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Aviation Medicine

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AVIATION MEDICINE

AN ANNOTATED BIBLIOGRAPHY

1952 LITERATURE

by

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PREFACE

This volume is the first annual cumulation of the bibliography of Aviation Medicine prepared under Government Order NAonr-211-56 by members of the Bibliography Section of the Technical Information Division in the Library of Congress. The task was initiated by the Bureau of Medicine and Surgery and the Office of Naval Research because of the growing interest in aviation medicine since World War II and the lack of an adequate comprehensive compilation on the subject since the publication of Hoff and Fulton's extensive Bibliography of Aviation Medicine.[1]

Scope

In subject coverage and scope this bibliography conforms with H. G. Armstrong's Principles and Practices of Aviation Medicine.[2] Present plans are to include all available published book and periodical literature and unclassified reports issued since 1951. Eventually, it may be possible to bridge the gap between Hoff and Fulton's compilation and the present undertaking. Every effort is being made to include all literature of direct interest and applicability to aviation-medical research, but to exclude all other material. Thus, articles on equipment and machinery have been disregarded unless some physiological or psychological relationship to the pilot, crew members, or other aviation personnel could be established. Papers on basic research, entirely general in nature, as a rule have been omitted; those of specific application have been included. For example, some general papers on visual perception and on physiological effects of noise are regarded as applicable to the study although they do not deal specifically with aviation activities. The bibliography is unrestricted with regard to languages, but it should be noted that, because of limitations in personnel, no Slavic or other languages in non-Roman alphabets have been included in this first cumulation. An expansion into at least some of these languages is, however, anticipated in future volumes.

Arrangement

The bibliography is arranged alphabetically by first author and by year of publication, the latter being printed in the upper right corner of each entry in the same line as the author's name, using letter suffixes (e.g., 1952a, 1952b) to designate further publications during the same year by the same author. This author-date-letter combination is used in the indexes to identify each reference. The names of co-authors, interspersed in the main body of the bibliography at their respective alphabetical locations, refer the reader to the first author under which the item is abstracted.

Form of Entries

The material included may be divided into three major categories: (1) journals, (2) books, and (3) reports, and the entries are arranged respectively as follows:

(1) Journals: Author(s), title of paper, name of journal, volume, issue number in parenthesis, pagination, and date. English translations of foreign-language titles are indicated by brackets and precede the original language titles. The frequently occurring elements of English journal titles have been abbreviated (see Journal Title Abbreviations, page v). The names of foreign-language journals are given in full, followed by the place of publication. The code letters at the end of the citation indicate the library where the journal was consulted, using the symbols of the National Union Catalog (see page v). The given library's call number for the publication has been added if available.

(2) Books (monographs): Author(s), title, edition, pagination, place of publication, publisher, and date. The location of the book consulted in a library is indicated by code letters (see page v) at the end of the citation, followed by the call number for the given library.

(3) Reports: Personal author(s), title of report, organization producing the report (corporate author), project or contract number, issuing government agency if other than the corporate author, report number, date, and pagination. For further identification and as an indication of availability, control numbers (AD, TIP, etc., see page iv) have been added. Finally, the security classification "Unclassified" has been indicated for all defense-related reports still bearing this classification.

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[1] Hoff, E. C. and J. F. Fulton. A Bibliography of Aviation Medicine. Springfield, Ill., and Baltimore, 1942. Supplement, by P. M. Hoff, E. C. Hoff, and J. F. Fulton, Washington, 1944.

[2] 3rd ed. Baltimore: Williams and Wilkins, 1954.

Type of Abstracts

The abstracts presented in this bibliography are informative to the extent of supplying concise data as to purpose, scope, experimental methods employed, results, and conclusions reached by the author. Whenever possible, the authors' own abstracts or summaries have been used, either in their original form or modified. Likewise, abstracts previously prepared for AD or TIP cards have been used whenever deemed adequate. In all cases where such abstracts have been utilized, original authorship is indicated at the end of the abstract.

Indexes

Alphabetical corporate author and subject indexes have been provided. References are identified by author, year, and letter suffix (see under Arrangement). In the corporate author index, subordinate agencies are listed under higher ranking organizations; thus the Directorate of Flight Safety will be found under U.S. Air Force. In the subject index, the main headings (in capital letters) are subdivided into subordinate divisions (effects, relations, etc.). As a rule, the subject headings are uninverted. Cross references are provided to direct the reader from the higher categories to more specific headings ("see also" references) and from terms not used in the index to pertinent synonym headings ("see" references).

Availability of Materials

Many of the periodicals and books cited herein are located also in libraries other than those at which the references were consulted. Government-sponsored reports are in general more difficult to locate, but copies of some reports listed in this volume may be obtained from the issuing agencies. References bearing a PB number may be purchased from the Office of Technical Services. Members and contractors of the Department of Defense may borrow reports from the established document centers under the usual conditions applicable to unclassified reports produced by or for military agencies. The principal accession or control numbers, which indicate the location of the report in these collections, or other availability, are:

AD ASTIA Document; available at the ASTIA (Armed Services Technical Information Agency) Document Service Center, Knott Building, Dayton 2, Ohio; or ASTIA Reference Center, Library of Congress, Washington 25, D. C.

TIP Technical Information Pilot; available at the ASTIA Reference Center, Library of Congress, Washington 25, D. C.

ATI Air Technical Index; available at the ASTIA Document Service Center, Knott Building, Dayton 2, Ohio.

PB Publication Board; for sale by the Office of Technical Services, Department of Commerce, Washington 25, D. C.

For those reports listed herein without control numbers, it is suggested that inquiry be made of the Bibliography Section, Technical Information Division, Library of Congress, Washington 25, D. C., for further information.

Acknowledgements

The bibliography on aviation medicine is being compiled under the guidance of an informal committee made up of representatives of those American and Canadian government agencies primarily interested in aviation medicine. The compilers are grateful to the members of this committee for their interest, advice, and assistance during the course of the task, particularly to Capt. T. Ferwerda and Capt. N. C. Barr of the Bureau of Medicine and Surgery, Mr. J. H. Heald of the Office of Naval Research, and Wing Comdr. R. H. Lowry of the Royal Canadian Air Force. Acknowledgements are due the staffs of various libraries in the Washington area, including the National Library of Medicine, and the libraries of the Bureau of Aeronautics, the U. S. Army, the Civil Aeronautics Administration, the Bureau of Medicine and Surgery, the Office of Technical Services, and the National Advisory Committee for Aeronautics, for helpful cooperation in finding material. The authors wish to express their indebtedness to Dr. Roman Kenk, Supervisor of the Biological Sciences Unit, Bibliography Section, under whose helpful direction this bibliography has developed from the planning stage to its present form. A special note of appreciation is due to fellow members of the staff of the Bibliography Section for valuable assistance in carrying out the work, particularly Mrs. Mabel L. Nall for aid in editing and subject indexing and Mrs. Mabel H. Duffner for advice on citing corporate authors. Finally, thanks are also due to the Publication Section for excellent work in publishing this volume.

Journal Title Abbreviations

The abbreviations used herein for journal titles are intended to save space without sacrificing ready recognition. Minor words such as articles and prepositions, and occasionally parts of long titles have been omitted, and the words and names occurring most frequently in titles are abbreviated. The following is a key to the title word abbreviations used:

Acad.	Academy
Acoust.	Acoustic
Aeronaut.	Aeronautical
Amer.	America(n)
Arch.	Archives
Assoc.	Association
Bacteriol.	Bacteriology
Brit.	British
Bull.	Bulletin
Canad.	Canadian
Coll.	College
Compar.	Comparative
Corp.	Corporation
Dept.	Department
Dermatol.	Dermatology
Div.	Division
Elec.	Electrical
Endocrinol.	Endocrinology
Eng.	Engineering
Exper.	Experimental
Gaz.	Gazette
Gynecol.	Gynecology
Hyg.	Hygiene
Inc.	Incorporated
Indus.	Industrial
Inst.	Institute
Jour.	Journal
Lab(s).	Laboratory(-ies)
Laryngol.	Laryngology
Mag.	Magazine
Med.	Medicine, Medical
Nat.	National
Ophthalmol.	Ophthalmology
Otol.	Otology
Otolaryngol.	Otolaryngology
Pathol.	Pathology
Physiol.	Physiology
Proc.	Proceedings
Psychol.	Psychology
Quart.	Quarterly
Rev.	Review
Sci.	Science
Scient.	Scientific
Soc.	Society
Surg.	Surgery
Tech.	Technical
Univ.	University

Library Symbols

DAL	U.S. Army Library, Pentagon Building, Washington, D. C.
DC	U.S. Department of Commerce Library, Washington, D. C.
DCAA	U.S. Department of Commerce, Civil Aeronautics Administration Library, Washington, D.C.
DCAB	Civil Aeronautics Board Library, Washington, D.C.
DH	U.S. National Institutes of Health Library, Bethesda, Md.
DLC	U.S. Library of Congress, Washington, D. C.
DN-Aer	U.S. Department of the Navy, Bureau of Aeronautics Library, Washington, D. C.
DN-Med	U.S. Department of the Navy, Bureau of Medicine and Surgery Library, Washington, D.C.
DNAC	U.S. National Advisory Committee for Aeronautics Library, Washington, D.C.
DSG	U.S. National Library of Medicine (formerly, Library of the Surgeon General of the Army)
DSI	Smithsonian Institution Library, Washington, D.C.
NNE	Engineering Societies' Library, New York, N.Y.
NNSAE	Society of Automotive Engineers Library, New York, N.Y.

Errata

Page 18: The entry Bair, J. T., should read: Bair, J. T. see also Hollander, E. P., 1952, 1952a; Maag, C. H., 1952

Page 29: The entry Blair, J. T. should be deleted

Page 111: The entry Maag, C. H., 1952, should read: Maag, C. H., and J. T. Bair

Page 129: The entry Payne, B. A., 1952 should read: Payne, R. B., 1952a

ness at the base hospital. The complete "ambucopter" evacuation takes ordinarily not more than 40 minutes.

Anonymous 1952ag
FLYING AND HEART DISEASE. — Jour. Amer. Med. Assoc., 149 (7): 718. June 14, 1952. DSG

In reply to a query whether a 17-year-old boy suffering from rheumatic valvular heart disease (aortic insufficiency) and a blood pressure of 160/0 should be allowed to fly a Piper-Cub, the following facts are presented: the prognosis of aortic insufficiency is the worst of all valvular lesions, and sudden death is not uncommon. The hemodynamics necessary to maintain adequate cerebral circulation would be impaired in flight. For these reasons certification for flying is not advised.

Anonymous 1952ah
STUDY OF HUMAN ADAPTATION TO HIGH ALTITUDES. — Jour. Amer. Med. Assoc., 149 (13): 1236. July 26, 1952. DSG

A visit to the Institute of Andean Biology near Morococha, Peru, directed by Dr. Alberto Hurtado, is described [for details see: Anonymous, 1952q].

Anonymous 1952ai
FERTILITY IN MAN. — Jour. Amer. Med. Assoc., 149 (15): 1431. Aug. 9, 1952. DSG

In answer to a query it is stated that inhalation or ingestion of carbon tetrachloride (used in fire extinguishers) does not cause male sterility; no injurious effects on fertility could be attributed to high-altitude flying over long periods of time.

Anonymous 1952aj
ARTIFICIAL PNEUMOTHORAX AND FLYING. — Jour. Amer. Med. Assoc., 149 (17): 1611. Aug. 23, 1952. DSG

Commercial planes flying over the Rocky Mountains reach altitudes from 18,000 to 20,000 feet at a cabin pressurization of 6,000 to 8,000 feet. Patients with a pneumothorax of 50% of living volume are advised never to fly at such altitudes because of the rapidity of pressure changes. Hypoxia at 8000 feet reached by plane or train would not be significant in the case of 50% bilateral pneumothorax in a normal lung. But the danger of sudden accidental depressurization is constantly present and the effects would be very injurious.

Anonymous 1952ak
AIRLINE PLANS RESIDENCY IN AVIATION MEDICINE. — Jour. Amer. Med. Assoc., 150 (5): 499. Oct. 4, 1952. DSG

A residency to be established by American Airlines will offer postgraduate training to civilian physicians and flight surgeons in the following subjects and practices: care of flying personnel, selection and maintenance of crews, transportation of patients and ill passengers, aircraft accident management, safety and health programs, altitude indoctrination, sanitation, insurance and compensation problems, and airline medical administration.

Anonymous 1952al
ROCKET SENDS MAMMALS UP 200,000 FT. — Jour. Amer. Med. Assoc., 150 (9): 948. Nov. 1, 1952.

Monkeys and mice fired in a rocket to an altitude of about 200,000 feet returned unharmed to the ground. They withstood an initial acceleration of about 15 g lasting less than one second and a subsequent acceleration of 3-4 g, lasting 45 seconds. One mouse, placed in an empty container, appeared to have lost its sense of direction and orientation while floating in a gravityfree state. Another mouse, however, whose drum was provided with a shelf, was able to cling to it and command its body at will. The application to men of the findings from these animal experiments should be made with caution. Reports on pilot performance under subgravity conditions have indicated no adverse effects on the subjects' sense of orientation. [cf. Anonymous, 1952w.]

Anonymous 1952am
HIGH OXYGEN ATMOSPHERES. — Jour. Amer. Med. Assoc., 150 (10): 1058, Nov. 8, 1952. DSG

An oxygen concentration up to 60% in air has no harmful effects to humans. For some persons, respiration of almost 100% oxygen produces vague substernal pain and upper respiratory tract irritation. People breathing high-oxygen atmospheres for a longer time may undergo physiological modifications, such as diminution in respiratory rate and volume.

Anonymous 1952an
HELICOPTER AMBULANCE UNITS. — Jour. Amer. Med. Assoc., 150 (15): 1503. Dec. 13, 1952. DSG

Helicopter ambulances established recently by the U. S. Army Medical Service will provide emergency service supplementing existing means of evacuation. They will include 5 two-rotor utility helicopters capable of carrying 3 litter patients or 4 ambulatory patients, together with a medical attendant and the pilot. Organizational and training aspects are summarized.

Anonymous 1952ao
COURSE IN AVIATION MEDICINE. — U. S. Navy Medical News Letter, 19 (2): 22. 1952. DSG (W1 UN598, v. 19)

The Bureau of Medicine and Surgery of the U. S. Navy announces a course in Aviation Medicine, which will be given at the U. S. Naval School of Aviation Medicine, Naval Air Station, Pensacola, Florida. It will consist of six weeks of academic instruction in aviation medicine and flight indoctrination training.

Anonymous 1952ap
PRESENT STATUS OF CERTIFICATION IN AVIATION MEDICINE. — U. S. Navy Medical News Letter, 19 (12): 22-24. 1952.
DSG (W1 UN598, v. 19)

At the request of the Interim Board on Aviation Medicine, and with the encouragement of the Advisory Board for Medical Specialties, the American Board of Preventive Medicine and Public Health has considered a combination of preventive medicine and aviation medicine to form a medical specialty. Under this new setup the American Board of Preventive Medicine and Public Health would become the American Board of Preventive Medicine, which would incorporate the appropriate professional organizations in aviation medicine among its sponsors. Standards for certification in aviation medicine under this newly created board would meet the basic standards established by the Advisory Board for Medical Specialties. These standards are enumerated and briefly outlined. — It was voted that the Advisory Board for Medical Specialties approve in principle the proposal, but that no certificate be issued until the number of acceptable training centers were increased (only 2 were available at the time of that resolution, both military), and until training requirements would be more specifically defined, and applicants would not be restricted to members of the Aero Medical Association.

Anonymous 1952aq
[AVIATION AND NAVAL MEDICINE COMMISSION: A PRESENTATION] Flyg- och navalmedicinska nämnden: en presentation. — Meddelanden från flyg- och navalmedicinska nämnden (Stockholm), 1952 (1): 2-3. 1952. In Swedish.
DSG

In April 1947, a Commission was established to plan and promote fundamental and experimental research in the field of aviation medicine, in collaboration with military and civilian aviation authorities. In June 1948, naval medical research was incorporated in the project, since many activities are common to both fields alike. Three laboratories are functioning under the Commission, affiliated with the following institutions: Lund University (Lund), Karolinska Institute (Stockholm), and Gymnastiska Central Institute (Stockholm).

Anonymous 1952ar
[VISUAL REQUIREMENTS IN AVIATION] Synskrav ved flyvning. — Nordisk medicin (Stockholm), 48 (48): 1655-1656. 1952. In Danish.
DSG

In conjunction with the showing of an American film on aviation medicine at the 71st meeting of the ophthalmological department of the National Hospital at Copenhagen (on February 13, 1948), the following points were discussed: (1) flyers should not be assigned to night flying duty after having been exposed to bright glare during daytime, unless protected by sunglasses; (2) night-vision tests are not satisfactory yet; greater emphasis should be placed on testing the ability of contrast discrimination in dim light rather than night vision as such; (3) a distinction should be made between relative and absolute depth perception, and tests of depth perception should be carried out over a number of days; and (4) the qualifications of pilots should not be based on single criteria, such as intelligence, physical strength, health, character, etc., but on a combination of all factors. Reference was made to problems concerning color vision, binocular vision, and various methods of testing pilot vision.

Anonymous 1952as
[THE PILOTS OF JET PLANES SEIZED BY AN EPIDEMIC: THE "JET JITTERS"] Les pilots d'avions à réaction attaints par une épidémie: les "Jet-Jitters". — Paris-Press, 1952 (May 13): 5D. 1952. In French. DLC

Emotional disturbances and psychoses due to the piloting of jet planes have assumed major proportions in a number of countries where jet aviation is progressing. This is exemplified by the following statistics: In the U.S., 55% of all West Point graduates chose to join the Air Force in 1922, against 45% in 1942, and 24% in 1952. Cases of experienced, war-decorated pilots suddenly refusing to fly any further are increasing alarmingly. From Australia it is reported that flight pilots at the Korean front were on the verge of collapse after 3 months of service. In France, great difficulties have developed in recruiting jet-fighter pilots, and a reduction of flying time in jet planes to 60 hours per year had to be effected to alleviate the situation. In Great Britain, R.A.F. pilots are reported to have refused to fly jet planes, and a great percentage of cardio-vascular disorders is to be attributed to pure psychological causes. A survey undertaken in an American fighter-pilot training school revealed that Turkish, Spanish, and Asiatic aviator candidates seem to be less prone to succumb to the "jet-jitters".

Anonymous 1952at
WORLD'S LARGEST CENTRIFUGE TESTS MEN AND EQUIPMENT. — Tele-Tech, 11 (July): 42-43. 1952. DLC (TK161.A1T4, v. 11)

The Naval Air Development Center at Johnsville, Pa., constructed the largest centrifuge for the purpose of testing how humans and communication and electronic equipment react to accelerations encountered in supersonic flight. The test subject is enclosed in a gimbal-mounted gondola and may be accelerated to 40 g (to a speed of 180 m.p.h. at 48.6 r.p.m.) in 6.8 seconds. A television camera, equipment for taking X-ray motion pictures, and for registering respiration, heart rate, blood pressure, and heart and brain waves are incorporated in the gondola.

Anonymous 1952au
PRONE POSITION. — U. S. Air Force Medical Service Digest, 3 (1): 26-27. 1952.
DSG (W2 A403u, v. 3)

A study of visual problems related to prone position in flight is outlined, undertaken by the School of Aviation Medicine at Randolph Field, Texas (Project 21-24-011). Subjects were instructed to sight a target for the duration of one hour from a prone-position bed, with their heads fixed at 15, 20, 25, and 30° angles. A tendency of the eyes to deviate to a measurable degree when the head was elevated 15°, was observed, accompanied by a sensation of discomfort. Some subjects experienced double or blurred vision, a disturbance which was alleviated by looking downward. A second group of subjects was tested to determine the range of side vision during elevation of the eyes. Lateral vision at elevated angles was limited due to the obstructive effect of the nose or eyebrows. The advisability of optical aids (mirrors, prisms, etc.) to substitute for elevated gaze is pointed out. For effective vision, pilots should limit their gaze to 20°.

Anonymous 1952av

ARCTIC TRAINING. — U. S. Air Force Medical Service Digest, 3 (1): 27-28. 1952. DSG (W2 A403u, v. 3)

Student flight surgeons of the School of Aviation Medicine, Randolph Field, Texas, participated in a practice maneuver which took place at the Arctic weather hangar at Eglin Base, Florida. 24 subjects were exposed to an artificial blizzard for 12 hours. Simulated rescue and survival techniques (construction of makeshift shelters from parachutes and random pieces of drift wood, selection of proper protective clothing, etc.) were practiced.

Anonymous 1952aw

DITCHING EXERCISE. — U. S. Air Force Medical Service Digest, 3 (1): 29, 31. 1952. DSG (W2 A403u, v. 3)

A simulated ditching operation involving a plane carrying "patients" was performed, as part of a course in rescue and survival, given to flight nurses at Gunter Branch. The patients were transferred on litters from the sinking "plane" to an inflated rubber life raft. Prior to this exercise the flight nurses had undergone 18 hours of swimming instruction, had attended a 3-hour course on the use of survival equipment, and had seen a training film on abandoning a sinking plane.

Anonymous 1952ax

NEW ADJUSTABLE LITTER ASSEMBLY. — U. S. Air Force Medical Service Digest, 3 (3): 12-13. 1952. DSG (W2 A403u, v. 3)

A new arrangement in planes for the evacuation of patients is described, designed by the Brown-Line Corp., Beverly Hills, California, and tested by the Engineering Division, at the Wright Air Development Center, Ohio. The litters are arranged in vertical order, removed from the curved walls of the fuselage, thus allowing for more head room and better ventilation and being less subject to vibration. The litters are held in place by nylon straps provided with metal brackets. This new arrangement has been successfully used on C-54 planes, flying patients between Travis Air Force Base, California, and Andrews Air Force Base, Maryland.

Anonymous 1952ay

CARBON TETRACHLORIDE. — U. S. Air Force Medical Service Digest, 3 (4): 10. 1952. DSG (W2 A403u, v. 3)

Carbon tetrachloride is potentially toxic after inhalation, contact with the skin or mucous membranes, or oral ingestion. Poisoning may result from a single brief exposure to a high vapor concentration or from repeated exposures to lower concentrations. The maximum safe amount of carbon tetrachloride vapor in the air is 50 parts per million (or 0.005% by volume). Such a concentration is produced by the evaporation of only 5.5 ml. of the solvent into a room 100 feet square and 10 feet high. Two case histories of carbon tetrachloride poisoning are reported and Air Force regulations curbing the use of the substance are cited.

Anonymous 1952az

THE PROBLEM OF NOISE. — U. S. Air Force Medical Service Digest, 3 (5): 8-9. 1952. DSG (W2 A403u, v. 3)

The noise of a propeller-driven plane consists of two components: (1) a low-frequency (75-150 cps), low-intensity, discontinuous, harmonic-line spectrum produced by engine, propeller, and exhaust, and (2) a continuous band spectrum produced by the slipstream. The first of the two components exceeds the second in intensity and determines the overall noise level. The noise of a jet plane approaches true white noise, i.e., both the engine and the slipstream portion display a continuous spectrum over a wide frequency range, the lower frequencies (200-1500 cps) having the highest intensity levels. The jet compressor acts like a siren, producing high-intensity vibrations up to 5000 cps. The extent of hearing damage is determined by the intensity and frequency distribution of the noise and by the length of exposure to noise, as well as by individual predisposition. Intensities below 85 decibels are considered safe below 10,000 cps, in case of continuous exposure. The extent of hearing impairment is proportional to the length of exposure, with hearing losses occurring in the frequency ranges of the damaging sounds. Permanent losses from exposure to airplane noises tend to occur in the 2,896, 4,096, and 5,792 cps regions in susceptible subjects.

Anonymous 1952b

FRENCH FLY JETS FROM "ARMCHAIR". — Aviation Week, 56 (2): 33. Jan. 14, 1952. DLC (TL501.A8, v. 56)

Elimination of the cumbersome control stick in favor of a chair handle arrangement forms the basis of an invention by the French engineer and

test pilot Jacques Lecarme of the SNCASE (Société Nationale de Constructions Aéronautiques du Sud-Est). The system has been employed successfully in an SE 2410 Grognard, a twin-jet fighter prototype. Clear view of the instrument panel, fatigue reduction resulting from the upholstered armrest and seat, and clearance of the cockpit of the encumbrance of the stick are cited among the principal advantages. Tests showed, however, that armchair controls are better suited for transport planes and bombers than they are for fighters where pilots tend to react naturally and more quickly with a wheel.

Anonymous 1952ba
MEDICAL EXAMINATIONS AND CLASSIFICATION. — U. S. Air Force Medical Service Digest, 3 (5): 9, 12. 1952. DSG (W2 A403u, v. 3)

Methods, practices, and scope of a medical "Aircrew Effectiveness Program" are briefly outlined. The importance of a thorough first examination of flying candidates and of continuing medical observation during and after flight training is stressed. To relieve the burden of the flight surgeon, cases involving flying personnel only should be referred to aviation medicine specialists.

Anonymous 1952bb
AVIATION MEDICINE. — U. S. Air Force Medical Service Digest, 3 (5): 11-13. 1952. DSG (W2 A403u, v. 3)

Physical standards for the selection of flyers should apply to all types of planes and operations rather than being limited to any particular specialty (such as "pilot only"). Defects of coronary circulation, anemia, unexplained loss of consciousness, convulsive disorders, and diseases requiring maintenance therapy demand automatic disqualification from flying, while orthopedic disorders, or defective sight or hearing should be evaluated under actual flying conditions. The role of the civilian consultant in aviation medicine is discussed and the primary objectives of aviation medicine are listed.

Anonymous 1952bc
THE FLIGHT SURGEON. — U. S. Air Force Medical Service Digest, 3 (5): 25. 1952. DSG (W2 A403u, v. 3)

The basic qualifications and duties of the flight surgeon are reviewed.

Anonymous 1952bd
HOW MUCH IS GREATER FLIGHT SAFETY WORTH? — Amer. Aviation, 15 (46): 30-31. 1952. DLC (TL501.A675, v. 15)

The lack of progress in aviation safety research is deplored by the author. Areas of improvement in this field are suggested: functionalization of the cockpit as contrasted with standardization; measurement of fatigue or alertness by the recording of brain waves or by determination of the frequency threshold at which the eye perceives continuous light from a flickering source; the effect of combination of stresses on the human body (fatigue, high g loads, and hypoxia combined could lead to collapse, although these stresses individually are within "safe" limits).

Anonymous 1952be
RED BETTER THAN YELLOW FOR AIR SEA RESCUE GEAR. — Science News Letter, 62 (8): 121. 1952. DLC (Q1.S76, v. 62)

The original color choice for air-sea rescue equipment was a bright yellow. This has been changed to a bright scarlet because it was observed that yellow life rafts were found to blend with the bright reflection of the sun on water.

Anonymous 1952bf
FOOD FOR FLYING. — Flying Safety, 8 (7): 4-15. 1952. DNACA

A special pilot mess has been established at Nellis Air Force Base, Nevada, in which diets are prepared with particular consideration to flying needs (non-gas forming, well-digestible food, sufficient supply of salt, etc.). The importance of regular eating habits is stressed. Response on the part of the aviators to the "training table" was highly favorable.

Anonymous 1952bg
THE PILOT ON INSTRUMENTS. — Flying Safety, 8 (3): 22-23. 1952. DNACA

Tests undertaken on a large group of pilots to determine pilot error due to sensory illusions and vestibular disturbances revealed, among others, the following facts: 39% of the group erred when attempting to judge whether a plane was climbing, level, or diving; 37% misjudged the position of the plane (whether banked to the right or left, or level); and when the climb-dive and bank judgments were made together, 60% of the group were wrong. Instrument proficiency is an indispensable requirement for safe flying, and the old "fly by the seat of the pants" concept is entirely outdated in modern aviation. The paper presents a percentage breakdown of erroneous instrument interpretations, as compiled from accident analyses. Ways of improving instruments and instrument arrangement are indicated.

Anonymous 1952bh
THE G VERSUS YOU AND YOUR AIRPLANE. — Flying Safety, 8 (3): 18-20. 1952. DNACA

The physiological and psychological effects of ultrasonic speeds and high g forces on the pilot are briefly reviewed. The study is primarily concerned with structural and resistance factors of the airplane.

Anonymous 1952bi
CAA WARNS PILOTS ON USING HIGH DOSAGES OF AMPHETAMINE. — CAA Jour., 13 (6): 64. 1952. DCAA

Warnings were issued separately by the Civil Aeronautics Administration (U. S. Department of Commerce) and by the Director of Air Services of Canada, that pilots should not use amphetamine or its derivatives for reducing purposes, following two recent fatal accidents in England involving pilots who had taken Dexedrine to lose weight. Even taken in small doses, the drugs increase excitability and anxiety and may lead to improper reactions in situations of stress.

Anonymous 1952bj
HUMAN CENTRIFUGE. — Aircraft (Toronto), 14 (8): 15-16. 1952. DCAA

A brief pictorial description of the centrifuge at the Naval Medical Acceleration Laboratory at Johnsville, Pa., is presented. The centrifuge is powered by a huge General Electric vertical motor, capable of developing a maximum of 16,000 hp (the normal rating being 4,000 hp). It can be accelerated from 0 to 90 m.p.h. in 1 1/2 seconds, and from 0 to 173 m.p.h., in less than 7 seconds. Animal experiments (with chimpanzees) involving forces as high as 15 g are planned, as well as tests of various types of equipment. The test subject is placed in a gondola shaped like an oblate spheroid (10 x 15 ft.), whose inner and outer shells are aluminum with a middle layer of light-weight cellular material called "strux"; the gondola can be depressurized to the equivalent of 60,000 ft. altitude. Instruments, including high-speed television, X-ray, and motion picture cameras, are mounted inside. The gondola, which is attached to a 50-ft. rotating arm and suspended on double gimbals, can be tipped and somersaulted in any desired direction while the centrifuge is in motion. The centrifuge is housed in a reinforced concrete and steel building, 130 ft. in diameter.

Anonymous 1952bk
SAFETY IN AIR TRANSPORTATION. — Interavia (Geneva), 7 (4): 183. 1952. In English. DCAA

Comparative statistics are presented of major accidents in 1951, involving airplanes as well as other means of transportation (ships, busses, railroads, etc.). The figures reveal comparatively low accident rates for commercial airplanes, thus refuting the distorted ideas on the subject of air travel brought about by overemphasis of aviation accidents by the press.

Anonymous 1952bl
FEAR OF FLYING—BY WHOM? — USAF Personnel Newsletter, 5 (7): 1-3. 1952.

The allegation, frequently expressed in public, that recent cases of pilots refusing to fly because of suddenly developed anxieties is an indication of moral and psychological deterioration of the younger generation, is refuted in broad and general terms. It is noteworthy that the drop in applications for aviation training, which coincided with the above phenomenon (beginning of 1952) ended abruptly by May of the same year. A valid explanation of this temporary slackening of the recruiting program has not yet been found.

Anonymous 1952bm
POSSIBLE PHYSIOLOGICAL AND PSYCHOLOGICAL EFFECTS OF HIGH INTENSITY NOISE ASSOCIATED WITH JET AIRCRAFT ENGINES WITH AFTERBURNERS. — U. S. Navy Medical News Letter, Aviation Supplement, 12 (3): 1-5. 1952. DSG

Ultrasonic vibrations are tolerated relatively well by humans because of the high reflecting power of the skin (in contrast to furred animals, which absorb up to 12% of high-frequency sound energy converting it into heat). Of greater importance than the frequency scale, with regard to physiological effects, is the intensity of sounds. For airborne sound, the threshold of nonauditory perception is about 120 decibels. At this intensity level a vibration of the cranial bones, the nasal passages, and the bony sinuses is perceived in the 1500 - 700 cps range; in some instances, blurring of vision has been reported. At lower frequencies, a vibratory sensation is felt in the chest and in the muscles of the arms and legs. Persons standing near the exhaust stream of a J-33-9 turbo-jet engine showed neuromuscular symptoms (general weakening) and experienced a sensation of heating of the skin (principally in the 4,000-10,000 cps range). The lower frequencies of jet noise tend to have the highest intensity levels. Temporary hearing losses of 25 decibels were suffered after 3 1/4-minute exposures to J-33-9 engine noise at close range, and 10-minute exposures at distances of 10-12 ft caused hearing losses of 68 decibels. Introduction of afterburners has greatly increased noise hazards. Studies on afterburner noise damage are under way.

Anonymous 1952bn
OUR AGING PILOTS. — Jour. Aviation Med., 23 (6): 545-546. 1952. DLC(TL555.A1A4, v. 23)

A small but consistent overall increase in the percentage of pilots over fifty years of age has been observed since 1949, with the greater proportion in the private pilot groups (as compared to commercial and transport pilots). This editorial article stresses the need for the development of methods of detecting physical deterioration due to age at an early stage and of predicting significant failure before it occurs (particularly in the cardiovascular system). The current emphasis on general gerontological studies, and on psychological and psychiatric investigations of skills and mental capabilities in relation to aging are steps in the right direction. The Aeromedical Association should take the lead in the promotion of such a research program.

Anonymous 1952bo
REPORT OF THE PRESIDENT'S AIRPORT COMMISSION. — Jour. Aviation Med., 23 (4): 309-310. 1952. DLC (TL555.A1A4, v. 23)

The Airport Commission of the President of the U. S. has designated the Aero Medical Association to sponsor a thorough study of pilot aging and allied problems and to re-evaluate the physical standards for licensing of civilian pilots in the light of technical advances in modern aviation. In this connection it is suggested that representative medical schools throughout the country establish graduate and undergraduate courses in aviation medicine.

Anonymous 1952bp
FITTING MACHINES TO MEN. — Product Engineering, 23 (3): 164-167. 1952. NNE

In order to design airplane cockpits in conformity with normal human abilities and limitations, the designer should base himself on a so-called activity analysis, i. e., a detailed study of operator functions in relation to equipment. Preliminary experimental studies regarding temperature, humidity, lighting conditions, and noise should be undertaken, and mechanical factors should be investigated (e.g., dial indicators, machine controls, machine dimensions, selector switches, machine mountings, etc.). Visual indicators require particular study. Extremely fine dial subdivisions should be avoided. Pointers moving in clockwise direction are preferable to counters. Scale units should be numbered in multiples of 5, 10, and 100. In designing controls, the magnitude and type of potential load, the accessibility, and the sensitivity to control motion should be taken into consideration.

Anonymous 1952bq
WORLD'S MOST POWERFUL CENTRIFUGE STUDIES HUMAN TOLERANCE TO ACCELERATION. — Product Engineering, 23 (8): 188-189. 1952. NNE

A pictorial description is presented of the operation and design of the human centrifuge at the Naval Aviation Medical Acceleration Laboratory at Johnsville, Pa. The photos show (1) the overall design of the centrifuge; (2) the control mechanism located in the observation "blister" above the centrifuge; (3) the centrifuge arm and gondola; and (4) the interior of the gondola housing the test subject.

Anonymous 1952br
PILOT SURVIVAL. — Naval Aviation News, 1952 (3): 1-7. DN-Aer

This is an illustrated summary of survival training, tactics, and equipment. The curricula of the Nome (Alaska), Great Falls (Montana), and Camp Carson (Colorado) survival schools are outlined. Survival tactics are reviewed, such as rescue at sea, survival in the arctic, etc. Items of equipment are described, such as life rafts, escape capsules, oximeters, exposure suits, survival kits, etc. Training procedures with simulated ejection seats, "Dilbert Dunkers", and parachute towers are described.

Anonymous 1952bs
BAROTRAUMA. — Lancet (London), 1952, vol. 2 (6741): 926. Nov. 8, 1952. DSG

Otitic barotrauma occurs when a pressure difference exists between the middle ear and the surrounding atmosphere. To equalize the pressure, the tensor muscles of the palate must contract to allow air to enter the tympanic cavity (by swallowing or yawning). At a certain point muscular action is no longer effective, and the symptoms produced may be severe (deafness, tinnitus, pain, and vertigo). The tympanic membrane is drawn in and may be congested to the point of rupture; in severe cases, congestion, interstitial hemorrhage, even actual rupture of the membrane may occur. Effusions of clear fluid or blood into the middle ear may give the appearance of bubbles or of a blue bulging drumhead. Hypertrophy of the lymphoid tissue in the tube is an additional symptom. Dental barotrauma usually occurs during ascent, and molars are particularly affected (pain is felt distinctly in recently filled teeth).

Anonymous 1952bt
A NEW NAVAL AVIATION SELECTION TEST BATTERY. — U. S. Navy Med. News Letter, 22 (4): 32-35. 1952. DSG (W1 UN598, v. 22)

The revised Aviation Selection Battery of the U. S. Navy consists of two parts. Part I, the Aviation Qualification Test (AQT), is primarily a general intelligence test; Part II, the Flight Aptitude Rating (FAR), includes three tests: the Mechanical Comprehension Test (MCT) and the Spatial Apperception Test (SAT) intend to predict the success of the individual in the flight phase of the training program; the Biographical Inventory (BI) analyses the patterns of response and motivational factors. The scores made on the three tests are combined to give the Flight Aptitude Rating. In the revised battery, candidates who fail the AQT test will not be given Part II. — Considering the high cost of training of naval aviators ($65,000 for complete training of an individual, and about $16,000 for a candidate accepted but later dropped out from training) it is suggested that in the examination of flight candidates the following sequence be observed: (1) color vision and visual acuity test; (2) selection test; and (3) complete flight-physical examination.

Anonymous 1952c
[THE ITALIAN ASSOCIATION OF AVIATION MEDICINE (A. I. M. A.)] L' Associazione Italiana di Medicina Aeronautica (A. I. M. A.). — Rivista di medicina aeronautica (Roma), 15 (2): 301-304. DLC (TL555. A1R5, v. 15)

An announcement of the foundation of the Italian Association of Aviation Medicine (Associazione Italiana di Medicina Aeronautica, or A. I. M. A.).

Anonymous 1952d
AF REVEALS HIGH-ALTITUDE PRESSURE SUITS. — Aviation Week, 57 (15): 17. 1952. DLC (TL501. A8, v. 57)

The T-1 high-altitude suit, designed by the Air Development Center at Wright-Patterson Air Force Base, Dayton, Ohio, combines altitude protection with anti-g suit features, and includes crash helmet, earphones, microphones, oxygen mask, goggles, defroster, and oxygen bailout bottle. It is inflated automatically if cabin pressurization is lost. 5 photographs in the text show the suit in operation.

Anonymous 1952e
CHUTE TESTING DUMMY. — Canad. Aviation, 25 (8): 62. 1952. DLC (TL501.C33, v. 25)

A dummy for testing parachutes, ejector seats, etc., developed by the GQ Parachute Co. Ltd. and constructed by the Hairlok Co. Ltd. of Great Britain is described. Its body dimensions are based on the average human weight, center of gravity, and moment of gyration about various axes of anatomical components (hand, forearm, upper arm, etc.). The dummy consists of a steel "skeleton" which supports rubberized hair material (called "Hairlok") covered with a canvas "skin" to give the dummy the correct external shape. Spring joints are incorporated to minimize the damage from excessive movements. The dummy may also be used as a test target or for any purpose when the employment of human beings would be hazardous.

Anonymous 1952f
NEW CAPSULE FOR HIGHSPEED BAILOUT. — Aviation Week, 57 (4): 36. July 28, 1952. DLC (TA501.A8, v. 57)

A new escape capsule developed by Douglas Aircraft Co. is discussed. The capsule is expelled clear of the speeding plane by a rocket charge and is stabilized in flight by three rear fins. Forward speed is first slowed by a small auxiliary chute decelerating from 1,100 to 300 feet per second in about 5 seconds, then, at a safe speed, the main chute opens. The capsule is sealed and pressurized for use in atmospheric conditions above 50,000 ft. Fresh air is fed in "by wave motion". Survival gear similar to that carried in Navy life rafts is supplied. A test run under simulated conditions was tolerated well and without discomfort by the test subject.

Anonymous 1952g
OPERATION LIFESAVER. — Air Force, 35 (6): 28-29. 1952. DLC (UG633.A65, v. 35)

The organization of air evacuation of casualties on the Korean front is briefly summarized. By keeping the "evacuation lifeline" in continuous flux, air transports have cleared as many as 1,800 patients a day from Korean hospitals to make room for new casualties.

Anonymous 1952h
PUTTING ON THE PRESSURE. — Boeing Mag., 22 (10): 12-13. 1952. DLC (TL724.5.B6B6, v. 22)

The "T-1" high-altitude suit devised by the United States Air Force is briefly described. Its basic parts are a coverall of green cloth edged with capstan tubes, an inner helmet of rubber, which permits pressurization of the helmet and lungs, and the external helmet with earphones and microphone and transparent faceplate. The suit begins to operate at an altitude of 47,000 feet.

Anonymous 1952i
A SELF-RELEASING SEAT-BELT. — Flight (London), 61: 767. June 27, 1952. DLC (TL501.F5, v. 61)

A coupling device for seat belts so designed as to open up automatically under excess g-loads (under crash conditions) is described. The inventor, Mr. J. R. Sturge Whiting of Great Britain, has applied for patent protection.

Anonymous 1952j
AIR RESCUE SERVICE COMMENDED. —Military Surgeon, 110 (2): 150. 1952. DLC (RD1.A7, v. 110)

The Air Rescue Service of the United States Air Force was commended for aid rendered during a yellow-fever epidemic in Costa Rica. A helicopter manned by six made 42 landings over an area of more than 6000 square miles, in 11 days. 37 villages and settlements were visited and 1000 persons inoculated. 200 additional persons in outlying districts were given medical treatment.

Anonymous 1952k
SPECIAL FLIGHT SURGEON INSTRUCTION. — Military Surgeon, 110 (4): 301-302. 1952 DLC (RD1.A7, v. 110)

A special training course is described, given to medical doctors who take up postgraduate studies at the U. S. Air Force School of Aviation Medicine. It includes week-long indoctrination at Camp Carson, Colorado (the Strategic Air Command's survival school), followed by a cold-weather training course in the Rocky Mountains near Colorado Springs. From there the students proceed to Wright-Patterson Air Force Base in Dayton, Ohio, where they spend two weeks, first in the Aero Medical Laboratory and then at Air Material Command headquarters.

Anonymous 1952l
SCOTTISH AIR AMBULANCE SERVICE. —Jour. Amer. Med. Assoc., 148 (16): 1441. Apr. 19, 1952. DLC (R15.A48, v. 148)

The air ambulance service on the Scottish islands, instituted by the Department of Health for Scotland in 1933 and developed extensively during the Second World War, is briefly described. After the war, it was taken over by the British European Airways. The service is available to any physician in outlying areas. Each plane is provided with a stretcher and accompanied by a nurse. In 1949, the busiest year on record, 72,000 miles were flown and 350 patients (surgical, accidents, and maternity) transported.

Anonymous 1952m
FOURTY-TWO UNITED STATES AIRLINES WIN '51 SAFETY AWARDS. — New York Times. June 27, 1952, p. 43 (col. 5). 1952.
DLC

In bestowing safety awards upon 42 U. S. domestic, territorial, and overseas airlines, the National Safety Council stated that the yearly accident rate of 1. 3 deaths for each 100 million passenger miles (for domestic operation only) was not as good as the 1950 rate of 1. 1, but still represented one of the best in aviation history. During 1951 there were 10 domestic accidents, in which 169 persons, including 27 crew members, lost their lives. Vice Admiral Emory S. Land, president of the Air Transport Association, pointed out that the percentage of fatal crashes in total daily operations amounted to as little as 0.0001%.

Anonymous 1952n
TOXICITY OF ROCKET PROPELLANTS. — Lancet (London), 1952, vol. 1 (24): 1294-1295. June 28, 1952. DLC (R31. L3, 1952, v. 1)

The toxic effects of hydrazine ($NH_2.NH_2$) are described. Reports from the German rocket launching station of Peenemünde indicate that workers exposed to hydrazine or its hydrate (the German rocket fuel contained 30% hydrazine, 57% methanol, and water) suffered from nausea, vomiting, dyspnea, and bradycardia; in severe cases the poisoning lead to coma and death. The symptoms are similar to those of ammonia poisoning. Dermatitis upon contact with hydrazine has also been reported. The substance has a corrosive effect on the mucous membranes of the nose and throat and causes pain and itching in the eyes, followed, after longer exposure, by edema of the eyelids and the conjunctiva. Recovery begins after the 3rd day and extends over a week.

Anonymous 1952o
MAXIM SILENCER FOR INSTALLED JET ENGINES. — Shell Aviation News, 1952 (169): 23. 1952. DLC (TL501. S55, v. 1952)

The Maxim Silencer Company of Hartford, Connecticut, has produced a device which reduces the noise level of turbojet engines from 165 to 135 decibels. Noises of 135 decibels can be withstood by the human ear protected with ear plugs or ear flaps, while noises beyond 150 decibels would cause permanent injury and even death. The construction of the Maxim Silencer is described and special engineering problems are discussed. The device is for ground use only to protect mechanics and personnel working in the vicinity of the running engine.

Anonymous 1952p
CENTRIFUGE SIMULATES JET ACCELERATIONS. — Machine Design, 24 (9): 142-144. 1952. DLC (TJ1. M15, v. 24)

The human centrifuge at the Naval Air Development Center, Johnsville, Pennsylvania, is discussed in a popular manner. Photos and diagrams illustrate the text. (cf. Pierce, T. F., 1952.)

Anonymous 1952q
GENERAL BENSON TO PERUVIAN ANDES. — Military Surgeon, 111 (3): 211. 1952. DLC (RD1. A7, v. 111)

A visit of General Otis O. Benson, Jr., commandant of the Air Force School of Aviation Medicine, Randolph Field, Texas, with a party of military and civilian scientists to the Institute of Andean Biology is reported. The Institute, which is under the direction of Dr. Alberto Hurtado, is located on the upper slopes of the Andes, near the mining town of Morococha, at an altitude of 14,900 feet. The local Indians, who work in the mines at an altitude of 18,000 feet, are the object of special studies.

Anonymous 1952r
THE HUMAN CENTRIFUGE. — Military Surgeon, 110 (5): 375. 1952. DLC (RD1. A7, v. 110)

The Human Centrifuge at the Acceleration Laboratory, Naval School of Aviation Medicine, Pensacola, Florida, has completed its 10,000th run. 613 men and 4 women (ages ranging from 2 to 56 years) have been tested at g-levels up to 13. 0.

Anonymous 1952s
KITCHENS IN THE SKIES: HOT FOOD ON LONG RANGE FLIGHTS. — Tech. Data Digest (U. S., Central Air Documents Office), 17 (3): 2-3. 1952. DLC (Z5063. A2U65, v. 17)

A heating and refrigeration system to provide troops and air crews in flight with hot food on long missions is described. The equipment was developed by the Wright Air Development Center at Dayton, Ohio, under the direction of the Aero Medical Laboratory. Its principal features are light weight, expansibility according to size of personnel, safety against fire hazard, and economy in fuel and space. The refrigerator will maintain the required low temperature for 74 hours on 65 lbs. of dry ice. Standardization and simplification of the apparatus is in progress.

Anonymous 1952t
FIX SAFETY BELTS TO FLOOR. — Sci. News Letter, 62 (20): 315. 1952. DLC (Q1. S76, v. 62)

An airliner crash in the water near LaGuardia Airport, New York, was studied by staff members of Cornell Medical College, New York. 16 of the 20 two-passenger seats were damaged, presumably by the strain of the belts, when the wearers were thrown forward by the impact of the crash. It is suggested that safety belts be attached to the hull, bypassing the seats.

Anonymous 1952u
THE ROYAL AUSTRALIAN AIR FORCE MEDICAL SERVICE. — Med. Jour. Australia, 2 (20): 723-724. 1952.
DSG (W3 AU677, v. 2)

Duties, duration and rank of appointment, postgraduate training, retiring age, pension, and reserve status of medical officers in the Royal Australian Air Force Medical Service are discussed

Anonymous 1952v
FEEDING PROBLEMS DURING FLIGHT. — Nutrition Reviews, 10 (7): 205. 1952.
DLC (TX341.N85, v. 10)

Recent studies on nutrition problems of flight personnel and passengers are briefly reviewed. For short military flight missions "quick energy" rations have been found highly satisfactory. Carbohydrates seem to increase altitude tolerance. Food supplied must be simple and easily digestible, as the digestive processes are impaired in stress situations (combat). Liquid foods have proven most advantageous where conditions require wearing of oxygen and pressure equipment. However, no adequate means of keeping food hot during prolonged flight have so far been found.

Anonymous 1952w
THEY'RE OFF! – THE MONKEYS AND THE MICE: PHYSIOLOGICAL RESEARCH ON ANIMALS LEADING TO HUMAN SPACE-FLIGHT. — Western Aviation, 32 (11): 12. 1952.
DLC (TL5101.W4, v. 32)

Two monkeys and two mice have survived a ride to an altitude of 200,000 feet in Aerobee and V-2 type rockets fired from Holloman Air Force Base at Alamogordo, New Mexico. The experiment was carried out by the U. S. Air Force Air Research and Development Command. The monkeys had been anesthetized to prevent them from interfering with the recording instruments. The mice were placed in two separate drums, one smooth on the inside, the other provided with a small shelf. An initial acceleration of 15 g for less than one second was followed by 3 to 4 g for about 45 seconds. At the peak of the trajectory the animals were weightless. Films taken during the flight showed the "floating" mouse in a state of complete disorientation and unable to co-ordinate its movements. The mouse in the drum provided with a shelf was able to hold on to it and command its body at will. — A statement by Major Charles Yaeger on his reactions during near-zero-conditions (while following a ballistic trajectory) confirmed the fact that proper performance of the pilot is not impaired under such conditions.

Anonymous 1952x
MAN FROM MARS? NOPE – MAN FROM MOJAVE! T-1 ALTITUDE PRESSURE SUIT IS NEWEST PILOT PROTECTION DEVELOPMENT. — Western Aviation, 32 (11): 13. 1952.
DLC (TL501.W4, v. 32)

The T-1 altitude pressure suit was developed by the Air Research and Development Command of the Wright Air Development Center at Dayton, Ohio. It is worn uninflated, but inflates automatically when cockpit pressurization is lost. It combines altitude protection with anti-g suit features and incorporates crash helmet, oxygen mask, earphones, microphone, goggles and defroster, and oxygen bailout bottle. It has been designed for massproduction. The suit once saved the life of Col. Frank K. Everest of the U. S. Air Force during a high-altitude test flight over the U. S. A. F. Flight Test Center at Edwards (Mojave Desert). Cabin pressure was lost in his Bell X-1 after cracking of the canopy. The suit inflated instantaneously, permitting the pilot to land his craft safely.

Anonymous 1952y
HELICOPTER PLAYS AN EVER-INCREASING ROLE IN EVACUATION CHAIN. — Med. Bull. U. S. Army Far East, 1 (1): 17. 1952.
DSG (W2 A2 F54m, v. 1)

The helicopter dates back to an ancient idea but due to lack of an efficient power plant it was not fully utilized until recently. In 1937, a German company built a machine that flew from Berlin to Bremen. In the United States, Sikorsky designed the US-300 in 1939. In 1952, helicopter ambulance units in Korea, carrying three litter patients or four ambulatory patients together with the medical attendant and the pilot, became an integral part of the Army Medical Service in the combat area. The H-19 helicopter is illustrated in operation in Korea.

Anonymous 1952z
HELICOPTER AMBULANCE UNITS FOR EVACUATION OF CRITICALLY WOUNDED. — Jour. Michigan State Med. Soc., 51 (12): 1536. 1952.
DSG

New helicopter ambulance units will be used by the U. S. Army Medical Service to evacuate critically wounded patients from forward combat areas. They will consist of five two-rotor helicopters with a capacity of three litter patients or four ambulatory patients, a medical attendant, and a pilot. The first unit is being activated at the Medical Field Service School, Fort Sam Houston, Texas. Additional units will be formed in Korea. Organizational and training aspects are discussed.

Abt, J. C. 1952
and G. Friedman
A FACTOR ANALYSIS OF THE AIRMAN CLASSIFICATION BATTERY AC-1B WITH CONTROL TOWER OPERATOR (27251) TECHNICAL SCHOOL FINAL GRADE. — Air Training Command. Human Resources Research Center, Lackland Air Force Base, Tex. Research note no. PERS 52-46, Dec. 1952. 8 p. (Project no. 503-001-0001; AD 7853). UNCLASSIFIED

The final grades of 553 graduates of the control-tower operator technical school were inter-

correlated with the Airman Classification Battery AC-1B. Eight factors were extracted and rotated orthogonally to meaningful positions. The factors included mechanical experience, verbal comprehension, numerical facility, visualization, interest in things versus ideas, mechanical interest, technical interest versus aversion to technical interest, and age-education doublet. The common factor variance of the final school grade was 0.47. The numerical factor accounted for 66% of the variance, the verbal factor accounted for 17%, and the other 6 factors accounted for the remainder of the variance. (AD abstract)

Achiary, Terneau, and Buchet 1952
[VERTEBRAL INJURIES IN FLYING PERSONNEL] Traumatismes vertébraux du P. N. — Médecine aéronautique (Paris), 7 (4): 371-374. 1952. In French. DLC (TL555. M394, v. 7)

Nine cases of compression fractures of the vertebrae are presented. With regard to their etiology, four cases were due to plane crashes, two to helicopter accidents, two to parachute accidents, and one to catapulting from a ramp. Methods of x-ray interpretation and diagnosis are discussed in great detail.

Adams, M. M. 1952
INDEX TO HUMAN RESOURCES RESEARCH CENTER: 1952 PUBLICATIONS. — Air Training Command. Human Resources Research Center, Lackland Air Force Base, Tex. Research bulletin no. 52-43, Dec. 1952. (AD 15841). UNCLASSIFIED

This is a complete list of the unclassified publications of the Human Resources Research Center published during the calendar year 1952 (Research bulletins, Technical reports, Conference notes, and Research notes). An author listing of the various categories of publication is followed by abstracts. Author, laboratory, and subject indexes conclude the pamphlet.

Adamson, G. L. 1952
FATIGUE. — Jour. Aviation Med., 23 (6): 584-588. 1952. DLC (TL555. A1A4, v. 23)

General fatigue during long, dull flights when there is no particular danger is characterized by a feeling of boredom and drowsiness. In flights at high speed or under fire, however, more severe stress is experienced due to constant alertness and anxiety combined. F. Bartlett considers fatigue as the failure of three functions: a breakdown of response to signals, followed by an increasing awareness of discomfort, which amounts to a lack of ability to anticipate. The improvement and eventual avoidance of the fatigue problem hinges on greater cooperation between the executive and medical branches in aviation. The executive branch should realize that fundamental medical problems are involved in flight; the lengthening and frequency of flight and individual variations of stress tolerance should likewise be considered. The medical participation would involve the education of flight surgeons and of aircrews in signs of fatigue, and discrimination between early, recoverable fatigue and advanced disturbances leading to neurotic illness.

Adiseshiah, W. T. V. 1952
SOME PSYCHOLOGICAL PROBLEMS IN FLYING TRAINING. — Indian Air Force Quart. (New Delhi), 2 (4): 57-63. 1952. DLC (UG635. I4I5, v. 2)

Psychological problems of aviation trainees are briefly analyzed in a popular way in terms of instructor-trainee and trainee-aircraft relationships. No general rules of conduct can be set up for the instructor. Each trainee is to be approached as an individual with his own leanings and idiosyncrasies. It is likewise difficult to set up standards of human response to machine action, such as norms for reaction speeds. In the case of the latter three factors have to be considered: (1) the speed elements involved in the operation (time interval between the occurrence of the signal and the initiation of the response — time taken to complete the action — resting time between one action and the signal for the next); (2) the speed load imposed on the operator (number of dials to be observed, number of controls, etc.). It has been shown experimentally that most operators display signs of lowered efficiency when more than five decisions per minute are required.

Adler, H. E. see Brown, John L., 1952b

(Aeronaut. Med. Equip. Lab.) 1952
A STUDY OF THE REQUIREMENTS FOR LETTERS, NUMBERS, AND MARKINGS TO BE USED ON TRANSILLUMINATED AIRCRAFT CONTROL PANELS. V. COMPARATIVE LEGIBILITY OF THREE FONTS OF NUMERALS. — Naval Air Experimental Station. Aeronautical Medical Equipment Lab., Philadelphia, Pa. Report no. TED NAM EL-509, part 5, June 13, 1952. 26 p., 7 plates. (TIP U22675). UNCLASSIFIED

Tests were made to determine the relative legibility of the standard AND 10400 (Air Force-Navy Aeronautical Design) and Berger type numerals and a proposed font having the following characteristics: 5/3 height to width ratio, 1/8 stroke width to height ratio, equal division of vertically segmented numerals, and curvilinear design. Three-digit combinations of each type were examined. A 200-millisecond observation was made by 30 subjects with 0.10 to 3.30 foot-lamberts (ft-L) of red transillumination (Corning filter No. 2412), and 5-msec. observations were made by 48 subjects with 11, 24, and 34 ft-L daylight illuminations (Westinghouse 40-watt daylight bulbs). The transparent numerals on black opaque background were all 2 in. high and 1.2 in. wide and had 0.25-in. stroke widths. Analysis of the total reading errors by the subjects indicated the superiority of the pro-