

1. Report No. FAA-AM-71-5	2. Government Accession No.	3. Recipient's Catalog No.	
4. Title and Subtitle AVIATION MEDICINE TRANSLATIONS: ANNOTATED BIBLIOGRAPHY OF RECENTLY TRANSLATED MATERIAL. VI.		5. Report Date January 1971	
		6. Performing Organization Code	
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9. Performing Organization Name and Address FAA Civil Aeromedical Institute P. O. Box 25082 Oklahoma City, Oklahoma 73125		10. Work Unit No.	
		11. Contract or Grant No.	
12. Sponsoring Agency Name and Address Office of Aviation Medicine Federal Aviation Administration 800 Independence Avenue, S.W. Washington, D.C. 20590		13. Type of Report and Period Covered  OAM Report	
		14. Sponsoring Agency Code	
15. Supplementary Notes			
16. Abstract  An annotated bibliography of translations of foreign-language articles is presented. The 22 entries are concerned with studies in aviation medicine, vestibular function, body temperature, color vision, cholinesterase, nystagmus, alcohol, vestibulo-oculomotor function, anatomy, stress and air traffic control work, flight stress, anti-smoke hoods, histology, exercise, cardiology, histochemistry, air evacuation, respiration, and toxicology. Procedures for obtaining copies of the translations are included.			
17. Key Words Aviation medicine Bibliographies Physiology		18. Distribution Statement Availability is unlimited. Document may be released to the Clearinghouse for Federal Scientific and Technical Information, Springfield, Virginia 22151, for sale to the public.	
19. Security Classif. (of this report) Unclassified	20. Security Classif. (of this page) Unclassified	21. No. of Pages	22. Price \$3.00



## FOREWORD

This annotated bibliography of recently translated, selected research papers is presented as a scientific service of the Civil Aeromedical Institute and the FAA Medical Librarian. The aims of the publication are: (a) to provide interested researchers with information concerning translations of foreign-language articles as soon as the translations are available; and (b) to prevent duplication of translation costs and efforts.

In achieving these aims, bibliographic listing such as the present one are necessarily limited in number. They are also limited by the range of activities represented in the agency preparing the material. Thus, selective factors exist. Further, no attempt is made to evaluate the scientific worth of a given article. By providing a central repository from which such translated material can be obtained, however, it is hoped that interested scientists will derive otherwise unavailable benefits.

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AVIATION MEDICINE TRANSLATIONS:  
ANNOTATED BIBLIOGRAPHY OF RECENTLY  
TRANSLATED MATERIAL. VI.

Back, P. and Hildebrandt, H. J. Zur Reaktivierung der Acetylcholinesterase: Titrimetrische Untersuchungen an Hirnhomogenat und Plasma nach Tabun-, Sarin- und Somanhemmung in vitro. (On the reactivation of acetylcholinesterase. Titrimetric studies on homogenates of brain and on plasma after inhibition in vitro with Tabun, Sarin, and Soman.) *Archiv der Pharmazie und Berichte der deutschen pharmazeutischen Gesellschaft* (Weinheim), 263:261-262, 1969.

Automatic electrometric titration was employed to determine the reactivating effect of obidoxime on acetylcholinesterase from rat brain homogenate and cholinesterase from human blood plasma after inhibition with Tabun, Sarin and Soman. Except for Tabun and Soman-inhibited plasma cholinesterase, obidoxime was found to have reactivating effects on the enzymes under specified conditions.

Boskovic, M. Morfologija, sadržaj i odnosi petromastoidnog kanala kod čoveka. (Morphology, content, and relationships of the petromastoid canal in man.) *Acta medica Iugoslavica*, 12:5-37, 1958 (Suppl. No. 1).

Eighteen-hundred preparations were collected consisting of pyramids of the temporal bone. Of the preparations studied, 260 came from fetuses, 380 from children, and 1,160 from adults. By employing combined methods with this large number of preparations, a comprehensive anatomical study of the origin and morphology, content, topography, and development of the petromastoid canal was accomplished.

Brunner, H. Zur klinischen Bedeutung der Inversion des optokinetischen Nystagmus. (Clinical significance of inversion of optokinetic nystagmus.) *Archiv für Ophthalmologie*, 129:30-56, 1932.

The significance of inversion of optokinetic nystagmus as a diagnostic tool is illustrated through the presentation of six case histories. Central-labyrinthine nystagmus in its pure form can be overcome by optokinetic nystagmus. Central-labyrinthine nystagmus may also be inverted (1) if the central-labyrinthine nystagmus is overcome by an ocular nystagmus; (2) if the central-labyrinthine nystagmus is combined with a lesion of the cortical vision bundle; and (3) if the patient's attentiveness is disturbed.

DiGiunta, E. and Raso, D. Rilievi nistagmografica post-rotatorii in corso di intossicazione alcoolica acuta. (Post-rotatory nistagmographic findings during acute alcohol intoxication.) *Clinica Oto-Rino-Laringoiatrica* (Rome) 20:88-105, 1968.

Vestibular responses were examined in five male subjects both before and after ingestion of 40-proof brandy. Blood alcohol levels ranged from 30 to 95 mg.%. Both motor responses and post-rotatory nystagmus were examined. The most consistent pre- to post-test changes observed involved the form of the induced nystagmic response. Qualitative alterations (dysrhythmia) were often in evidence even when no quantitative changes appeared.

Grandjean, E., Wotzka, G. and Kretzchmar, H. Psychophysiologische Untersuchungen über die berufliche Belastung der Flugverkehrsleiter der Flughäfen Zürich-Kloten und Genf-Cointrin. (Psychophysiologic investigations into professional stress on air traffic control officers at the Zürich-Kloten and Geneva-Cointrin airports.) Unpublished report, 1968.

Occupational stress of ATC personnel was studied using objective and subjective measures of fatigue, multiple moment observations, and individual opinion questionnaires. Results

were compared with data from a comparison group of telegraph operators. It was concluded that the extreme occupational stress of a mental and psychological nature (tension, responsibility) which the controllers are subject to plus their tendency to show more signs of fatigue necessitates a reduction in that stress in order to maintain flight safety. The following recommendations for reducing occupational stress and fatigue were made: reasonable shortening of work hours, favorable vacation rules, improvements in working environment, and organization of shift plans so that it would be possible to limit hard day shifts to six hours.

Heller, A. Über ein traumatisches Aortenaneurysma und traumatische Insuffizienz der Aortenklappen. (Concerning traumatic aneurysm of the aorta and traumatic failure of the aortic valves.) *Deutsches Archiv für klinische Medizin*, 79:306-310, 1904.

An unusual case of aortic aneurysm, in which there was a pathologically-anatomically proven connection between the aneurysm and an accident which happened almost a year before death, is reported. Based upon autopsy findings and the case history, it was concluded that a very strong muscle action resulted in the stretching of the aorta entrance and the rending both of a piece of the aorta wall and the beginnings of two aorta valves. Acute failure of the aorta valves and a great widening of the left ventricle resulted. In the course of the following months, hypertrophy, growing of a new layer over the rips in the wall, and development of the aneurysm occurred.

Hildebrandt, H. J. Zur kombinierten Antidottherapie der tierexperimentellen Vergiftung mit Tabun, Sarin, und Soman. (Combined antidote therapy in animals poisoned with Tabun, Sarin and Soman.) *Archiv der Pharmazie und Berichte der deutschen pharmazeutischen Gesellschaft* (Weinheim), 263:222-223, 1969.

The author presents results of experimental antidote therapy on rats poisoned with certain alkylphosphates. For obidoxime, P2S, and HS 6, the PR values did not exceed 1.3 in Tabun, Sarin and Soman poisoning. A combination of obidoxime and atropine gives PR values of 1.5 for Tabun, 6 for Sarin, and 1.2 for Soman poisoning. Therapy with a com-

bination of G 3063, triflupromazine and obidoxim gives PR values of 22 for Tabun, 30 for Sarin, and 1.7 for Soman.

Houdas, Y. and Colin, J. Échanges thermiques et hydriques par les voies respiratoires de l'homme. (Heat and water exchanges in the human respiratory tracts.) *Pathology-Biology*, 14:229-238, 1966.

Within certain limits, a direct relationship was found between the air temperature of inspired and expired air. For a given ambient temperature, a rise in the water content of inspired air is followed by a rise of expired air temperature. The values of respiratory frequency and of tidal volume had little or no influence on expired air temperature for a given environment. From the experimental data, a chart was drawn predicting the relationship of expired air temperature to the water vapor content of ambient air. This chart also permits permits rapid determination of the water content of expired air and the calculation of the total heat exchange by the respiratory tract.

Iwane, M., Ono, M., and Sawada, M. Effects of Coriolis stimulus during mild centrifugal G load upon stick performance. (In Japanese) *Japan Air Self-Defense Force*, (Tachikawa, Japan), *Aeromedical Laboratory Reports*, 8:135-141, 1968.

The effects upon stick performance (maintaining a control stick in a neutral position) of Coriolis stimulation in a centrifuge at low level G was investigated in 20 subjects. Results indicate that incorrect right forward movements of the stick occurred frequently with head movements to the left during clockwise rotation of the centrifuge even at low levels of G. Heart rate increased by more than 20 beats per minute during stimulation and returned to the pre-simulation level immediately after rotation ceased. No horizontal or vertical ENG was observed. It was concluded that subjective symptoms stem from one's predisposition to motion sickness.

Kitzing, J., Kutta, D. and Bleichert, A. Temperaturregulation bei langdauernder schwerer körperlicher Arbeit. (Thermoregulation during prolonged, strenuous exercise.) *Pflügers Archiv für die gesamte Physiologie des Menschen und der Tiere* (Berlin), 301:241-253, 1968.

During two hours of exercise on the bicycle ergometer in different environments ( $-4^{\circ}$  to  $+32^{\circ}\text{C}$ ), the time course of body temperature (BT) was found to depend upon the climate with a higher rise in BT in the cold environment as opposed to the warm environment, followed by a slow increase of BT in the warm and a slow decrease in the cold. Oxygen consumption was, however, independent of environmental temperatures. Weight loss was proportional to the environmental temperature up to  $25^{\circ}\text{C}$ , at which point it increased more steeply. With rising room temperature (above  $11^{\circ}\text{C}$ ), heart rate increased during work. It was concluded that a theory of thermal regulation by a resetting of the body thermostat during exercise could not be supported by this study.

Külbis, F. Berufsschäden toxischer Art und Traumen als Ursache von Herz- und Gefäßstörungen. (Occupational injuries of a toxic nature and traumas as cause of cardiac and vascular disturbances.) *Nauheimer Fortbildungs-Lehrgänge*, 13:58-63, 1937.

Effects of various substances upon the cardiovascular and respiratory systems were considered. War gases produced pulmonary edema; chlorine gas produced mitral stenosis; nitrose gases produced pulmonary edema and acute cardiac insufficiency; various metals (phosphorous, lead, arsenic and mercury) produced anatomical changes in circulation; carbon monoxide produced tachycardias and cardiac dilations; electrical trauma produced acute cardiac dilation, ventricular fibrillation and cardiac arrest; lightning stroke affected the respiratory center and produced ventricular fibrillation; heat and sun stroke had an indirect effect on the cardio-vascular system; and blunt trauma to the thoracic wall produced hemorrhages, thromboses, and other disorders. Use of the electrocardiogram as an aid in detection of functional disturbances caused by toxic and traumatic injuries was suggested.

Lisker, R., Trujeque, M., Barrera, A., and Villalobos, J. Cirrosis del hígado y ceguera al color. (Hepatic cirrhosis and color blindness.) *Acta científica Venezolana* (Caracas), 19:202-205, 1968.

Color blindness was investigated in 32 patients with hepatic cirrhosis. The obtained

incidence of 18.8% is clearly larger than that found in a comparison group. However, various facts suggest that in the cirrhosis patients the anomalies in color perception are not of the conventional hereditary type. There was no evidence that the condition occurred more often in patients with Laennec's cirrhosis or in those with a history of severe alcoholism. (Modified translated summary.)

Lorke, D. and Kimmerle, G. Die Wirkung von Reaktivatoren bei der Vergiftung mit Phosphorsäureestern. (The action of reactivators in phosphoric acid ester poisoning.) *Archiv der Pharmazie und Berichte der deutschen pharmazeutischen Gesellschaft* (Weinheim), 263:237-238, 1969.

Rats were poisoned with 22 different phosphoric acid esters and, when the first manifestations of poisoning appeared, were treated with reactivators (2-PAM, Toxogonin) alone and in combination with atropine. In no case did this therapy increase the toxicity. In the case of eight phosphoric acid esters (Asuntol, Baytex, Chlorthion, Dimethoate, Folinthion, Metasystox (i), Mipafox, Paphthion), no therapeutic effect or only a minor therapeutic effect (increase of  $DL_{50} < 50\%$ ) was attained. The therapeutic effect was good (increase in  $DL_{50}$  between 50 and 200 per cent in nine Phosphoric acid esters (DDVP, Dipterex, EPN, Folimat, Gusathion M, Gusathion A, Metasystox R, Methylparathion, Sulfotep), and it was very good (more than 200%) in five phosphoric acid esters (Disyston, Parathion, Systox, TEPP, Terracur P). When rats poisoned with phosphoric acid esters are treated with reactivators, the therapeutic effect depends considerably on the phosphoric acid esters with which these animals were poisoned. Combinations of reactivators with atropine produced a clearly increased effect in some cases of poisoning (DDVP, Folimat, Gusathion M, Gusathion A, Metasystox R, Methylparathion, Parathion, Systox, TEPP, Terracur P).

It is also assumed that the reactivators will have a similar therapeutic effect in man. Since no additional damage is to be expected if the dosing is correct, we can say that reactivators should always be included in the therapy of phosphoric acid ester poisoning in man. (Entire article.)

Mies, H. Leibesübungen und Sport. (Physical exercise and sports.) *Münchener medizinische Wochenschrift*, 109:259-266, 1967.

A collection of critical summaries of 79 medical research articles related to physical exercise and sports is presented. Topics covered include: methodology of athletic-medical research; heart, circulation, respiration and metabolism; influence of climate; details of different types of sports; pharmacology; and sport pathology.

Morian, K. Beitrag zur klinischen Kenntnis der Neuritis acustica alcoholica. (Contribution to the clinical knowledge of neuritis acoustica alcoholica.) *Deutsche otologischen Gesellschaft* (Dresden), S.278-281, 1910.

A general description of alcoholic neuritis of the eighth nerve is presented.

In the cases discussed, onset of the disease was usually sudden and usually affected both sides. Results of functional tests seem to indicate a genuine nerve deafness. In three cases, disturbances of hearing were combined with dysfunction of the vestibular apparatus.

Mouton, L. and Armand, G. Essai de cagoules anti-fumées. (Test of fireproof anti-smoke hoods.) Paris Airport Authority. Internal Report, November 1969.

The Paris Airport Authority tested smoke hoods developed by the Federal Aviation Administration, U.S.A. The smoke hoods consist of a semi-rigid plastic sack worn over the head which resists temperatures as high as 1,200°C and provides an air supply found to last from one minute and 15 seconds to two minutes and 30 seconds depending upon lung capacity and activity. Hearing was not impaired, but vision was hindered by moisture condensation after about one minute of wearing. The use of oxygen in conjunction with the hoods is discussed and modifications of the mask are suggested.

Poisvert, M., Cara, M., Hurtaud, J. P., Caille, C., Ivanoff, S., and Galinski, R. Les moyens d'évacuations aériens à la disposition d'un service hospitalier parisien. (The air evacuation means of transport at the disposal of a Paris hospital service.) In Hannisdahl, B. and Sem-Jacobsen, C. W. (Eds.) *Aviation and Space Medicine*: Proceeding of the Seven-

teenth International Congress, p. 30-36. Oslo: Universitetsforlaget, 1969.

A specialized service in secondary medical transportation, intended to evacuate patients to a specialized center from a hospital in which treatment is insufficient, is described. Twenty per cent of the transfers are made by air, using either turbo- or piston-engined helicopters, small turboprop, or medium- or long-range aircraft equipped with standard medical units. The expense of the service is counterbalanced by the reduction in hospital stay and recovery time. However, it was concluded that some type of regulation was required to avoid abuses of patients.

Romanini, Attilio. Sul Significato istochimico della colorazione degli acidi nucleici con la cromogallocianina. (On the histochemical significance of the coloration of the nucleic acids with chromgallocyanin.) *Mikroskopie* (Wien), 8:374-379, 1953.

In order to test the efficiency of Chrom-gallocyanin dyeing for the quantitative histochemical determination of nucleic acid, the author wanted to establish the influence, on the dyeing capacity of histologic preparations, of a simultaneous preparation or an after-treatment for the destruction of nucleic acids.

Intensive examinations of the results indicate that Chrom-gallocyanin is capable of dyeing the deoxyribonucleic acid at pH 0.9, and that treatments that made the ribonucleic acid undyeable with other reactions do not influence a dyeing with Chrom-gallocyanin at pH 0.9 and 1.7. Moreover, it could be observed that the treatments made in order to remove the nucleic proteins intensify the dyeing as well as the purine bases and pyrimidine derivatives which were not removed during the fixation and the alcoholic dehydration. (Modified English summary.)

Schaad, R., Gilgen, A., and Grandjean, E. Die Ausscheidung von Katecholaminen beim Personal des Flugsicherungsdienstes. (Excretion of catecholamines in air traffic control personnel.) *Schweizerische medizinische Wochenschrift*, 99:889-892, 1969.

Investigations have been conducted into professional stress on air traffic control officers based on the determination of urinary cate-



cholamines. For this purpose, six persons performing different activities were examined for three days. The urine samples were analyzed fluorometrically, and the level of catecholamines (adrenaline and noradrenaline) was stated in micrograms per 100 mg of urinary creatine. Differences were found between three occupational groups. Radar control work involved significantly ( $p < .05$ ) higher catecholamine excretion (77.0) than duty officer's or ground control work (52.5) and undemanding office work (45.5). (Translated summary.)

Schwab, W. and Ey, W. Das Hör- und Gleichgewichtsorgan beim Menschen unter akuter Alkoholeinwirkung; klinisch experimentelle Ergebnisse und Möglichkeiten der praktischen Auswertung. (The effects of acute alcohol intoxication on the human hearing organ and vestibular apparatus; clinico-experimental results and possibilities of practical utilization.) *Münchener medizinische Wochenschrift*, 97:658-662, 1955.

The hearing and balance systems of 21 subjects, some with normal hearing and others with a hearing disturbance, were tested prior to and following consumption of alcohol. No additional decrement in hearing was demonstrated under the influence of alcohol. The effect of alcohol upon the vestibular system was evidenced by the appearance of a direction-changing positional nystagmus. This phenomenon was felt to be of central origin. Practical implications of the experimental results are discussed such as the proposed use of positional nystagmus with the blood alcohol test for the evaluation of the traffic safety of drivers.

Stadtmüller, F. Zur Beurteilung der plastischen Rekonstruktionsmethode der Physiognomie auf dem Schädel. (On the evaluation of the plastic reconstruction method of the physiognomy on

the skull.) *Zeitschrift für Morphologie und Anthropologie*, 22:337-372, 1921-1922.

This study was concerned with the importance of measurements of soft-part thicknesses for the determination of individual and racial resemblances in the method of plastic facial reconstruction on skulls. Fifteen reconstructions are discussed. It was concluded that in this method of facial reconstruction, individual resemblance will not be achieved by using only average measurements of the thicknesses of soft parts. Employing photographs and working within the most important of the average measurements, individual resemblances could be achieved. A greater degree of success was achieved, however, in producing racial resemblance by the use of average soft part measurements in the plastic reconstruction method.

Wegmann, H. M., Klein, R. E. and Bruner, H. Die Auswirkung fliegerischer Belastung auf einige Blutkomponenten. (The effects of flight stress on some blood components.) *Internationale Zeitschrift für angewandte Physiologie einschliesslich Arbeitsphysiologie*, 23:293-304, 1967.

Physiological effects of flight stress were studied in jet pilots who were training on the Starfighter F 104 G. Stress reactions to flying were evaluated by blood determinations including ATP, blood sugar (B2), ascorbic acid (ASC), the free 11-hydroxy-corticosteroids (11-OH-CS), and the activities of four cell enzymes (ALD, GOT, GPT, MDH). The results indicated that MDH, GTP and 11-OH-CS increase after difficult flights, ALD and BZ increase after easy flights, ASC increases after easy and night flights, ascorbic acid increases with all flights, and corticoide decreases during night flights. The changes in GOT and ATP were not significant.





