward to me a one-page outline of your presentation entitled:

U.S. Manned Space Flight Program.

I would appreciate receiving the outline by 15 March 1968.

With warmest regards,

*Dick*

Richard L. Jennings  
Director

RLJ:smr



BIO-SPACE TECHNOLOGY TRAINING PROGRAM

THORNTON HALL  
UNIVERSITY OF VIRGINIA  
CHARLOTTESVILLE, VIRGINIA 22903

GEORGE A. MCALPINE, CHAIRMAN  
703-293-9765

RICHARD L. JENNINGS, DIRECTOR  
703-295-2166, EXT. 3238

23 January 1968

*Joyce - Please  
note. I am  
committed so  
please schedule  
as soon as we  
know the date &  
time - RJL*

Dr. Sherman P. Vinograd  
Space Medicine Division  
NASA Headquarters  
Washington, D. C. 20546

Dear Sherm:

Thank you for your letter of 17 January in which you accepted my invitation to address the participants of the 1968 Bio-Space Technology Training Program. I am delighted to have you with us again.

The presentations by you and Don Flickinger will be the only ones this year devoted to the area of manned space flight. I trust that you and Don will compare notes before preparing your remarks.

I am enclosing a copy of the Program announcement brochure. After all the speakers are secured, I will be corresponding with you further concerning details of the Program.

With warmest regards,

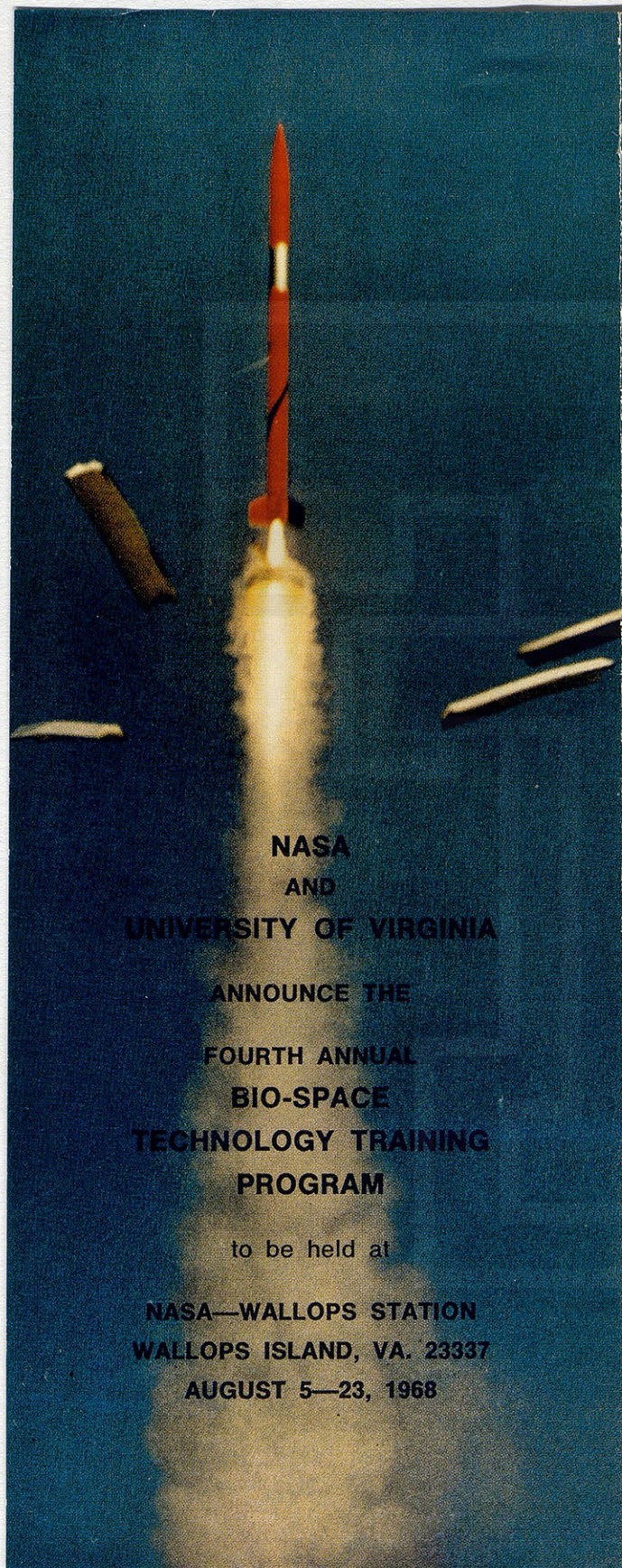
*Dick*

Richard L. Jennings  
Director

RLJ:smr

enclosure



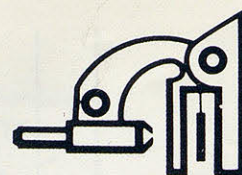


**NASA  
AND  
UNIVERSITY OF VIRGINIA**

**ANNOUNCE THE  
FOURTH ANNUAL  
BIO-SPACE  
TECHNOLOGY TRAINING  
PROGRAM**

to be held at

**NASA—Wallops Station  
Wallops Island, VA. 23337  
August 5—23, 1968**



**BIO-SPACE TECHNOLOGY TRAINING PROGRAM  
THORNTON HALL  
UNIVERSITY OF VIRGINIA  
CHARLOTTESVILLE, VIRGINIA 22903**





## **SPONSORS**

The National Aeronautics and Space  
Administration and  
the University of Virginia

## **DATE AND PLACE**

August 5—23, 1968  
NASA Wallops Station  
Wallops Island, Virginia 23337

## **PURPOSE**

To acquaint life scientists with the engineering and operational aspects of bioscientific research in space. An academic introduction to aerospace science and technology will be provided, including practical experience through participation in several launchings of an instrumented space probe incorporating a biological payload.

## **INTENDED FOR**

Life scientists in government installations, high schools, universities (graduate students and staff), and in other research organizations. Applicants must be U. S. citizens and have obtained at least a baccalaureate degree by July 31, 1968.

## **SELECTION OF PARTICIPANTS**

Applications are invited from graduate students, high school and university staff members, personnel of government laboratories and other research organizations. Selection will be made on a competitive basis determined partly by interest and competence in the life sciences. Previous training or experience in space biology is neither assumed nor required. Completed applications must be received by the program director on or before April 1, 1968. Applications received after April 1 will not be considered. All applicants will be notified by May 1, 1968, concerning participation in the Program.

## **DIRECTOR**

Dr. Richard L. Jennings of the University of Virginia is the program director. Requests for further information and/or application forms should be sent to Dr. Jennings, Bio-Space Technology Training Program, Thornton Hall, University of Virginia, Charlottesville, Va. 22903. Telephone 703-296-9233.

## **GENERAL INFORMATION**

### **HOUSING**

Rooms for men are available in the Wallops Station dormitories for \$2.00 per night. (includes linen service). Accommodations for women will be arranged at the Eastern Shore Branch of the University of Virginia, adjacent to the Station. Tourist accommodations, including motels, cottages and trailer camps, are available in the Wallops area. Virginia's Eastern Shore, noted for fishing, beaches and wildlife, is one of the more popular resort areas in the state. There are many places of interest nearby (within a couple hours driving time or less). Details are available from the program director.

### **ALLOWANCE**

Each participant will be paid \$12 per day (not to exceed a maximum of \$240) during the institute. Tourist class, tax exempt, transportation expenses will be reimbursed for one round trip between home and Wallops Station, Virginia.

### **FACILITIES**

Wallops Station has a cafeteria where participants can eat most of their meals. Prices are reasonable and the cafeteria is open for three meals a day during the week; shuttle-bus service is provided to nearby restaurants on weekends for those who do not have their own transportation. Laundry service and washers and dryers are conveniently available. All supplies, i.e., pencils, paper, notebooks, etc. will be furnished. The Station club and swimming pool are conveniently located and available for participants' (and their families) use during the Program. Having your own transportation is advantageous; however transportation can be arranged for those who do not have their own cars.

### **COVER PHOTO**

The Arcas rocket is used for demonstration purposes during the Program to launch the biological payloads. The four white objects are fiberglass pads used for gas retention and stabilization of the rocket during exit from the launch tube.



## STAFF

Instructors for the program will include engineers and scientists from universities, government organizations, and independent research laboratories. In addition to their lecture duties, six of the instructors, three engineers and three biologists, will serve as resident consultants for one week each. They will serve as resource personnel in their respective areas of aerospace engineering, electrical engineering, bio-engineering, ground simulation of space biology, space biology, and exobiology. The specialists will join student-participants for informal discussions during the evenings. Among the invited instructors are:

Charles Blocher, RCA

Frederick de Serres, Oak Ridge National Laboratories

Donald Ekberg, General Electric Corp.

Robert Fischell, Johns Hopkins University

Don Flickinger, Aerospace Medicine Consultant

Stephan Gray, Emory University

Lawrence Hall, NASA Headquarters

William Haughey, NASA Headquarters

James Kerley, NASA, Goddard

Karl Lange, University of Kentucky

Gilbert Levin, Biospherics Research, Inc.

George Ludwig, NASA, Goddard

George Matthews, University of Virginia

George McAlpine, University of Virginia

Enrico Mercanti, NASA, Goddard

Nello Pace, University of California

Cyril Ponnampertuma, Ames Research Center

Eleanor Pressly, NASA, Goddard

Joseph Saunders, NASA Headquarters

John Vehrencamp, TRW Systems

Richard Young, NASA Headquarters

## COURSE OUTLINE

History, Purpose and Scientific

Objectives of the BSTTP

Communications Theory

Information Theory

Radar and Optical Tracking Systems

Telemetry

Data Acquisition and Processing

Bioinstrumentation in Space Biology

Environmental Simulation and Ground Testing

Trajectories and Orbital Mechanics

Acceleration and Impact

Shock, Vibration and Noise

Propulsion

Use of Sounding Rockets for Biological Experimentation in Space

Thermal Protection of Payload

Aerodynamics and Stability

Spacecraft Control Systems

Space Electric Power Systems

Earth Atmospheric Environment

Biosatellite Program—detailed discussion of the experiments

Space and Planetary Environments

Origin of Life, Exobiology

Contamination and Sterilization

Life Detection Systems

Voyager Biological Lab

USSR Bioastronautic Program

Systems Concept Approach to Space Experimentation

Each Wednesday and the third Monday of the program will be "launch days." Tuesdays and Thursdays will be "seminar days" with seminars held in the afternoon. There will be no night lectures. However, participants will join the speakers of the day and resident consultants for informal evening discussion sessions.

### APPLICATION FOR PARTICIPATION IN THE 1968 BIO-SPACE TECHNOLOGY TRAINING PROGRAM AUGUST 5—23, 1968

Dr. \_\_\_\_\_  
Mr. \_\_\_\_\_  
Mrs. \_\_\_\_\_  
Miss \_\_\_\_\_

Name\* \_\_\_\_\_

type or print  
MALE ☐ MARRIED ☐ SOCIAL  
FEMALE ☐ SINGLE ☐ SECURITY NO. \_\_\_\_\_

RESIDENTIAL ADDRESS \_\_\_\_\_  
TELEPHONE \_\_\_\_\_/\_\_\_\_\_  
area code \_\_\_\_\_

street \_\_\_\_\_  
city \_\_\_\_\_  
state \_\_\_\_\_  
zip \_\_\_\_\_

PRESENT EMPLOYER \_\_\_\_\_  
TELEPHONE \_\_\_\_\_/\_\_\_\_\_  
area code \_\_\_\_\_

street \_\_\_\_\_  
city \_\_\_\_\_  
state \_\_\_\_\_  
zip \_\_\_\_\_

BUSINESS ADDRESS \_\_\_\_\_  
TELEPHONE \_\_\_\_\_/\_\_\_\_\_  
area code \_\_\_\_\_

street \_\_\_\_\_  
city \_\_\_\_\_  
state \_\_\_\_\_  
zip \_\_\_\_\_

PREFERRED MAILING ADDRESS: Business ☐ Residential ☐  
U. S. Citizen? Yes ☐ No ☐ Date of Birth \_\_\_\_/\_\_\_\_/\_\_\_\_

Do you have or do you expect to receive by June 1, any type of aid from the National Aeronautics and Space Administration? Yes ☐ No ☐ If yes, indicate NASA identification number of grant or contract and designate topic of investigation.

COLLEGE OR UNIVERSITY EDUCATION (include post-graduate and special courses)

| Institution | Dates | Degree | Major | Minor |
|-------------|-------|--------|-------|-------|
|             |       |        |       |       |

On a separate sheet of paper\*, please give the following information:

- A brief description of your present position and nature of your activities.
- Briefly discuss your plans and needs for supplemental professional training and research and your reasons for wishing to participate in this institute. Sketch the benefits you hope to derive from such participation and their relationships to any special problems you might expect to encounter in your field

I certify that, to the best of my knowledge, the answers to all the above questions are accurate and complete.

Application Date \_\_\_\_\_ Signature \_\_\_\_\_  
RETURN TO: DIRECTOR, BSTTP, THORNTON HALL, UNIVERSITY OF VIRGINIA, CHARLOTTESVILLE, VA. 22903.  
\*Please include name on each additional sheet submitted.



MM

January 17, 1968

Dr. Richard L. Jennings, Director  
Bio-Space Technology Training Program  
University of Virginia  
Charlottesville, Virginia 22903

Dear Dick:

Thank you for your kind invitation to speak again at the Bio-Space Technology Training Program to be held at Wallops Station, August 23, 1968. I find that my calendar is free on that day, therefore, I am more than happy to accept.

The title and time allocation for my presentation are quite suitable and I look forward to participating in your program.

With kindest personal regards,

Sincerely yours,

Original Signed by  
S.P. Vinograd, M.D.

S. P. Vinograd, M.D., Director  
Medical Science and Technology  
Space Medicine, Manned Space Flight



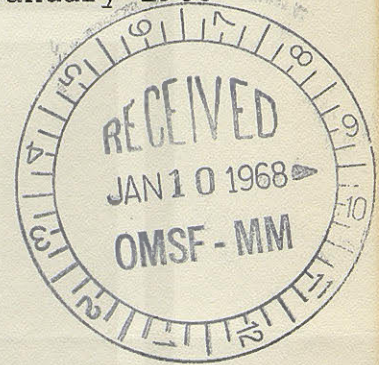
## BIO-SPACE TECHNOLOGY TRAINING PROGRAM

THORNTON HALL  
UNIVERSITY OF VIRGINIA  
CHARLOTTESVILLE, VIRGINIA 22903

GEORGE A. MCALPINE, CHAIRMAN  
703-293-9765

RICHARD L. JENNINGS, DIRECTOR  
703-295-2166, EXT. 3238

8 January 1968



Dr. Sherman P. Vinograd  
Space Medicine Division  
NASA Headquarters  
Washington, D. C. 20546

Dear Sherm:

Plans are being formulated for next summer's Bio-Space Technology Training Program to be held at Wallops Station, August 5—23, 1968. Although the University of Virginia contract to administer the 1968 Program has not been formally approved, I have received verbal approval from Bio-Science Programs to communicate with the speakers.

Assuming that the Program will soon receive official confirmation, I am proceeding to write letters of invitation to the desired speakers. Accordingly, it is my pleasure to invite you to return again to Wallops as an instructor. A review of the enclosed tentative lecture outline will reveal that the 1968 Program will be almost devoid of discussions of manned space flight problems. However, for the Program finale on Friday, 23 August, we have reserved three hours for a discussion of the U.S. and Russian manned space programs.

I would like to ask you to present the first half of lecture 15.1 on Friday, 23 August, and present a 1-1/2 hour lecture discussing the U.S. Manned Space Flight Program. I have asked Don Flickinger to take the second half of lecture 15.1 and present a 1-1/2 hour lecture on the Russian Manned Space Flight Program.



Dr. Sherman P. Vinograd

2

8 January 1968

If it is convenient for you to participate, you may care to discuss with Don an alternative distribution of time between your lecture and his.

Our "graduation banquet" is to be held the preceding evening (Thursday, 22 August) and it would be an honor if you could join us for this function as our guest. Your trips to Wallops Station the past two summers have been extremely rushed, and I hope you can come early this time and chat informally with the participants (and join me for some liquid cheer!). I have also invited Don Flickinger to join us for this banquet.

Your presentations in past years have been highlights of our Programs. I am hopeful that you will be able to join us once again. To assist me in completing the final Program schedule, I would appreciate receiving your reply by January 20, 1968.

With warmest regards,

*Dirk*

Richard L. Jennings  
Director

RLJ:smr

enclosures



Version 5  
12/19/1967

CLASS LECTURE OUTLINE  
THE FOURTH NASA-UVA BIO-SPACE TECHNOLOGY TRAINING PROGRAM

AUGUST 5--23, 1968  
Wallops Station, Virginia

August 5--Monday

- |     |            |                                                                                                                                                              |
|-----|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.0 | 7:30 a.m.  | Introduction to the Bio-Space Program                                                                                                                        |
| 1.1 | 7:45 a.m.  | Welcome to Wallops Station                                                                                                                                   |
| 1.2 | 8:00 a.m.  | History, Purpose and Scientific Objectives of the Bio-Space Technology Training Program                                                                      |
| 1.3 | 10:00 a.m. | Bio-Space Training Aid Introduction: Arcas Environment, Flight Characteristics, Payload and Recovery System, Telemetry System. Film: "In the Years to Come." |
| 1.4 | 1:00 p.m.  | Tour of Wallops Facilities (launch site, radar, telemetry, control center, meteorology: cursory inspection, no lectures)                                     |
| 1.5 | 3:00 p.m.  | Communications Theory                                                                                                                                        |

August 6--Tuesday

- |     |            |                                    |
|-----|------------|------------------------------------|
| 2.1 | 8:00 a.m.  | Information Theory                 |
| 2.2 | 10:00 a.m. | Radar and Optical Tracking Systems |
| 2.3 | 1:00 p.m.  | Telemetry                          |
| 2.4 | 3:00 p.m.  | Data Acquisition and Processing    |
| 2.5 | 4:30 p.m.  | Seminar                            |

August 7--Wednesday

- |     |           |                                                                                                            |
|-----|-----------|------------------------------------------------------------------------------------------------------------|
| 3.1 | 8:00 a.m. | First Launch                                                                                               |
| 3.2 | 1:00 p.m. | Participants engage in ground testing of backup animal, interpret telemetry data from morning launch, etc. |

August 8--Thursday

- |     |           |                                                             |
|-----|-----------|-------------------------------------------------------------|
| 4.1 | 8:00 a.m. | Lectures on the role of bioinstrumentation in space biology |
| 4.2 | 1:00 p.m. | Lectures on bioinstrumentation, continued                   |
| 4.3 | 4:00 p.m. | Post-flight Review of First Launch                          |
| 4.4 | 4:15 p.m. | Seminar                                                     |

August 9--Friday

- |     |            |                                                         |
|-----|------------|---------------------------------------------------------|
| 5.1 | 8:00 a.m.  | Lectures on environmental simulation and ground testing |
| 5.2 | 10:00 a.m. | Gravity Preference Experiment                           |
| 5.3 | 1:00 p.m.  | The NASA Biosatellite Program                           |



August 12--Monday

|     |            |                                               |
|-----|------------|-----------------------------------------------|
| 6.1 | 8:00 a.m.  | Trajectories and Orbital Mechanics            |
| 6.2 | 10:00 a.m. | Biosatellite Radiation Experiments            |
| 6.3 | 11:00 a.m. | Biosatellite Cellular Zero-G Experiments      |
| 6.4 | 1:00 p.m.  | Biosatellite Plant Experiments                |
| 6.5 | 3:00 p.m.  | Trajectories and Orbital Mechanics, continued |

August 13--Tuesday

|     |            |                                               |
|-----|------------|-----------------------------------------------|
| 7.1 | 8:00 a.m.  | Trajectories and Orbital Mechanics, continued |
| 7.2 | 10:00 a.m. | Acceleration and Impact                       |
| 7.3 | 1:00 p.m.  | Shock, Vibration, Noise                       |
| 7.4 | 3:00 p.m.  | Trajectories and Orbital Mechanics, continued |
| 7.5 | 4:30 p.m.  | Seminar                                       |

August 14--Wednesday

|     |           |                                 |
|-----|-----------|---------------------------------|
| 8.1 | 8:00 a.m. | Second Launch                   |
| 8.2 | 1:00 p.m. | Ground testing of backup animal |

August 15--Thursday

|     |            |                                             |
|-----|------------|---------------------------------------------|
| 9.1 | 8:00 a.m.  | Propulsion                                  |
| 9.2 | 11:00 a.m. | NASA Launch Vehicles                        |
| 9.3 | 1:00 p.m.  | Use of Sounding Rockets for Experimentation |
| 9.4 | 3:00 p.m.  | Thermal Design                              |
| 9.5 | 4:00 p.m.  | Post-flight Review of Second Launch         |
| 9.6 | 4:15 p.m.  | Seminar                                     |

August 16--Friday

|      |           |                              |
|------|-----------|------------------------------|
| 10.1 | 8:00 a.m. | Aerodynamics and Stability   |
| 10.2 | 1:00 p.m. | Spacecraft Control Systems   |
| 10.3 | 4:00 p.m. | Space Electric Power Systems |

August 19--Monday

|      |           |                                 |
|------|-----------|---------------------------------|
| 11.1 | 8:00 a.m. | Third Launch                    |
| 11.2 | 1:00 p.m. | Ground testing of backup animal |

August 20--Tuesday

|      |           |                                     |
|------|-----------|-------------------------------------|
| 12.1 | 8:00 a.m. | Earth Atmosphere Environment        |
| 12.2 | 9:00 a.m. | Space and Planetary Environments    |
| 12.3 | 1:00 p.m. | Chemical Origin of Life, Exobiology |
| 12.4 | 3:00 p.m. | Contamination and Sterilization     |
| 12.5 | 4:00 p.m. | Post-flight Review of Third Launch  |
| 12.6 | 4:15 p.m. | Seminar                             |

August 21--Wednesday

|      |           |                                  |
|------|-----------|----------------------------------|
| 13.1 | 8:00 a.m. | Fourth Launch                    |
| 13.2 | 1:00 p.m. | Ground testing of backup payload |
| 13.3 | 4:30 p.m. | Launch Evaluation                |



August 22--Thursday

|      |            |                                                   |
|------|------------|---------------------------------------------------|
| 14.1 | 8:00 a.m.  | Life Detection Systems                            |
| 14.2 | 11:00 a.m. | Voyager Biological Lab (VBL)                      |
| 14.3 | 1:00 p.m.  | Systems Concept Approach to Space Experimentation |
| 14.4 | 4:30 p.m.  | Seminar                                           |

August 23--Friday

|      |            |                                          |
|------|------------|------------------------------------------|
| 15.1 | 8:00 a.m.  | U.S. and U.S.S.R. Bioastronautic Program |
| 15.2 | 11:00 a.m. | Program Critique by Participants         |
| 15.3 | 12:00 noon | Program Conclusion                       |





UNIVERSITY OF VIRGINIA

DR. SHERMAN P. VINOGRAD

NASA HEADQUARTERS



FEB 7 1969

MM

Stanton H. Cohn, Ph.D.  
Medical Physics Division  
Brookhaven National Laboratory  
Associated Universities, Inc.  
Upton, Long Island, New York 11973

Dear Dr. Cohn:

In response to your February 5 communication, I think a reasonably good title for my talk would be "Medical Aspects of the Space Program," if I may borrow a line from your letter.

Thank you for your travel tip. I will arrange my trip through Allegheny to Islip as you suggest. I will be happy to let you know of my specific time of arrival as soon as I do myself.

If you should need any additional information, please feel free to communicate.

Sincerely yours,

Original Signed by  
S.P. Vinograd, M.D.

S. P. Vinograd, M.D.  
Director, Medical Science and Technology  
Space Medicine, Manned Space Flight

MM:VINOGRAD:jtt:2/7/69

*29 April*



BROOKHAVEN NATIONAL LABORATORY  
ASSOCIATED UNIVERSITIES, INC.

UPTON, L. I., N. Y. 11973

TEL. AREA CODE 516 YAPHANK 4-6262 12891

REFER:

MEDICAL DEPARTMENT

February 5, 1969

Dr. S. P. Vinograd, Director  
Medical Science and Technology  
Space Medicine, Manned Space Flight  
National Aeronautics and Space Administration  
Washington, D. C. 20546

Dear Dr. Vinograd:

I was very pleased to learn that you will be able to present a seminar at Brookhaven on 29 April. We do have a movie projector and would be pleased to show any films that you bring along.

All I need is a title for your talk. I would presume that since this is largely a medical audience you will emphasize the medical aspects of the space program as you did so well at Wallops Island.

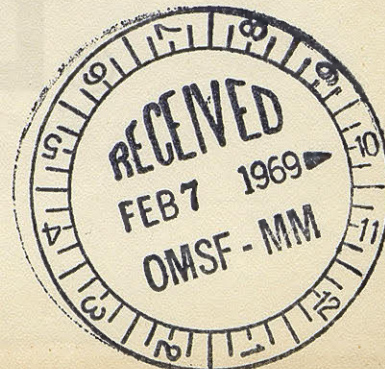
The easiest way to get here from Washington is to fly to Islip, L.I. via Allegheny. When you make your plans, please let me know and I will make arrangements to meet you.

Sincerely yours,

*Stanton Cohn*

Stanton H. Cohn, Ph.D.  
Medical Physics Division  
Medical Department

gfb





MM

January 28, 1969

Dr. Stanton H. Cohn  
Medical Physics Division  
Brookhaven National Laboratory  
Upton, L.I., New York 11973

Dear Dr. Cohn:

Thank you for your responses of January 14 and 16. Fortunately, April 29 turns out to be a better date than the original, and April 22 appears to be a close second, at least as of this writing. If you wish to simply let me know which of these two dates you prefer, I will be happy to accommodate.

As for visual equipment, I will need an ordinary 35mm slide projector. If you have access to a 16mm sound movie projector, I will be happy to bring with me a short movie or two which your group may find interesting, but we can leave that as an option.

With kind regards.

Sincerely yours,

Original Signed by  
S.P. Vinograd, M.D.

S. P. Vinograd, M.D., Director  
Medical Science and Technology  
Space Medicine, Manned Space Flight

MM/SPVinograd/jmp  
1-28-69



BROOKHAVEN NATIONAL LABORATORY  
ASSOCIATED UNIVERSITIES, INC.

UPTON, L. I., N. Y. 11973

TEL. AREA CODE 516 YAPHANK 4-6262

REFER:

MEDICAL DEPARTMENT

January 16, 1969

Dr. S. P. Vinograd, Director  
Medical Science and Technology  
Space Medicine, Manned Space Flight  
National Aeronautics and Space  
Administration  
Washington, D. C. 20546

Dear Dr. Vinograd:

I'm writing this in the hope of catching up with my letter of January 14. I suggested April 22 as a possible date for your seminar. It turns out that April 29 would be better if this is also convenient for you. One of the other speakers had a last minute change and I'm trying to juggle the dates to everyone's satisfaction.

If this new date is not convenient, I can still hold the 22nd of April for you or a date in June, as suggested in my letter.

Sincerely yours,

*Stanton H. Cohn*

Stanton H. Cohn, Ph.D.  
Medical Physics Division  
Medical Department

gfb





**BROOKHAVEN NATIONAL LABORATORY**  
**ASSOCIATED UNIVERSITIES, INC.**

UPTON, L. I., N. Y. 11973

TEL. AREA CODE 516 YAPHANK 4-6262

REFER:

MEDICAL DEPARTMENT

January 14, 1969

Dr. S. P. Vinograd, Director  
Medical Science and Technology  
Space Medicine, Manned Space Flight  
National Aeronautics and Space  
Administration  
Washington, D. C. 20546

Your ref: MM

Dear Dr. Vinograd:

I was very pleased to hear from you and to learn that you would be willing to give a seminar to the Medical Department. Unfortunately the date, May 20, has already been taken. Would April 22 be suitable? If not, the next available date would be June 24.

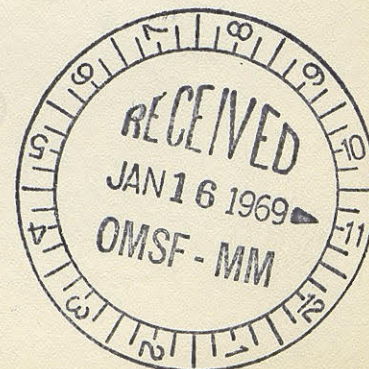
Please let me know if either of the dates is convenient for you.

Sincerely yours,



Stanton H. Cohn, Ph.D.  
Medical Physics Division  
Medical Department

gfb





MM

January 3, 1969

Dr. Stanton H. Cohn  
Medical Physics Division  
Brookhaven National Laboratory  
Upton, L.I., New York 11973

Dear Dr. Cohn:

Thank you for your kind invitation to give a seminar on Space Medicine at Brookhaven. If you feel that there is sufficient interest, I will be very pleased to do so. From the appearance of my calendar at this point, Tuesday, May 20, 1969, would appear to be a convenient tentative date.

With kind personal regards and best wishes for a happy new year.

Sincerely yours,

Original Signed by  
S.P. Vinograd, M.D.

S. P. Vinograd, M.D., Director  
Medical Science and Technology  
Space Medicine, Manned Space Flight



FORM NASA 416A  
(JUNE 1959)



BROOKHAVEN NATIONAL LABORATORY  
ASSOCIATED UNIVERSITIES, INC.

UPTON, L. I., N. Y. 11973

TEL. AREA CODE 516 YAPHANK 4-6262

REFER:

MEDICAL DEPARTMENT

October 25, 1968

Dr. Sherman P. Vinograd  
Space Medicine Division  
NASA Headquarters  
Washington, D. C. 20546

Dear Dr. Vinograd:

I had the pleasure of meeting you at the Wallops Island Course last summer. Your presentation was so interesting that I would like to prevail upon you to give a seminar on the same subject at Brookhaven. As chairman of the Medical Department seminar series, I am just now arranging our 1969 series. I am sure that our staff would be very interested in hearing you discuss the medical problems involved with the space program.

Our seminars are held every Tuesday at 3:00 P.M. except for the first Tuesday in the month. If you would like to visit Brookhaven and give a seminar, you can choose almost any Tuesday starting in February.

We would like very much to have you address our group.

Sincerely yours,



Stanton H. Cohn, Ph.D.  
Medical Physics Division  
Medical Department

gfb

