

Aerospace Medical Association

34th Annual Meeting, April 29-May 2, 1963

Statler Hilton Hotel, Los Angeles, California

Selected papers will be presented by leading scientists and clinicians in the field of aviation and aerospace medicine and the allied sciences at this 34th Annual Scientific Meeting.

Selection of papers made by the Scientific Program Committee from the more than 250 abstracts submitted assures a diversity of subjects sufficiently broad in scope and interest so that everyone attending the meeting will find a session in each period of significant interest. Simultaneous sessions will be conducted. However, sessions have been arranged to assure a minimum of conflict.

Of special interest to those attending this year will be the Aerospace Medical Association-American Rocket Society Bioastronautics Conference to be held on Thursday, May 2. The theme of the full day program will be "A Manned Space Laboratory."

Opening Ceremony

Monday, April 29, 1963

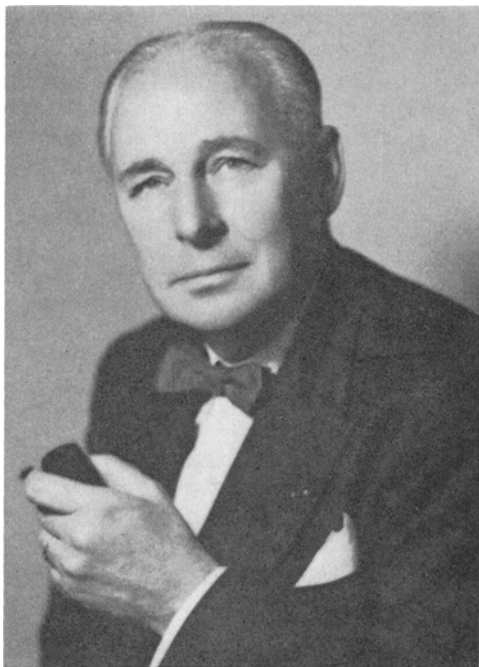
8:15 a.m. Pacific Ball Room

Welcoming Address

Brig. Gen. Don D. Flickinger, USAF, MC (Retired)
President, Aerospace Medical Association

THE LOUIS H. BAUER LECTURE

Doctor Lloyd V. Berkner



Dr. Lloyd V. Berkner

President, Graduate Research Center of the Southwest, Consultant, President Kennedy's Science Advisory Committee, and Former Chairman, Space Science Board of the National Academy of Sciences

Scientific Sessions

APRIL 29, 1963

Monday 10:30 a.m. Sierra Room

OPHTHALMOLOGY

- 10:30 a.m. THE AEROMEDICAL PROBLEM OF GLAUCOMA**
Lt. Col. James F. Culver, USAF, MC; and
Capt. William B. Clark, USAF, MC
USAF School of Aerospace Medicine, Brooks
AFB, Texas
- 10:50 a.m. THE PROBLEM OF HETEROTROPIA IN TRAINED PILOTS**
Capt. William B. Clark, USAF, MC; and Lt.
Col. James F. Culver, USAF, MC
USAF School of Aerospace Medicine, Brooks
AFB, Texas
- 11:10 a.m. THE COVER TEST IN THE AVIATION MOTILITY EXAMINATION**
Cdr. W. L. Erdbrink, MC, USN
U. S. Naval School of Aviation Medicine,
Pensacola, Florida
- 11:30 a.m. EFFECTS OF RED LIGHTING ON ACCOMMODATION IN AIRCREW PERSONNEL**
Stanley Diamond, M.D.
Pan American World Airways, Overseas Division,
San Francisco, California

APRIL 29, 1963

Monday 10:30 a.m. Pacific Ball Room

ACCELERATION I

- 10:30 a.m. EFFECT OF FORWARD ACCELERATION ON CIRCULATORY, PLEURAL AND RELATED PRESSURES**
Earl H. Wood, M.D., Ph.D.; A. Clark Nolan,
M. D.; and David E. Donald, Ph.D.
Mayo Clinic, Rochester, Minnesota
- 10:50 a.m. PULMONARY GAS EXCHANGE DURING POSITIVE ACCELERATION**
Flt. Lt. D. H. Glaister
RAF Institute of Aviation Medicine, Farnborough, England
- 11:10 a.m. EFFECTS ON ARTERIAL OXYGEN SATURATION OF POSITIVE PRESSURE BREATHING DURING ACCELERATION**
John H. Reed, Jr., M.D.; Cdr. Benjamin F. Burgess, MSC, USN; and Lt. Cdr. Harold Sandler, MC, USN
National Aeronautics and Space Administration, Manned Spacecraft Center, Houston, Texas

SCIENTIFIC PROGRAM

11:30 a.m. **PATHOLOGY OF CHRONIC ACCELERATION**
 Russell R. Burton, D.V.M.; William P. C. Richards, D.V.M.; and Arthur H. Smith, Ph.D.
 University of California, College of Agriculture, Davis, California

3:00 p.m. **PSYCHOMOTOR PERFORMANCE DURING TOTAL BODY WATER IMMERSION FOR MASSED AND SPACED LEARNING ON A COMPLEX TASK**
 Thomas D. Hanna, M.S.
 Air Crew Equipment Laboratory, Naval Air Material Center, Philadelphia, Pennsylvania

APRIL 29, 1963

Monday 10:30 a.m. Golden State Room

FATIGUE AND STRESS

10:30 a.m. **ANALYSIS OF MULTIPLE PHYSIOLOGICAL DATA FROM THE SAM-MATS SIMULATOR FATIGUE STUDIES**
 Lt. Col. David G. Simons, USAF, MC; and Bryce O. Hartman, Ph.D.
 USAF School of Aerospace Medicine, Brooks AFB, Texas

10:50 a.m. **FATIGUE EFFECTS IN 24-HOUR SIMULATED TRANSPORT FLIGHTS: CHANGES IN PILOT PROFICIENCY**
 Bryce Hartman, Ph.D.; Lt. Col. David G. Simons, USAF, MC; and Capt. Thomas P. Ball, USAF, MC
 USAF School of Aerospace Medicine, Brooks AFB, Texas and 1607 USAF Hospital, MATS, Dover AFB, Delaware

11:10 a.m. **PHYSIOLOGICAL MEASURE OF TRAINING, FATIGUE AND RECOVERY IN A HUMAN**
 E. J. Hawrylewicz, Ph.D.; and W. H. Blair, B.S.
 Armour Research Foundation of Illinois, Institute of Technology, Chicago, Illinois

11:30 a.m. **A RETROSPECTIVE STUDY OF SIX INCAPACITATING REACTIONS TO FLYING STRESS**
 Capt. Robert I. Simons, USAF, MC; and Capt. Irby L. Lindsey, USAF, MC
 McClellan Hospital, McClellan AFB, California

APRIL 29, 1963

Monday 2:00 p.m. Sierra Room

PSYCHOLOGY

2:00 p.m. **A PSYCHOMETRIC-CLINICAL APPROACH IN PERSONNEL SELECTION**
 Capt. C. K. Cantrell, USAF, MC; and Maj. R. A. Degaugh, USAF, MC
 6570th Personnel Research Laboratory, AMD, Lackland AFB, Texas

2:20 p.m. **THE RELATIONSHIP BETWEEN MATHEMATICS AND PHYSICS AND FLIGHT TRAINING**
 Lt. (jg) J. H. Johnson, MSC, USNR; and A. S. Morton, Ph.D.
 U. S. Naval School of Aviation Medicine, Pensacola, Florida and Raytheon Company, Waltham, Massachusetts

2:40 p.m. **VIEWER REACTION TO ABSTRACT VISUAL FORMS**
 William E. Evans, B.S., M.S.; and John J. Dreher, Ph.D.
 Bionics and Human Factors Group, Lockheed-California Company, Burbank, California

APRIL 29, 1963

Monday 2:00 p.m. Pacific Ball Room

SPACE

2:00 p.m. **LUNAR LANDING VEHICLE HELICOPTER LANDING SIMULATION STUDY**
 C. R. Adams, M.S.
 Chance Vought Corporation, A Division of Ling-Temco-Vought, Inc., Dallas, Texas

2:20 p.m. **RESUME OF PRESENT KNOWLEDGE OF MAN'S ABILITY TO MEET THE SPACE ENVIRONMENT**
 Lt. Col. Stanley C. White, USAF, MC; and Lt. Col. Charles A. Berry, USAF, MC
 National Aeronautics and Space Administration, Manned Spacecraft Center, Houston, Texas

2:40 p.m. **INTERNATIONAL BIOASTRONAUTICS RESEARCH**
 Eugene B. Koneczi, Ph.D.; and Don Flickinger, M.D.
 Biotechnology and Human Research, OART, NASA, and Research Consultant, Life Sciences, Washington, D. C.

3:00 p.m. **A COMPOSITE MODEL OF THE ATMOSPHERE AND SURFACE OF VENUS**
 C. Rainer Berger, Ph.D.
 Lockheed-California Company, Burbank, California

APRIL 29, 1963

Monday 2:00 p.m. Los Angeles Room

BIOLOGY

2:00 p.m. **HIGH FREQUENCY AUDIOMETRY**
 John E. Parnell, B.A.
 Lockheed-California Company, Burbank, California

2:20 p.m. **CELLULAR OXYGEN CONSUMPTION AT LOW OXYGEN TENSIONS**
 Robert J. Reyes, M.S.; and J. Ryan Neville, Ph.D.
 USAF School of Aerospace Medicine, Brooks AFB, Texas

2:40 p.m. **ELECTRICAL ENERGY FROM BIOLOGICAL SYSTEMS**
 J. J. Konikoff, BSME; L. W. Reynolds, B.S.; and E. S. Harris, Ph.D.
 General Electric Company, Philadelphia, Pennsylvania

3:00 p.m. **THE EFFECT OF COLD ON THE TIME AND FREQUENCY OF RADIATION-INDUCED CHROMATID DELETIONS**
 Robert H. Fetner, Ph.D.; and Allan A. Katzberg, Ph.D.
 Georgia Institute of Technology, Atlanta, Georgia and USAF School of Aerospace Medicine, Brooks AFB, Texas

APRIL 29, 1963

Monday 3:50 p.m.

Sierra Room

NEUROPSYCHIATRY

- 3:50 p.m. **A STUDY OF SENSORY DEPRIVATION, PAIN AND PERSONALITY RELATIONSHIPS**
 J. M. Peters; F. B. Benjamin; W. M. Helvey, M.D.; and G. A. Albright, M.D.
 Space Environment and Life Sciences Laboratory, Republic Aviation Corporation, Farmingdale, L. I., New York
- 4:10 p.m. **ADAPTATION OF SMALL GROUPS TO EXTREME ENVIRONMENTS**
 E. K. Eric Gunderson, Ph.D.; and Lt. Paul D. Nelson, MSC, USN
 U. S. Navy Neuropsychiatric Research Unit, San Diego, California
- 4:30 p.m. **PSYCHOPHYSIOLOGICAL VISUAL ACUITY DISTURBANCES IN MILITARY AVIATORS**
 Lt. John A. Sours, MC, USNR; and Cdr. Wayne L. Erdbrink, MC, USN
 U. S. Naval School of Aviation Medicine, Pensacola, Florida
- 4:50 p.m. **SHORT-TERM PSYCHOTHERAPY FOR THE AVIATOR**
 Lt. Roy E. Ehrlich, MC, USNR; and Capt. Philip B. Phillips, MC, USN
 U. S. Naval School of Aviation Medicine, Pensacola, Florida
- 5:10 p.m. **THE IMPORTANCE AND VALUE OF ELECTROENCEPHALOGRAPHY IN AERONAUTICAL MEDICINE**
 C. Blanc, M.D.; E. Lafontaine, M.D.; and R. Laplane, M.D.
 Air France, Central Medical Department, Paris, France

APRIL 29, 1963

Monday 3:50 p.m.

Pacific Ball Room

PHYSIOLOGY-HYPODYNAMICS

- 3:50 p.m. **AN ANALYTICAL TREATMENT OF THE FLUID SHIFT IN THE WEIGHTLESS STATE**
 Phillips M. Brooks, Ph.D.
 Department of Aerospace Medicine, McDonnell Aircraft Corporation, St. Louis, Missouri
- 4:10 p.m. **SYMPATHOADRENAL RESPONSE TO WATER-IMMERSION HYPODYNAMICS**
 Capt. Michael McCally, USAF, MC; Capt. Jack K. Goldman, USAF, MC; and George W. Barnard, USAF, MC
 Aerospace Medical Research Laboratories, Wright-Patterson AFB, Ohio
- 4:30 p.m. **MECHANISMS OF THE WATER-IMMERSION DIURESIS**
 Capt. Duane E. Graveline, USAF, MC; Capt. Michael McCally, USAF, MC; and Margaret M. Jackson, M.S.
 Aerospace Medical Research Laboratories, Wright-Patterson AFB, Ohio

- 4:50 p.m. **A COMPARISON OF PHYSIOLOGICAL CHANGES OCCURRING DURING WATER IMMERSION AND BED REST**
 Capt. Bruce H. Warren, USAF, MC
 USAF School of Aerospace Medicine, Brooks AFB, Texas

- 5:10 p.m. **PHYSIOLOGICAL EFFECTS RESULTING FROM DIFFERENT TYPES OF FLUID REPLACEMENT DURING WATER IMMERSION**
 Cdr. E. Reeves, MSC, USN; Capt. E. L. Beckman, MC, USN; and Lt. Cdr. R. E. DeForest, MC, USN
 Aviation Medical Acceleration Laboratory, Naval Air Development Center, Johnsville, Pennsylvania

APRIL 29, 1963

Monday 3:50 p.m.

Los Angeles Room

TOXICOLOGY

- 3:50 p.m. **THERAPY OF ACUTE UDMH INTOXICATION**
 Kenneth C. Back, Ph.D.; Mildred K. Pinkerton, M.T.; and Anthony A. Thomas, M.D.
 Aerospace Medical Research Laboratories, Wright-Patterson AFB, Ohio
- 4:10 p.m. **JAVA MONKEY PERFORMANCE ON A COMPLEX OPERANT SCHEDULE FOLLOWING UDMH INJECTION**
 Maj. Herbert H. Reynolds; Lt. Col. Frederick H. Rohles, Jr.; Capt. Vernon L. Carter, DVM; Kenneth C. Back, Ph.D.; and Anton A. Thomas, Ph.D.
 Aeromedical Research Laboratory, Holloman AFB, New Mexico and Aerospace Medical Research Laboratory, Wright-Patterson AFB, Ohio
- 4:30 p.m. **APPLICATIONS & LIMITATIONS OF SOME TOXIC PROPELLANT DETECTION EQUIPMENT**
 Kenneth E. Ball
 Mine Safety Appliances Company, J. T. Ryan Laboratory, Pittsburgh, Pennsylvania
- 4:50 p.m. **LIVER LIPIDS IN HYDRAZINE TOXICITY**
 David L. Trout, Ph.D.; and Capt. John W. Foft, USAF, MC
 USAF School of Aerospace Medicine, Brooks AFB, Texas

- 5:10 p.m. **SOME EFFECTS OF CHLORINATED INSECTICIDES ON VERTEBRATE CARBOHYDRATE METABOLISM**
 Dane E. Lacey, B.S.; Jack W. Daugherty, Ph.D.; and Patricia Kory, B.S.
 Civil Aeromedical Research Institute, Federal Aviation Agency, Oklahoma City, Oklahoma

APRIL 30, 1963

Tuesday 8:10 a.m.

Los Angeles Room

RADIOBIOLOGY

- 8:10 a.m. **RADIATION PROTECTION FOR MANNED SPACE FLIGHT**
 Lt. Col. Joseph A. Connor, USAF, MC
 National Aeronautics and Space Administration, Washington, D. C.

SCIENTIFIC PROGRAM

8:30 a.m. THE RADIATION FIELD INSIDE SPACE VEHICLES

Hermann J. Schaefer, Ph.D.
USN School of Aviation Medicine, Pensacola, Florida.

8:50 a.m. WHOLE BODY EXPOSURE MECHANISM FOR EXPOSURE OF PRIMATES TO PROTONS

George W. Crawford, Ph.D.; and John E. Hewitt, Ph.D.
USAF School of Aerospace Medicine, Brooks AFB, Texas

9:10 a.m. BIOLOGICAL EFFECTS OF WHOLE BODY IRRADIATION

Col. John E. Pickering, USAF
USAF School of Aerospace Medicine, Brooks AFB, Texas

9:30 a.m. CHEMICAL RADIOPROTECTION

Capt. G. S. Melville, Jr., USAF, MSC; K. M. Gallo, B.A.; and G. W. Harrison, Jr., B.A.
Balcones Research Center, Austin, Texas

APRIL 30, 1963

Tuesday 8:10 a.m. Pacific Ball Room

IMPACT

8:10 a.m. EXTENSION OF THE MEASURED EXPERIENCE OF HUMAN IMPACT LOADS

G. J. Pesman; and H. F. Scherer, Jr.
Biodynamics Section, Environmental Physiology Branch, NASA Manned Spacecraft Center, Houston, Texas

8:30 a.m. AN ANALYSIS OF CARDIOVASCULAR INJURIES RESULTING FROM ACCELERATIVE FORCE

Lt. Cdr. Walter D. Gable, MC, USN; and Col. Frank M. Townsend, USAF, MC
Armed Forces Institute of Pathology, Washington, D. C.

8:50 a.m. THE EFFECTS OF SEVERE IMPACT ON BEARS

Maj. E. J. Taylor, USAF, MC; R. F. Chandler, BSME; Capt. L. W. Rhein, USAF, MC; Maj. R. H. Edwards, USAF, MC; and Capt. V. L. Carter, USAF, VC
Aero-Medical Laboratory, Holloman AFB, New Mexico

9:10 a.m. HUMAN RESPONSE TO LATERAL IMPACT

Capt. Edmund B. Weis, USAF, MC; James W. Brinkley, B.Sc.; Neville P. Clarke, USAF, MC; and Capt. William E. Temple, USAF, MC
Aerospace Medical Research Laboratories, Wright-Patterson AFB, Ohio

9:30 a.m. HUMAN TOLERANCE TO NEGATIVE IMPACT ACCELERATION

Lt. Cdr. Francis M. Highly, MC, USN; Cdr. George T. Critz, MC, USN; and Edwin Hender, Ph.D.
Air Crew Equipment Laboratory, Naval Air Material Center, Philadelphia, Pennsylvania

9:50 a.m. PATHOLOGY PRODUCED BY IMPACT ACCELERATION APPLIED TO GUINEA PIGS

Charles F. Lombard, Ph.D.; P. Close, Ph.D.; and Fred Larmie, M.S.
Northrop Space Laboratories, 111 E. Broadway, Hawthorne, California

APRIL 30, 1963

Tuesday 8:10 a.m.

Sierra Room

CLINICAL CARDIOLOGY

8:10 a.m. UNUSUAL MANIFESTATIONS OF CORONARY HEART DISEASE

Maj. Perry B. Miller, USAF
USAF School of Aerospace Medicine, Brooks AFB, Texas

8:30 a.m. SERUM LIPOPROTEINS IN FATAL AND NON-FATAL MYOCARDIAL INFARCTION

L. R. Krasno, M.D.; G. J. Kidera, M.D.; and Arthur Lack, M.D.
Department Clinical Research, United Airlines, San Francisco, California

8:50 a.m. LEFT BUNDLE BRANCH BLOCK IN FLYING PERSONNEL

Lt. Col. R. L. Johnson, USAF, MC; and L. E. Lamb, M.D.
USAF School of Aerospace Medicine, Brooks AFB, Texas

9:10 a.m. ATRIAL FIBRILLATION IN FLYING PERSONNEL

L. W. Pollard, M.D.; and L. E. Lamb, M.D.
USAF School of Aerospace Medicine, Brooks AFB, Texas

9:30 a.m. TRIAXIAL HUMAN BALLISTOCARDIOGRAM IN ZERO G ENVIRONMENT

D. E. Beischer, Ph.D.; and W. C. Hixson, M.S.E.E.
USN School of Aviation Medicine, Pensacola, Florida

APRIL 30, 1963

Tuesday 10:10 a.m.

Los Angeles Room

BIOINSTRUMENTATION

10:10 a.m. INSTRUMENTATION OF THE USAF SCHOOL OF AEROSPACE MEDICINE-MILITARY AIR TRANSPORT SERVICE SIMULATOR FATIGUE STUDIES

Wesley E. Prather, E.E.; and Lt. Col. David G. Simons, USAF, MC
USAF School of Aerospace Medicine, Brooks AFB, Texas

10:30 a.m. BIOMEDICAL RESULTS FROM X-20 DYNAMIC SIMULATION PROGRAM

Maj. Harry R. Bratt, USAF, MC; and Mr. John Kuramoto
Edwards AFB, California

10:50 a.m. UTILIZATION OF BIOELECTRICITY AS POWER SUPPLY FOR IMPLANTED ELECTRONIC DEVICES

Luther W. Reynolds, B.S.
General Electric Company, Philadelphia, Pennsylvania

11:10 a.m. CONTINUOUS DETERMINATION OF PHYSIOLOGIC PROFILE WITH A BLOOD FLOW MONITOR

R. F. Shaw, M.D.; N. B. Marple; and W. Scolnik
Biomedical Engineering Laboratory of the Electronic Research Laboratories, Columbia University, New York, New York

11:30 a.m. MYOELECTRIC SERVO CONTROL

George H. Sullivan, M.D.; Charles J. Martell, M.D.; and Gershon Weltman, Ph.D.
Spacelabs, Inc., Van Nuys, California

SCIENTIFIC PROGRAM

APRIL 30, 1963

Tuesday 10:10 a.m. Sierra Room

CLINICAL AEROSPACE MEDICINE I

- 10:10 a.m. THE COMMON COLD—A CONTINUING AEROMEDICAL PROBLEM
 Capt. John W. Funk, USAF, MC
 USAF School of Aerospace Medicine, Brooks AFB, Texas
- 10:30 a.m. THE EXPOSURE OF AMBULATORY PATIENTS TO MODERATE ALTITUDE (1) RESPONSES IN SEVERE PULMONARY IMPAIRMENT
 Frederick H. Shillito, M.D.; Joseph F. Tomaszewski, M.D.; and William F. Ashe, M.D.
 Department of Preventive Medicine, College of Medicine, Ohio State University, Columbus, Ohio
- 10:50 a.m. DEFINITIVE SURGICAL TREATMENT OF SPONTANEOUS PNEUMOTHORAX
 Col. Philip A. Cox, USAF, MC
 USAF Hospital, Andrews AFB, Washington, D. C.
- 11:10 a.m. UNEXPLAINED LOSS OF CONSCIOUSNESS
 Capt. Joseph H. Combs, Jr., USAF; Lt. Col. Robert L. Johnson, USAF; and L. E. Lamb, M.D.
 USAF School of Aerospace Medicine, Brooks AFB, Texas

APRIL 30, 1963

Tuesday 10:30 a.m. Pacific Ball Room

ACCELERATION II

- 10:30 a.m. A SECOND LOOK AT THE "GRAVEYARD SPIRAL"
 G/C W. R. Franks, RCAF-R
 RCAF Institute of Aviation Medicine, Toronto, Ontario
- 10:50 a.m. SPEECH IN VIBRATION ENVIRONS
 Charles W. Nixon, Ph.D.; and Henry C. Sommer, B.Sc.
 Aerospace Medical Research Laboratories, Wright-Patterson AFB, Ohio
- 11:10 a.m. DYNAMIC RESPONSE CHARACTERISTIC OF WEIGHTLESS MAN
 Capt. C. E. Whitsett, USAF
 Kirtland AFB, New Mexico
- 11:30 a.m. HUMAN TOLERANCE TO EXTREME IMPACTS IN FREE-FALL
 Richard G. Snyder, Ph.D.
 Civil Aeromedical Research Institute, Federal Aviation Agency, Oklahoma City, Oklahoma

APRIL 30, 1963

Tuesday 2:00 p.m. Golden State Room

EJECTION

- 2:00 p.m. THE PATHOLOGY OF EJECTION FAILURE
 Capt. Richard M. Chubb, USAF, MC; Capt. W. Harley Davidson, USAF, MC; and Lt. Cdr. Walter D. Gable, MC, USN
 Armed Forces Institute of Pathology, Washington, D. C.

2:20 p.m. EJECTION SEAT ACCELERATIONS AND INJURIES

Capt. Walton L. Jones, MC, USN; and Cdr. William F. Madden, MSC, USN
 Bureau of Medicine and Surgery, Department of the Navy, Washington, D. C.

2:40 p.m. RCAF EJECTION EXPERIENCE: DECADE 1952-1961

S/L J. R. Smiley, Ph.D.
 RCAF Institute of Aviation Medicine, Toronto, Ontario

3:00 p.m. BIODYNAMIC RESPONSE TO SUPERSONIC EJECTION

Capt. Neville P. Clark, USAF, VC
 Aerospace Medical Research Laboratories, Wright-Patterson AFB, Ohio

APRIL 30, 1963

Tuesday 2:00 p.m. Pacific Ball Room

ATMOSPHERE SELECTION I

2:00 pm. SPECIFICITY OF CHRONIC OXYGEN TOXICITY

G. H. Kydd, Ph.D.; L. R. Kowalski, B.S.; and R. J. McGowan
 Aviation Medical Acceleration Laboratory, Naval Air Development Center, Johnsville, Pennsylvania

2:20 p.m. HUMAN TOLERANCE FOR CARBON DIOXIDE IN NITROGEN-FREE ATMOSPHERES

Capt. R. G. Cutler, USAF, MC; F. Ulvedal, Ph.D.; Capt. James E. Herlocher, USAF, MC; and B. E. Welch, Ph.D.
 USAF School of Aerospace Medicine, Brooks AFB, Texas

2:40 p.m. THE IDEAL RELATIONSHIP BETWEEN INSPIRED OXYGEN CONCENTRATION AND CABIN ALTITUDE

S/L J. Ernsting
 RAF Institute of Aviation Medicine, Farnborough, England

3:00 p.m. A SPACE VEHICLE SIMULATOR AND ATMOSPHERE CONTROL SYSTEM

D. A. Mancinelli, B.S.; M. Sloane, B.S.; and J. F. Kiefer
 Air Crew Equipment Laboratory, Philadelphia, Pennsylvania

APRIL 30, 1963

Tuesday 2:00 p.m. Sierra Room

SURVIVAL

2:00 p.m. FOAM PLASTIC INFLATED ANTI-EXPOSURE SUITS

R. Flannagan Gray, M.A.
 Aviation Medical Acceleration Laboratory, Naval Air Development Center, Johnsville, Pennsylvania

2:20 p.m. **SURVIVAL FOLLOWING CONTROLLED CRASHES**

Col. E. C. Lentz, USAF, MC
Office of the Deputy Inspector General for
Safety, Norton AFB, California

2:40 p.m. **DITCHING IN THE NORTH ATLANTIC**

B. C. Doyle, Senior Technical Analysis Specialist
Civil Aeronautics Board, Washington, D. C.

3:00 p.m. **A PHYSIOLOGICAL EVALUATION OF THE DIVERS' WET SUIT IN SIMULATED FLIGHT AND EMERGENCY ENVIRONMENTS**

Louis J. SantaMaria, B.S.; Lt. Cdr. Morris J. Damato, MSC, USN; and Meredith H. Radliff
Air Crew Equipment Laboratory, Naval Air
Material Center, Philadelphia, Pennsylvania

APRIL 30, 1963

Tuesday 3:50 p.m. Pacific Ball Room

ATMOSPHERE SELECTION II

3:50 p.m. **GASEOUS ENVIRONMENT CONSIDERATIONS AND EVALUATION PROGRAMS LEADING TO SPACECRAFT ATMOSPHERE SELECTION**

E. L. Michel, M.S.; and Maj. G. B. Smith, Jr.,
USAF, MC
NASA Manned Spacecraft Center, Crew
Systems Division, Houston, Texas

4:10 p.m. **RAPID DECOMPRESSION HAZARDS AFTER PROLONGED EXPOSURE TO 50% OXYGEN —50% NITROGEN ATMOSPHERE**

Lt. Cdr. Morris H. Damato, MSC, USN; Lt. Cdr. Francis M. Highly, MC, USN; Edwin Hendler, Ph.D.; and Edward L. Mitchell, M.S.
Air Crew Equipment Laboratory, Naval Air
Material Center, Philadelphia, Pennsylvania
and NASA Manned Spacecraft Center,
Houston, Texas

4:30 p.m. **THE EFFECTS ON MAN OF PROLONGED EXPOSURE TO PURE OXYGEN**

W. M. Helvey, M.D.; G. A. Albright, M.D.;
F. B. Benjamin, Ph.D.; J. S. Peters, Ph.D.;
L. Gall, Ph.D.; and H. Rind, B.M.E.
Space Environment and Life Sciences Laboratory,
Republic Aviation Corporation,
Farmingdale, L I., New York

4:50 p.m. **SPACECRAFT ATMOSPHERE SELECTION**

W. E. Welch, Ph.D.; Capt. R. G. Cutler,
USAF, MC; and T. E. Morgan, Jr., M.D.
USAF School of Aerospace Medicine, Brooks
AFB, Texas and University of Washington,
Seattle, Washington

5:10 p.m. **EFFECTS OF SEQUENTIAL EXPOSURE TO ACCELERATION AND SPACE CAPSULE ATMOSPHERIC CONDITIONS**

Lt. Robert E. Mammen, MC, USN; Cdr. George T. Critz, MC, USN; Donald W. Dery, Ph.D.; Lt. Cdr. Francis M. Highly, MC, USN; and Edwin Hendler, Ph.D.
Air Crew Equipment Laboratory, Naval Air
Material Center, Philadelphia, Pennsylvania

APRIL 30, 1963

Tuesday 3:50 p.m. Golden State Room

VIBRATION AND LOW LEVEL FLIGHT PROBLEMS

3:50 p.m. **TOLERANCE AND PERFORMANCE UNDER SEVERE TRANSVERSE ($\pm G_x$) VIBRATION**

Denis B. Faubert, B.S.; Bruce S. Cooper, B.S.;
and Carl C. Clark, Ph.D.
Life Sciences Department, Martin Company,
Baltimore, Maryland

4:10 p.m. **HUMAN VIBRATION AND IMPACT ISOLATION WITH A PROTOTYPE FULL LENGTH AIR BAG RESTRAINT SYSTEM**

Carl Clark, Ph.D.; Bruce Cooper, B.S.; and
Carl Blechschmidt, B.S.
Life Sciences and Structures Departments,
Martin Company, Baltimore, Maryland

4:30 p.m. **SHORT-TIME TOLERANCE AND PULSE RESPONSE IN MAN TO SINUSOIDAL VIBRATION IN THE SEMI-SUPINE POSITION IN X, Y AND Z AXES**

Capt. Morris J. Mandel, USAF, MC
Aerospace Medical Research Laboratories,
Wright-Patterson AFB, Ohio

4:50 p.m. **EFFECTS OF LOW ALTITUDE HIGH SPEED FLYING UPON PILOT PERFORMANCE**

Lt. F. J. Formeller, MSC, USN; and R. H. Seltz, B.S.
Aeromedical Branch, Service Test, NATC
Patuxent River, Maryland

5:10 p.m. **ASPECTS OF THE HUMAN RESPONSE TO HIGH SPEED LOW LEVEL FLIGHT**

S/L F. T. Fraser, M.B., M.Sc.
Institute of Aviation Medicine, RCAF,
Toronto, Ontario

APRIL 30, 1963

Tuesday 3:50 p.m. Sierra Room

SAFETY

3:50 p.m. **GENERAL AVIATION ACCIDENTS: AN EPIDEMIOLOGIC APPROACH**

Capt. Ronald E. Costin, USAF, MC
USAF School of Aviation Medicine, Brooks
AFB, Texas

4:10 p.m. **THE PATHOLOGY OF LIGHT PLANE ACCIDENTS**

Capt. W. H. Davidson, USAF, MC; H. H. Kamitschnig, M.D.; and W. J. Reals, M.D.
Armed Forces Institute of Pathology,
Washington, D. C.

4:30 p.m. **INTERPRETATION OF CARBON MONOXIDE VALUES IN SELECTED AIRCRAFT ACCIDENTS**

Capt. Abel M. Dominguez, USAF, MSC; Maj. James R. Halstead, USAF, MC; and Col. Thaddeus J. Domanski, USAF, MC
Armed Forces Institute of Pathology,
Washington, D. C.

SCIENTIFIC PROGRAM

4:50 p.m. **THE JOINT COMMITTEE ON AVIATION PATHOLOGY**
Col. Frank M. Townsend, USAF, MC; and Capt. W. Harley Davidson, USAF, MC
Armed Forces Institute of Pathology, Washington, D. C.

5:10 p.m. **ACCUMULATION OF STATIC ELECTRICITY IN ARCTIC CLOTHING**
Capt. James H. Veghte, USAF; and MSgt. Walter W. Millard, USAF
Arctic Aeromedical Laboratory, Fort Wainwright, Alaska

MAY 1, 1963

Wednesday 8:30 a.m. Los Angeles Room

THERMAL STRESS

8:30 a.m. **AN APPROACH TO THE PHYSIOLOGICAL STUDY ON HEAT STRESS**
Hisashi Saiki, M.D., Ph.D.; and Masako Saiki, Ph.D.
23, Saka-Machi, Shinjuku-Ku, Tokyo, Japan

8:50 a.m. **PHYSIOLOGICAL RESPONSES TO TRANSIENT HEAT STRESS IN REFLECTIVE VERSUS NON-REFLECTIVE CLOTHING**
Abbott T. Kissen, Ph.D.; and John F. Hall, Jr., M.A.
Aerospace Medical Research Laboratories, Wright-Patterson AFB, Ohio

9:10 a.m. **HEAT TRANSFER IN PROTECTION FROM FLAMES**
Maria A. Chianta, B.A.; and Alice Stoll, M.S.
Aviation Medical Acceleration Laboratory, Naval Air Development Center, Johnsville, Pennsylvania

9:30 a.m. **ORIGINS OF CONSCIOUS SENSATIONS OF WARM OR COLD IN MAN**
Theodor H. Benzinger, M.D., Sc.D.
Naval Medical Research Institute, Bethesda, Maryland

9:50 a.m. **CONTINUOUS REGISTRATION OF REGIONAL SWEATING AND SKIN BLOOD FLOW**
Alick B. Hertzman, Ph.D.; and Franz Flath
St. Louis University School of Medicine, St. Louis, Missouri

MAY 1, 1963

Wednesday 8:30 a.m. Pacific Ball Room

**PHYSIOLOGY
HIGH ALTITUDE AND
OXYGEN PROBLEMS**

8:30 a.m. **THE EFFECT OF DECREASED BAROMETRIC PRESSURE ON MAXIMUM PRESSURE-VOLUME RELATIONSHIPS OF THE HUMAN RESPIRATORY SYSTEM**
Lt. Col. Louis F. Johnson, USAF, MC
USAF School of Aerospace Medicine, Brooks AFB, Texas

8:50 a.m. **OCULAR HYPEROXIA**
Capt. Cecil C. Beehler, USAF, MC; Capt. Norris L. Newtton, USAF, MC; and Lt. Col. James F. Culver, USAF, MC
USAF School of Aerospace Medicine, Brooks AFB, Texas

9:10 a.m. **A STUDY OF POST HYPOXIC PARADOX EFFECT**
F. M. Merayo, M.D.; and J. Ruiz-Gijon, M.D.
Centro Investigacion Medicina Aeronautica Facultad de Medicina, Ciudad Universitaria, Madrid, Spain

9:30 a.m. **RAPID DECOMPRESSIONS ABOVE 50,000 FEET**
Richard W. Bancroft, Ph.D.; and Lt. Col. David G. Simons, USAF, MC
USAF School of Aerospace Medicine, Brooks AFB, Texas

9:50 a.m. **DECOMPRESSION TESTS FOR THE B-58 ESCAPE CAPSULE SYSTEM**
Capt. Nicholas C. Nicholas, USAF; Capt. James R. Wamsley, USAF, MC; and Richard W. Bancroft, Ph.D.
USAF Hospital, Carswell AFB, Texas

MAY 1, 1963

Wednesday 8:30 a.m. Sierra Room

DISORIENTATION I

8:30 a.m. **VESTIBULAR RESPONSES TO OSCILLATION ABOUT THE YAW AXIS**
R. L. Cramer, Ph.D.; P. J. Dowd, M.A.; and D. B. Helms, M.Ed.
USAF School of Aerospace Medicine, Brooks AFB, Texas

8:50 a.m. **THE EFFECTS OF VISUAL DEPRIVATION ON ADAPTATION TO THE CORIOLIS ILLUSION, POSTURAL EQUILIBRIUM AND CANAL SICKNESS**
Lt. Robert S. Kennedy, MSC, USNR; Capt. Ashton Graybiel, MC, USN; and Gilbert E. Tolhurst, Ph.D.
Naval School of Aviation Medicine, Pensacola, Florida and Office of Naval Research, Washington, D. C.

9:10 a.m. **MEASUREMENTS OF THE OCULOGRAVIC ILLUSION IN HEALTHY SUBJECTS AND IN PERSONS WITH BILATERAL VESTIBULAR DEFECTS WITH A NOTE ON ITS USEFULNESS AS A SPECIFIC INDICATOR OF OTOLITH FUNCTION**
Capt. Ashton Graybiel, MC, USN; and Brant Clark, Ph.D.
Naval School of Aviation Medicine, Pensacola, Florida and San Jose State College, San Jose, California

9:30 a.m. **ROTARY AUTOKINESIS AND DISPLACEMENT OF THE VISUAL HORIZONTAL ASSOCIATED WITH A RECUMBENT POSTURE**
Lt. Earl F. Miller, II, MSC, USNR; and Capt. Ashton Graybiel, MC, USN
Naval School of Aviation Medicine, Pensacola, Florida

SCIENTIFIC PROGRAM

- 9:50 a.m. URINARY EXCRETION OF CORTICOSTEROIDS AND CATECHOL AMINES IN NORMAL PERSONS (NON-PILOTS) AND DEAF SUBJECTS WITH BILATERAL VESTIBULAR DEFECTS SUBJECTED TO ACROBATIC FLIGHT STRESS
James K. Colehour; and Capt. Ashton Graybiel, MC, USN
Naval School of Aviation Medicine, Pensacola, Florida

MAY 1, 1963

Wednesday 8:30 a.m. Golden State Room

FEDERAL AVIATION AGENCY
PANEL PRESENTATION
AND
DISCUSSION SESSION

- 8:30 a.m. CURRENT RESOURCES AND PRIMARY MEDICAL PROGRAMS
Hilliard D. Estes, M.D., Acting Civil Air Surgeon
Federal Aviation Agency, Washington, D. C.
- 8:50 a.m. EXPERIENCE WITH NEWLY DEVELOPED MEDICAL CERTIFICATION PROCEDURES
Peter V. Siegel, M.D.
Aeromedical Certification Division, Federal Aviation Agency, Oklahoma City, Oklahoma
- 9:10 a.m. PRESENT PHILOSOPHY OF STANDARDS DEVELOPMENT
William R. Albers, M.D.
Aeromedical Standards Division, Federal Aviation Agency, Oklahoma City, Oklahoma
- 9:30 a.m. CIVIL AEROMEDICAL RESEARCH PROGRESS
Stanley R. Mohler, M.D.
Aeromedical Research Division, Federal Aviation Agency, Oklahoma City, Oklahoma

MAY 1, 1963

Wednesday 10:30 a.m. Los Angeles Room

ENVIRONMENTAL PHYSIOLOGY

- 10:30 a.m. TOLERANCE OF "SHIRTSLEEVE" CREWS TO MODERATELY SEVERE ENVIRONMENTS
Maj. W. C. Kaufman, USAF
Aerospace Medical Research Laboratories, Wright-Patterson AFB, Ohio
- 10:50 a.m. BIOCHEMICAL PHARMACOLOGY IN THE TOLERANCE TO ACCELERATION STRESS
B. David Polis, Ph.D.; and Herman W. Shmukler, Ph.D.
Aviation Medical Acceleration Laboratory, U. S. Naval Air Development Center, Johnsville, Pa.
- 11:10 a.m. THE EFFECTS OF HIGH CONCENTRATION OF CO₂ ON URINARY EXCRETION OF STEROIDS AND CATECHOLAMINES
Frode Ulvedal, Ph.D.; Capt. R. G. Cutler, USAF, MC; and B. E. Welch, Ph.D.
USAF School of Aerospace Medicine, Brooks AFB, Texas

- 11:30 a.m. DELETERIOUS PHYSIOLOGICAL EFFECTS INHERENT IN THE USE OF THE MAE WEST TYPE LIFE JACKET FOR SURVIVAL FROM "DISASTER AT SEA"
Capt. E. I. Beckman, MC, USN; and Lt. Cdr. R. E. DeForest, MC, USN
Naval Medical Research Institute, Bethesda, Maryland

MAY 1, 1963

Wednesday 10:30 a.m. Pacific Ball Room

DYSBARISM

- 10:30 a.m. STUDIES IN DECOMPRESSION SICKNESS I. CIRCULATORY AND RESPIRATORY CHANGES ASSOCIATED WITH DECOMPRESSION SICKNESS IN ANESTHETIZED DOGS
Capt. Sidney D. Leverett, Jr., USAF, MSC; Capt. Harold L. Bitter, USAF, MC; and Capt. Robert G. McIver, USAF, MC
USAF School of Aerospace Medicine, Brooks AFB, Texas
- 10:50 a.m. STUDIES IN DECOMPRESSION SICKNESS II. CARDIO-RESPIRATORY RESPONSES OF ANESTHETIZED DOGS TO OVERCOMPRESSION FOLLOWING EXPERIMENTAL DECOMPRESSION SICKNESS
Maj. Robert G. McIver, USAF, MC; and Capt. Sidney D. Leverett, Jr., USAF, MSC
USAF School of Aerospace Medicine, Brooks AFB, Texas
- 11:10 a.m. PATHOLOGY OF EXPERIMENTAL DYSBARISM
Maj. James R. Clay, USAF, MC
USAF School of Aerospace Medicine, Brooks AFB, Texas
- 11:30 a.m. NEUROLOGICAL MANIFESTATIONS OF DYSBARISM—A REVIEW AND REPORT OF A CASE WITH MULTIPLE EPISODES
Lt. Col. Don E. Flinn, USAF, MC; and Maj. Granville J. Womack, USAF, MC
USAF School of Aerospace Medicine, Brooks AFB, Texas

MAY 1, 1963

Wednesday 10:30 a.m. Sierra Room

DISORIENTATION II

- 10:30 a.m. HAND PREFERENCE IN AIRCREW
Flt. Lt. J. L. Geyde, M.B.
RAF Institute of Aviation Medicine, Farnborough, England
- 10:50 a.m. ANALYSIS OF INDUCED DISORIENTATION IN PRIMATES
Leonard A. Cohen, Ph.D.
Korman Research Laboratories, Albert Einstein Medical Center, Philadelphia, Pennsylvania
- 11:10 a.m. RORSCHACH INDICATIONS OF EMOTIONAL INSTABILITY AND SUSCEPTIBILITY TO MOTION SICKNESS
Lt. Cdr. Allen E. McMichael, MSC, USN; and Capt. Ashton Graybiel, MC, USN
USN School of Aviation Medicine, Pensacola, Florida

MAY 1, 1963

- 11:30 a.m. CONTROL OF SEASICKNESS WITH TRI-METHOBENZAMIDE (TIGAN)
 Maj. K. Vandenbos, USAF, MC; Col. V. Downey, USAF, MC; and Capt. W. Williams, USAF
 Headquarters Tactical Air Command, Langley AFB, Virginia

MAY 1, 1963

Wednesday 2:00 p.m. Los Angeles Room

PERSONNEL

- 2:00 p.m. MANPOWER, MISSILES AND MORALE
 Capt. E. H. Cramer, USAF, MC; and Capt. P. R. Hanson, USAF, MC
 USAF School of Aerospace Medicine, AMD, Brooks AFB, Texas
- 2:20 p.m. AIR FORCE RESEARCH ON NON-ADAPTIVE ENLISTED PERSONNEL
 Eli Flyer, Ph.D.
 Personnel Research Laboratory, Lackland AFB, Texas
- 2:40 p.m. EFFECTS OF ELECTRIC FIELDS AND NEGATIVE ION CONCENTRATIONS ON TEST PILOTS
 Charles I. Barron, M.D.; and John J. Dreher, Ph.D.
 Lockheed-California Company, Burbank, California
- 3:00 p.m. PSYCHOLOGICAL CORRELATES OF BIODYNAMIC STRESS
 Ray A. Craddick, Ph.D.
 New Mexico State University, Las Cruces, New Mexico

MAY 1, 1963

Wednesday 2:00 p.m. Pacific Ball Room

LIFE SUPPORT EQUIPMENT I

- 2:00 p.m. TOXIC PHOTO-OXIDATION PRODUCTS IN CLOSED ENVIRONMENTS
 S. S. Wilks, Ph.D.
 USAF School of Aerospace Medicine, Brooks AFB, Texas
- 2:20 p.m. MONITORING OF TRACE CONSTITUENTS IN SIMULATED MANNED SPACECRAFT
 T. B. Weber, Ph.D.; and J. E. Dickey, E.E.
 USAF School of Aerospace Medicine, Brooks AFB, Texas
- 2:40 p.m. ATMOSPHERE MOVEMENT IN SEALED ENVIRONMENTS FOR MANNED SPACE MISSIONS
 Donald A. Keating
 Aerospace Medical Research Laboratories, Wright-Patterson AFB, Ohio
- 3:00 p.m. CARBON DIOXIDE MANAGEMENT IN SPACE CAPSULE ATMOSPHERES BY REGENERABLE ADSORPTION OF CARBON DIOXIDE ON SYNTHETIC ZEOLITES AT LOW TEMPERATURES
 C. S. Coe, M.S.; and George Christensen, B.S.
 AiResearch Manufacturing Company, A Division of the Garrett Corporation, Los Angeles, Calif.

Wednesday 2:00 p.m.

Sierra Room

CLINICAL AEROSPACE MEDICINE II

- 2:00 p.m. MEASUREMENT OF BODY FAT IN MEN BY DISPLACEMENT OF WATER
 Thomas H. Allen, Ph.D.
 USAF School of Aerospace Medicine, Brooks AFB, Texas
- 2:20 p.m. DISC DISEASE IN FLYING PERSONNEL
 Lt. Col. Paul W. Myers, USAF, MC
 USAF Hospital Lackland, Lackland AFB, Texas
- 2:40 p.m. CIRCULATORY EFFECTS OF ARTERIAL HYPOXIA
 Peter F. Salisbury, M.D.; Cecil E. Cross; and Charles I. Barron, M.D.
 St. Joseph Hospital and Lockheed Aircraft Company, Burbank, California
- 3:00 p.m. AEROMEDICAL ASPECTS OF MALARIA PROPHYLAXIS WITH CHLOROQUINE-PRIMAQUINE
 Capt. James F. Wittmer, USAF, MC
 USAF School of Aerospace Medicine, Brooks AFB, Texas

MAY 1, 1963

Wednesday 3:50 p.m.

Los Angeles Room

VISION

- 3:50 p.m. ACCELERATION AND VISION: BRIGHTNESS DISCRIMINATION
 W. J. White, Ph.D.; and M. L. Braunstein, Ph.D.
 Cornell Aeronautical Laboratory, Inc., Buffalo, New York
- 4:10 p.m. THE ACCELERATION PHOSPHENE
 Paul Tobias, Ph.D.; and J. P. Meehan, M. D.
 Human Centrifuge, Kerckhoff Laboratories, University of Southern California, Los Angeles, California
- 4:30 p.m. PHOTOSTRESS AND FLASH BLINDNESS IN AEROSPACE OPERATIONS
 Capt. Sanford L. Severin, USAF, MC; Capt. Norris L. Newton, USAF, MC; and Lt. Col. James F. Culver, USAF, MC
 USAF School of Aerospace Medicine, Brooks AFB, Texas
- 4:50 p.m. THE RETINAL BURN PROBLEM
 Capt. H. G. Wagner, MC, USN; and Myron L. Wolbarsht, Ph.D.
 Naval Medical Research Institute, Bethesda, Maryland
- 5:10 p.m. VISUAL FACTORS IN AIRCREW STATION LIGHTING DESIGN
 John Lazo; and Capt. Roland A. Bouse, MSC, USN
 Air Crew Equipment Laboratory, Naval Air Material Center, Philadelphia, Pennsylvania

SCIENTIFIC PROGRAM

MAY 1, 1963

Wednesday 3:50 p.m. Pacific Ball Room

LIFE SUPPORT EQUIPMENT II

- 3:50 p.m. WILEY POST: FIRST TESTS OF HIGH ALTITUDE PRESSURE SUITS IN UNITED STATES
Capt. Charles L. Wilson, USAF, MC
Headquarters, Andrews AFB, Washington, D. C.
- 4:10 p.m. SPACE TRAVEL: COMPLETE EMERGENCY LIFE SUSTAINING SYSTEM FOR SPACECRAFT
Henry W. Seeler
Aerospace Medical Research Laboratories, Wright-Patterson AFB, Ohio
- 4:30 p.m. NUTRITIONAL VALUE OF SOME MICROBIAL FOODS
1/Lt. John E. Vanderveen, USAF, Ph.D.; and Alton E. Prince, Ph.D.
Aerospace Medical Research Laboratories, Wright-Patterson AFB, Ohio
- 4:50 p.m. CONTINUOUS, FUNCTIONAL TESTING OF OXYGEN BREATHING EQUIPMENT
J. Ryan Neville, Ph.D.
USAF School of Aerospace Medicine, Brooks AFB, Texas
- 5:10 p.m. CURRENT STATUS OF A HYPOXIA WARNING STATION
Capt. W. L. Lee, USAF
Aerospace Medical Research Laboratory, Wright-Patterson AFB, Ohio

MAY 1, 1963

Wednesday 3:50 p.m. Sierra Room

CLINICAL MILITARY AND AVIATION MEDICINE

- 3:50 p.m. LABORATORY METHODS FOR THE DETECTION OF ANTI-HYPERTENSIVE DRUGS IN FLYING PERSONNEL
Capt. John W. Foft, USAF; and A/IC Robert J. Williams, USAF
USAF School of Aerospace Medicine, Brooks AFB, Texas
- 4:10 p.m. AEROMEDICAL SUPPORT OF BOMBER CREWS
Capt. Richard L. Masters, USAF, MC
Headquarters U. S. 2nd Air Force, Barksdale AFB, Louisiana
- 4:30 p.m. MEDICAL EVALUATION OF MISSILEERS
Capt. William H. King, USAF, MC
USAF Hospital Sheppard, Sheppard AFB, Texas
- 4:50 p.m. CHARACTERISTICS OF NOISE PROBLEMS ASSOCIATED WITH THE OPERATION OF MODERN DAY AIRCRAFT
Capt. Donald C. Gasaway, USAF, MC
USAF School of Aerospace Medicine, Brooks AFB, Texas

5:10 p.m. AEROSPACE MEDICAL SURVEILLANCE OF THE TITAN II

Lt. Col. Robert N. Reiner, USAF, MC; and Capt. John J. McCambridge, USAF, MC
Headquarters U. S. 15th Air Force, March AFB, California

MAY 2, 1963

Thursday 8:30 a.m. Pacific Ball Room

MANNED SPACE LABORATORY CONFERENCE

Jointly Sponsored by the Aerospace Medical Association and the American Rocket Society

KEYNOTE ADDRESS

Robert F. Trapp
NASA Office of Advanced Research and Technology, Washington, D. C.

DESCRIPTION OF THE SPACE STATION LABORATORY

Charles W. Matthews; and Edward H. Olling
NASA Manned Spacecraft Center, Houston, Texas

HUMAN HABITABILITY REQUIREMENTS

Lt. Col. Stanley C. White, USAF, MC
NASA Manned Spacecraft Center, Houston, Texas

NUTRITIONAL, WATER, AND WASTE MANAGEMENT

Col. Andres I. Karstens, USAF, MC
USAF Aerospace Medical Research Laboratories, Wright-Patterson AFB, Ohio

ENVIRONMENTAL CONTROL SYSTEMS

Alfred M. Mayo; A. B. Thompson; and Garland Whisenhunt
Chance Vought Corporation, Astronautics Division, Dallas, Texas

PHYSICAL SCIENCES RESEARCH PROGRAM

James B. Edson
NASA Office of Advanced Research and Technology, Washington, D. C.

BIOASTRONAUTICS RESEARCH PROGRAM

Loren D. Carlson
University of Kentucky, Lexington, Kentucky

LOGISTICAL SUPPORT

E. R. Schubert
Lockheed-California Company, Burbank, California

LABORATORY OPERATIONS

Harry L. Evans; and Don Flickinger, M.D.
Department of Defense, and Research Consultant, Life Sciences, Washington, D. C.

SELECTION AND TRAINING OF PERSONNEL

William W. Haythorn
Naval Medical Research Institute, Bethesda, Maryland

NOTE: The above list is not complete. The program will be expanded by addition of papers yet to be selected by the program committee.