YUFIN, V.A.; BOYKO, V.V.

Elastic cup separators for products pipelines with a diameter of 100-150 mm. Transp. i khran. nefti no.7:17-20 '63.
(MIRA 17:3)

ACC NR: AM7003014 (A) Monograph UR/

Popov, N. V.; Yufin, V. A.

Pipeline transportation, 1964-1965 (Truboprovodnyy transport, 1964-1965) Moscow /VINITI/ 66, 0102 p. illus., biblio. 1,500 copies printed.

TOPIC TAGS: pipeline transportation system, storage tank, corrosion protection, pipeline construction

PURPOSE AND COVERAGE: The book covers problems connected with the development of pipeline transportation in the USSR and abroad. It analyses conditions and prospects of pipeline transportation in various countries and its increasing significance in the economics of the state. Experience in pipeline design, construction, automation, and measures taken to protect pipelines against corrosion are discussed. A description of oil tanks, gas storage tanks and reservoirs, and starting and terminal points of pipelines, is given.

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Ch. 1. Pipeline transportation situation in various countries -- 7

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Ch. 2. Planning and designing of pipelines -- 26
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SUB CODE: 13/ SUBM DATE: none/ ORIG REF: 026/ OTH REF: 122

Card 2/2

Yufit, A.P.

YUFIT, A.P.

The place where relays are manufactured. Avtom., telem. i sviaz' no.11: 32-34 N '57. (MLRA 10:11)

1. Nachal'nik Leningradskogo elektrotekhnicheskogo zavoda Ministerstva Putey soobshcheniya.
(Leningrad--Electric relays)

YUFIT, A.P.

The 25th Anniversary of the Leningrad Electric Equipment Factory. Avtom. telem. i sviaz' 8 no.1:16-17 Ja '64. (MIRA 17:3)

1. Nachal'nik Leningradskogo elektrotekhnicheskogo zavoda Ministerstva putey soobshcheniya.

GRIAZNOV, V. M. FROST, A. V. YUFIT, S. S.

Hydrogenation

Investigation of the variation of hydrogenation depth of benzene on palladic catalyzers with temperature. Vest. Mosk. un. 5 no. 6. June 1952 .

9. Monthly List of Russian Accessions, Library of Congress, November 1953. Unclassified.

YUFIT, S. S.

20-2-27/60

AUTHORS: Nazarov, I. N. , Member of the Academy, Yanovskaya, L. A. , Gusev, B. P. , Yufit, S. S. , Gunar, V. I., Smit, V. A.

TITLE: The Synthesis of Methylheptenone and Methylheptadienone (Sintez metilgeptenona i metilgeptadiyenona)

PERIODICAL: Doklady Akademii Nauk SSSR, 1957, Vol. 114, Nr 2, pp. 331-334 (USSR)

ABSTRACT: The two substances mentioned in the title of the paper under review are of importance for the synthesis of the natural scenting substances of the isoprenoid type. The authors of the present paper investigated the production of the former on basis dimethylvinylcarbinol or isoprene with the aid of three different methods :(1) by condensation of prenylhalogenids by aceto-ethylacetate; (2) by interaction between dimethylvinylcarbinol and the same ether; and (3) by pyrolysis of the same ether of dimethylvinylcarbinol. As was shown in a previously published scientific paper originating in the same laboratory, there are produced at influence by hydrogen halides on dimethylvinylcarbinol corresponding prenylhalides

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The Synthesis of Methylheptanone and Methylheptadienone

with high yields. They can be easily condensed by sodium-aceto-ethylacetate and at a subsequent saponification they yield methylheptenone. The second method of synthesis takes place at a temperature of 160 - 170° and yields 60 - 70 % methylheptenone in addition to an almost theoretical amount of ethanol and CO_2. The reaction must be carried out under pressure or by using high-boiling Vaseline oil. The remainder after distillation is aceto-ethylacetate of dimethylvinylcarbinol. At 160 - 170° this is subjected to a pyrolysis, and here methylheptenone and CO_2 are produced. This supports the reactions mechanism as illustrated in the paper under review. The pyrolysis of pure dimethylvinylcarbinol-aceto-acetate was investigated further. It is produced with a yield of 90 %, when diketone affects dimethylvinylcarbinol in presence of small amounts of pyridine, best at a temperature between 145 and 160°. During this process, methylheptenone is produced (65 - 70 %). The pyrolysis has also a lateral direction and leads to isoprene, acetone and CO_2. Sometimes this lateral direction predominates. The authors of the present paper studied in detail the production methods of methylheptadienone both by interaction between dimethylethinylcar-

The Synthesis of Methylheptenone and Methylheptadienone

binol and aceto-ethylacetate, and also by pyrolysis of pure dimethylethinylcarbinol-acetoacetate with a yield of 90 % by influence of diketone on pure dimethylethinyl in presence of triethylamine. The reaction takes place only at 170 - 180°. Below 160° the initial products are obtained again, because no interaction takes place. In the gaseous phase the reaction takes place only at 250-300°. There the yield is low (15-20 %). Inert diluting agents, acids, salts and metallic oxides do not favor the reaction, but rather frequently lead to a complete resinification of the substance. Here again lateral processes take place, with isopropenylacetylene and acetone being produced. The experimental part of the paper under review contains a detailed description of the production methods together with constants and yields. There are 5 references, 1 of which is Soviet.

20-2-27/60

The Synthesis of Methylheptenone and Methylheptadienone

ASSOCIATION: Institute oF Organic Chemistry imeni N. D. Zelinskiy, AS USSR
(Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR)

SUBMITTED: January 7, 1957

AVAILABLE: Library of Congress

Card 4/4

5 (3) SOV/79-29-3-10/61

AUTHORS: Nazarov, I. N. (Deceased), Yufit, S. S.

TITLE: Isomerization of Dimethyl Vinyl Carbinol in Acid Media (Izomerizatsiya dimetilvinilkarbinola v kislykh sredakh)

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 3, pp 783-786 (USSR)

ABSTRACT: The authors carried on their experiments concerning the synthesis of various tertiary acetylene alcohols (Ref 1), which are easily hydrogenated selectively into the corresponding vinyl alcohols, and they also worked on the isomerization of the dimethyl vinyl alcohol in acid media. This reaction took place in acetic acid under the influence of mineral acids (H_2SO_4, H_2BO_3 et al.). The increase in concentration of the sulphuric acid leads to a sharp decline of the yields of prehnol acetate (prehnol=2-methylbutene-2-ol-4), and to larger amounts of high-boiling products. The n-toluene sulfo acid and α-naphthalenesulfonic acid behave in the same manner as sulphuric acid. Phosphoric acid remains without effect. Hydrochloric acid led to considerably lower yields of prehnol acetate. The amount of boric acid must be increased by the twenty-fold as compared to sulphuric acid, to obtain the same yield. Depending on the experimental conditions,

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Isomerization of Dimethyl Vinyl Carbinol in Acid Media

prehnol acetate varies from the solid to the resinous state. Slight salt additions influence the yields either positively or negatively. The addition of water to the reaction mass causes a decrease in the yields. In heating dimethyl vinyl carbinol with water in a metallic ampule at 170-200°, prehnol resulted within 2,5 hours in a yield of 20%. The rate of isomerization depends very markedly on temperature. Still, the isomerization process prodceeds rather rapidly, so that longer heating is useless. The replacement of acetic acid in the above experiments by other organic acids does not cause an increase in the yield of the corresponding ester of the primary alcohol. The effect of propionic acid corresponds to that of the acetic acid. There are 9 references, 5 of which are Soviet.

ASSOCIATION: Institut organicheskoy khimii Akademii nauk SSSR (Institute of Organic Chemistry of the Academy of Sciences, USSR)

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S/081/61/000/019/035/085
B110/B138

5.3400

AUTHORS: Kucherov, V. F., Yufit, S. S.

TITLE: Some reactions of carbon-chain growth

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 19, 1961, 151, abstract 19Zh71 (Sb. "Vopr. khimii terpenov i terpenoidov". Vil'nyus, 1960, 197-200)

TEXT: Condensation of $HC(OC_2H_5)_3$ (I) with styrene in the presence of BF_3 etherate gives $C_6H_5CH(OC_2H_5)CH_2CH(OC_2H_5)_2$ (II) in a yield of 5 %. Diketene (III) with I forms the enol ester $CH_3COCH_2COOC_2H_5$ (IV) in a yield of 50 %, which, together with $CH_3CH(OC_2H_5)_2$ (V) is converted to $CH_3COCH(COOC_2H_5)CH(CH_3)OC_2H_5$ (VI). VI is also formed by V with III and IV, or by IV and $CH_2=CHOC_2H_5$ in yields of 50, 80, and 10 %. V and $CH_3CH=CHCH(OC_2H_5)_2$ with BF_3 etherate dimerize to 1,1,3-triethoxy butane

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Some reactions of carbon-chain growth

and $CH_3CH{=}CHCH(OC_2H_5)CH(CHCH_3OC_2H_5)CH(OC_2H_5)_2$ in yields of 50 and 80 %.

In acid media and during the synthesis of dinitro phenyl hydrazone, II and VI lose the ethoxy group and form derivatives of unsaturated compounds.
[Abstracter's note: Complete translation.]

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S/062/60/000/007/008/017/XX
B004/B064

AUTHORS: Rudenko, B. A., Yufit, S. S., Ivanova, L. N., and Kucherov, V. F.

TITLE: The Application of Gas- and Liquid Chromatography to Analyze Mixtures of Some Hydrocarbons

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1960, No. 7, pp. 1147 - 1152

TEXT: In the introduction the authors mention the difficulty of separating mixtures of ethylene- and diene hydrocarbons by means of fractional distillation. Such mixtures result, however, in the dehydrogenation of the hexene isomers. In this case, the authors applied the gas- and liquid chromatography. They describe the apparatus designed by them which proved to be valuable for substances with a boiling point of below 150°C. It consists of a U-shaped glass column with an inner diameter of 6 mm and a height of 1 m. This column is filled with kieselguhr. Silicone oil, vaseline oil, dibutyl phthalate

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or tricresyl phosphate were used as steady phase. The column is electrically heated. Hydrogen which is taken from a cylinder serves as carrier. The authors developed a new device (Fig. 2) for evaporating and dosing the samples. The glass tube through which the hydrogen flows, contains two adjustable rods sealed with rubber. The ends of the rods are screwed into each other which allows exact dosing. Analysis is carried out by measuring the flame temperature of the sample evaporated in hydrogen by means of a thermocouple. Fig. 3 shows the burner used for this purpose. The tip of the thermocouple was adjusted in such a way that the initial thermo-emf is 20 - 22 mv. The recording ЭПП-09 (EPP-09) potentiometer had a measuring range of 0 - 5 mv. Therefore, the emf was partially compensated with a ПП (PP) laboratory potentiometer or ИРН-250 (IRN - 250) apparatus. It takes one hour to establish equilibrium in the entire apparatus after which time the zero-indication was almost stable. Calibration with mixtures of known composition showed that the surface of the chromatographic peak is proportional to the content of the respective

The Application of Gas- and Liquid Chromatography to Analyze Mixtures of Some Hydrocarbons

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B004/B064

component. The following analyses were made, the respective chromatograms being depicted: detection of 1% isoprene in 2,3-dimethyl butadiene; detection of 2% dimethyl butadiene in isoprene; detection of 0.5% tetramethyl ethylene in 2,3-dimethyl butane; quantitative analysis of the catalyzate of asymmetrical methyl isopropyl ethylene; separation of 2,2- and 2,3-dimethyl butane; separation of ethyl ether, acetone and ketones; separation of pentane, hexene, hexane and benzene; separation of 2-methyl cyclopentadiene-1,3 from 1-methyl cyclopentene-1; separation of benzene, cyclohexane, cyclohexene, and cyclohexadiene. Mixtures containing methanol, ethanol, acetals, and orthoformiates cannot be analyzed with the apparatus. The authors state, however, that their method allows to solve a number of problems which arise in the analysis of liquid mixtures from homologs of ethylene and divinyl, as well as of several dienes. There are 9 figures and 10 references: 4 Soviet, 1 US, 3 British, 1 Dutch, and 1 German.

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The Application of Gas- and Liquid Chromatography to Analyze Mixtures of Some Hydrocarbons

S/062/60/000/007/008/017/XX
B004/B064

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy of the Academy of Sciences, USSR)

SUBMITTED: January 26, 1959 (initially)
April 23, 1960 (after revision)

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B004/B064

Fig. 2

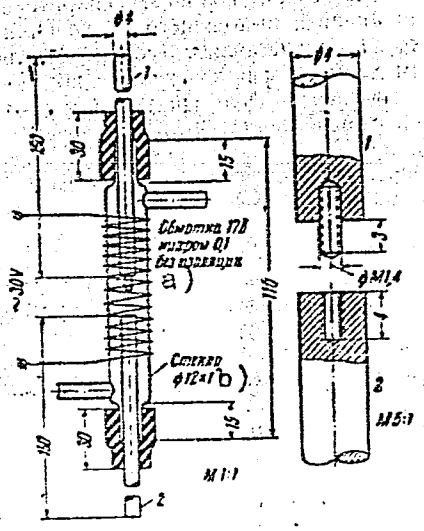

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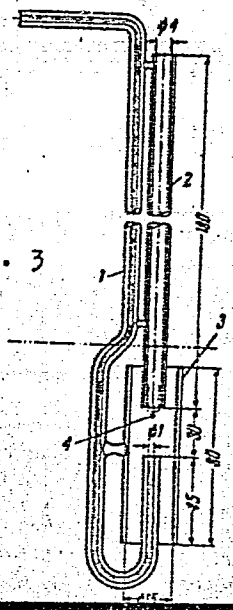
Fig. 3



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Legend to Fig. 2: dosing evaporator a) winding 176 nichrome 0.1 without insulation b) glass
Fig. 3: burner 1 - gas pipe 2 - tube of the thermocouple, 3 - protecting tube, 4 - tip of the thermocouple.

YUFIT, S.S.; KUCHEROV, V.F.

Structure of a trimer of acrolein diethylacetal. Izv. AN SSSR. Otd.khim.nauk no.8:1522-1524 Ag '61. (MIRA 14:8)

1. Institut organicheskoy khimii im. N.D. Zelinskogo AN SSSR.

(Acrolein)

YUFIT, S.S.; KUCHEROV, V.F.

Chemistry of acetals. Report No.6: Dimerization of acetals of α,β-unsaturated aldehydes. Izv. AN SSSR. Otd.khim.nauk no.9:1646-1649 S '61. (MIRA 14:9)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
(Acetals)

YUFIT, S.S.; KUCHEROV, V.F.

Chemistry of acetals. Report No.9: Mechanism of acrolein acetal trimerization. Izv. AN SSSR Otd.khim.nauk no.12:2183-2184 D '61. (MIRA 14:11)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
(Acrolein) (Polymerization)

YUFIT, S.S.

Method of calculating reaction rates based on the structure of reacting molecules. Izv. AN SSSR.Otd.khim.nauk no.10:1748-1752 O '62.
(MIRA 15:10)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
(Chemical reaction, Rate of)

YUFIT, S.S.; KUCHEROV, V.F.

Rotatory disperrion of the plane of polarization and its application in organic chemistry. Usp. khim. 31 no.4:474-489 '62. (MIRA 16:8)

1. Institut organicheskoy khimii AN SSSR imeni Zelinskogo.

YUFIT, S.S.; KUCHEROV, V.F.

Dimerization of cyclic ethylene acetal of crotonaldehyde. Izv. AN SSSR. Ser.khim. no.9:1695-1696 S '63. (MIRA 16:9)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
(Crotonaldehyde) (Ethylene compounds)

BABICHEV, S.I., dots., CHUDNOVSKIY, P.D., kand.med.nauk, YUFIT, S.Ye.

Significance of the coagulogram in studying blood coagulation in surgical patients [with summary in English]. Khirurgiia 34 no.10 96-101 O '58 (MIRA 11:11)

1. Iz gospital'noy khirurgicheskoy kliniki (dir. deystvitel'nyy chlen AMN SSSR zasluzhennyy deyatel' nauki prof. B.V. Petrovskiy) I Moskovskogo ordena Lenina meditsinskogo instituta imeni I.M. Sechenova.

(BLOOD COAGULATION,
coagulogram in surg. dis. (Rus))

YUFIT, S.Ye. (Moskva)

Role of the coagulogram in the surgical treatment of patients with acquired heart defects. Klin.med. 38 no.11:35-40 N '60. (MIRA 13:12)

1. Iz kliniki gospital'noy khirurgii (dir. - deystvitel'nyy chlen AMN SSSR zasluzhennyy deyatel' nauki prof. B.V. Petrovskiy) I Moskovskogo ordena Lenina meditsinskogo instituta imeni I.M. Sechenova.

(HEART FAILURE) (BLOOD—COAGULATION)

YUFIT, S.Ye.; KNYAZEV, M.D.; SMIRNOVA, L.A.

Importance of a complex study of the blood coagulation system in Leriche's syndrome. Terap.arkh. no.7:24-29 Jl '62. (MIRA 15:8)

1. Iz gospital'noy khirurgicheskoy kliniki (dir. - deystvitel'nyy chlen AMN SSSR prof. B.V. Petrovskiy) I Moskovskogo ordena Lenina meditsinskogo instituta imeni I.M. Sechenova.
(ARTERIOSCLEROSIS) (AORTA—DISEASES) (BLOOD—COAGULATION)
(VERTEBRAL ARTERY—DISEASES)

DYNTSITS, L.A.; YUFIT, Ye.M.

Familial cryptopthalmos in children. Vest. oft. 73 no. 5:24-28 S-O '60. (MIRA 14:1)

(EYELIDS—ABNORMITIES AND DEFORMITIES)

L 45249-66 T JK

ACC NR: AP6033593 SOURCE CODE: RU/0023/65/010/004/0365/0371

AUTHOR: Rozen, Maria (Doctor); Iuga, Monica--Yuga, M. (Doctor); Panescu, Felicia--Penesku, F. (Doctor)

ORG: M.T.Tc. Polyclinic, Ploiesti (Policlinica M.T.Tc.); "16 February" Kindergarten, Ploiesti (Gradinita de copii "16 Februarie")

TITLE: Clinical aspects of eruptive diseases of undetermined etiology occurring during a measles epidemic

SOURCE: Microbiologia, parazitologia si epidemiologia, v. 10, no. 4, 1965, 365-371

TOPIC TAGS: clinical medicine, infective disease, epidemiology

ABSTRACT: A description of some unusual, atypical clinical features observed in 344 cases during a measles epidemic. The authors suggest as probable a clinical diagnosis of infectious erythema, based on the characteristics of the eruption (polymorphism, symmetry, lability and topography) as well as on the fact that 38 children had a typical measles attack during convalescence and 63 others had had it previously. Orig. art. has: 2 figures. [Based on authors' Eng. abst.] [JPRS: 32,913]

SUB CODE: 06 / SUBM DATE: 13May64 / ORIG REF: 003 / OTH REF: 006

Card 1/1 UDC: 616.915-036.22-079.4:616.91

YUGANOV, A., Archt.

Fountains

Municipal fountains. Zhil. -kon. khoz. 2, no 7, 1952.

9. Monthly List of Russian Accessions, Library of Congress, November 1952, Uncl.

[illegible], P. [illegible], arkhitektor; YUGANOV, [illegible]

Collective farm combine for processing agricultural [illegible]
Sil'.bud. 12 no.7:18-20 Jl '62.

1. Tekhnicheskiy rukovoditel' kombinata kolkhoza "Ukraina", Kirovskogo rayona, Drymskoy oblasti (for Yuganov).
(Kirov District (Crimea)--Canning industry)

MARKARYAN, S.S.; YUGANOV, Ye.M.

Aural obturator. Vest. otorinolar., Moskva 15 no.2:82 Mar-Apr 1953. (CIML 24:3)

1. Moscow.

YUGANOV, Ye.M. Major

"The Problem of Illusory Sensations in Flight", by Major of the Medical Service Ye.M. Yuganov, published in Voyenno meditsinskiy zhurnal, No. 7, 1955, pp. 16-20

(See translation of article in Dossier of Ye. M. Yuganov)

Bib.

YUGANOV, Ye.M. (Moskva)

New registration method in aural manometry. Vest.oto-rin. 17 no.2: 66-69 Mr-Ap '55. (MIRA 8:7)

(EAR, physiology, manometry, registration technic)

YUGANOV, Ye.M., kandidat meditsinskikh nauk; YAZDOVSKIY, V.I., kandidat meditsinskikh nauk

Man above the stratosphere. Zdorov'e 3 no.2:25-27 F '57. (MIRA 10:3)
(AVIATION MEDICINE)

SOV/177-58-4-17/32

17(13) 22(3)

AUTHORS: Yuganov, Ye.M. and Zakhmatov, D.M., Lieutenant-Colonels of the Medical Corps

TITLE: Illusory Sensations in Flights Under Complicated Meteorological Conditions (Ob illyuzornykh oshchushcheniyakh pri poletakh v slozhnykh meteorologicheskikh usloviyakh)

PERIODICAL: Voyenno-meditsinskiy zhurnal, 1958, Nr 4, pp 51-55 (USSR)

ABSTRACT: The author deals with the problem of illusory sensations during flights in jet aircraft under complicated meteorological conditions. The solution of this problem will help to improve flight training and to guarantee the pilot's safety. The article contains data obtained by special examinations to find out the formation mechanism of illusory appearances during the flight and their effect on the pilot. It has been ascertained that illusory flight sensations often cause serious disturbances in piloting (loss of course, incapability of following

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Illusory Sensations in Flights Under Complicated Meteorological Conditions

the altitude required and even complete loss of orientation in space). Pilots stated that they were not able to mentally grasp the readings of instruments. S. S. Markaryan, N.A. Agadzhanyan, R.I. Ul'chenko and N.A. Molodukho-Lozinskiy proved this by examining pilots. Cases of illusory flight sensation occur more frequently in the initial period of flight training under complicated flight conditions. Later the frequency and severity of the sensation diminished. In order to determine the causes of the above-mentioned appearances, the effect of complicated flight conditions on the excitability of the vestibular analyzer has been studied. The results showed, that after 5-18 flights, the duration of feeling of rotating in a reverse direction diminished or increased by 1 to 5 seconds, as compared with the initial values.

Illusory Sensations in Flights Under Complicated Meteorological Conditions

Taking into consideration the regular character of these appearances, the author concluded that the development of illusory sensations is in close dependence on the steadiness of the acquired conditioned reflex connections. He thinks that improved flight training under difficult flight conditions is the most important measure against illusory sensations. The author recommends A.P. Popov's method of simultaneous training "in the open air and under protecting hood". M.K. Kozhenkov, V.A. Popov, and A.M. Pikovskiy suggested introducing semi-automatic opening of blinds of the protecting hood. Based on his observations and those of other physicians, the author is convinced, that such illusory flight sensations cease due to improved flight training.

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B004/B064

AUTHORS: Kotovskaya, A. R., Yuganov, Ye. M., Lieutenant-colonel, Surgeon

TITLE: The Effect of Long-period Transverse Accelerations on the Animal Organism

PERIODICAL: Voyenno-meditsinskiy zhurnal, 1960, No. 4, p. 90

TEXT: The authors report on experiments carried out on dogs. During six minutes the animals were exposed to a centrifugal acceleration acting in the direction chest - back. Acceleration was varied between 2 - 10 g, and its increase between 0.1 - 0.8 g/sec. The variation of acceleration took place in several cycles with steady increase and rapid decrease. Intervals in between were 15 - 18 sec long. The animals were fairly quiet. At the beginning of the rotation of the centrifuge an orientation reaction with motor excitation occurred. Different reactions were observed with increasing acceleration. Some animals remained quiet, while others did not. Up to a certain degree of acceleration the animals were able to move their heads and bodies. At a higher

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The Effect of Long-period Transverse Accelerations on the Animal Organism

acceleration, they were pressed toward the base. Transverse acceleration exerted a certain effect upon breathing and the cardial and vascular system. Blood pressure rose by 50 - 80 torr, the pulse frequency was increased by the 1.5 - 2-fold, and breathing was accelerated by the 1.5 - 3-fold. The respiratory and circulatory functions settled back to normal within 5 to 10 minutes after acceleration was stopped. The authors explain the increase in the pulse and respiratory frequencies as an adaptation reaction. Cyclic changes of acceleration during the experiments had no influence and were well tolerated.

YUGANOV, Ye.M.; KAS'YAN, I.I.; YAZDOVSKIY, V.I.

Muscle tone during weightlessness. Izv. AN SSSR. Ser. biol. no. 4:601-606 Jl-Ag '60. (MIRA 13:8)

1. Akademiya meditsinskikh nauk SSSR.
(WEIGHTLESSNESS) (MUSCLE)

YAZDOVSKIY, V.I.; YUGANOV, Ye.M.; KAS'YAN, I.I.

Posture reflex in intact animals during weightlessness. Izv. AN SSSR. Ser. biol. no.5:762-767 S-O '60. (MIRA 13:9)

1. Institute of Normal and Pathological Physiology, Academy of Medical Sciences of the U.S.S.R., Moscow.
(WEIGHTLESSNESS)

YUGANOV, Ye.M.

Physiological mechanisms of patency of the human eustachian tubes. Vest.otorin. 22 no.3:34-40 My-Je '60. (MIRA 13:10)
(EUSTACHIAN TUBE)

YUGANOV, Ye.M.; KAS'YAN, I.I.; GUROVSKIY, N.N.; KONOVALOV, A.I.; YAKUBOV, B.A.; YAZDOVSKIY, V.I.

Sensory reactions and voluntary movements in man under conditions of weightlessness. Izv. AN SSSR. Ser.biol. no.6:897-904 N-D '61. (MIRA 14:11)

1. Institute of Normal and Pathological Physiology, Academy of Medical Sciences of the U.S.S.R., Moscow.
(WEIGHTLESSNESS)

YUGANOV, E. M. and YEMELYANOV, N. D.

"Problems Concerning the Interplay of Physiological Sensing Mechanics During Space Flight"

report presented at the Intl. Symposium on Basic Environmental Problems of Man in Space, Paris, 29 October - 2 November 1962.

(IAF)

SIDOROV, Orest Aleksandrovich; ISAKOV, P.K., doktor med. nauk, retsenzent; SOKOLOV, A.I., inzh., red.; BARANOVSKIY, V.V., doktor med. nauk, red.; YUGANOV, Ye.M., kand. med. nauk, red.; ANTONOVA, S.D., red. izd-va; ORESHKINA, V.I., tekhn. red.

[Human physiological factors determining the arrangement of a machine control board] Fiziologicheskie faktory cheloveka, opredeliaiushchie komponovku upravleniia mashinoi. Moskva, Oborongiz, 362 p. (MIRA 15:10)
(Automatic control) (Human engineering)

39282
S/216/62/000/001/002/002
I015/I215

27.2200

AUTHOR: Yuganov, Ye. M., Kas'yan, I. I. and Yazdovskiy, V. I.

TITLE: The tolerance of animals to shock overloads acting in the direction close to the long axis of the body

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya biologicheskaya, no. 1, 1962, 90–95

TEXT: Freely fastened animals (dogs) were catapaulted with an overload of 20–23 units, in supine, sitting, and standing positions, for 0.1–0.5 seconds. The animals were subjected to a negative overload (direction pelvis–head) in the final stage of the experiment. The soft tissues of the animals, as well as the supporting apparatus, were not affected by the experimental conditions. The catapaulting brought about transient functional changes in the cardio-vascular and respiratory systems, which returned to normal within 4–5 minutes. The results obtained were useful during the planning and performing of the space flight in the second, fourth and fifth space ships—sputniks. There are 4 figures and 2 tables.

ASSOCIATION: Institut normal'noy i patologicheskoy fiziologii Akademii meditsinskikh nauk SSSR (Institute of Normal and Pathological Physiology, Academy of Medical Sciences, USSR) Moscow

SUBMITTED: June 22, 1961

Card 1/1

S/065/62/...
E032/E163

AUTHORS: Kas'yan, I.I., Yuganov, Ye.M., and ...

TITLE: Changes in certain morphological and ... indices of the peripheral blood of ... rocket flights

SOURCE: Problemy kosmicheskoy biologii, V. ... N.M. Sisakyan. Moscow, Izd-vo AN ...

TEXT: Determinations of blood count and ... were carried out on 12 dogs which had undergone ... flights. Blood samples were taken on the eve ... 2.5 hours after landing, and also at later sta... tions were carried out in all. After the flig... white cell count by 1000 - 11000 cells per mm³ ... mainly to an increase in neutrophils with a sh... up to 30% of unsegmented forms. These changes ... a redistribution of cells from depot organs u... of mechanical forces, although a stress reacti... been concerned. No changes were noted in the ... after space flight there was a reduction in ci...

Card 1/2

[illegible]

[illegible] an increase [illegible] and prothrombin [illegible]
[illegible]
[illegible] tables.

[illegible]

Georgiyevskiy, ... Tol..., ...

The effect of generalized ...

Problemy kosmicheskoy ... N.M.Sisakyan. Moscow, Izd...

The authors have studied the ... respiration rates in dogs subjected ... directed at right angles to the ... The animals were placed in a vibrat... conditions of frequency ... to 70 ... for a period of ... minutes ... experiments were carried ... training was ... the experiment ... the respiration rate of ... vibration the pulse rate ... whereas the pulse rate ... pressure from 140 to 170 ... immediately after the ... dog ... the respiration rate ...

Card 1/2

...e effect of generalized ...

...ring vibration, the pulse rate fr...
...he arterial pressure from 135 to 200 mm ...
...f behavior of physiologi... ...
...hours after exposure to vibration.
3 tables.

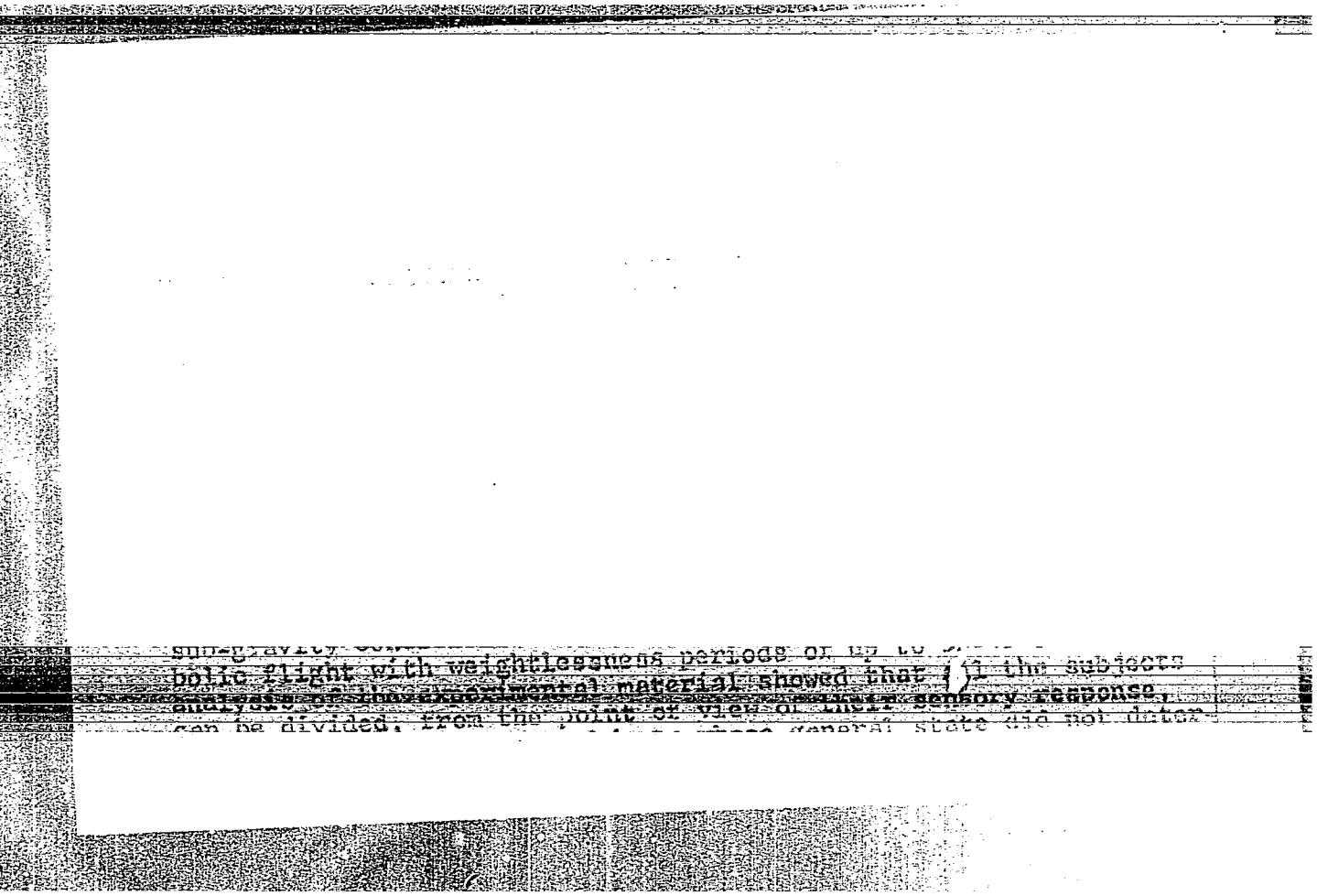
[illegible] ...skaya, [illegible], Yugan... [illegible]

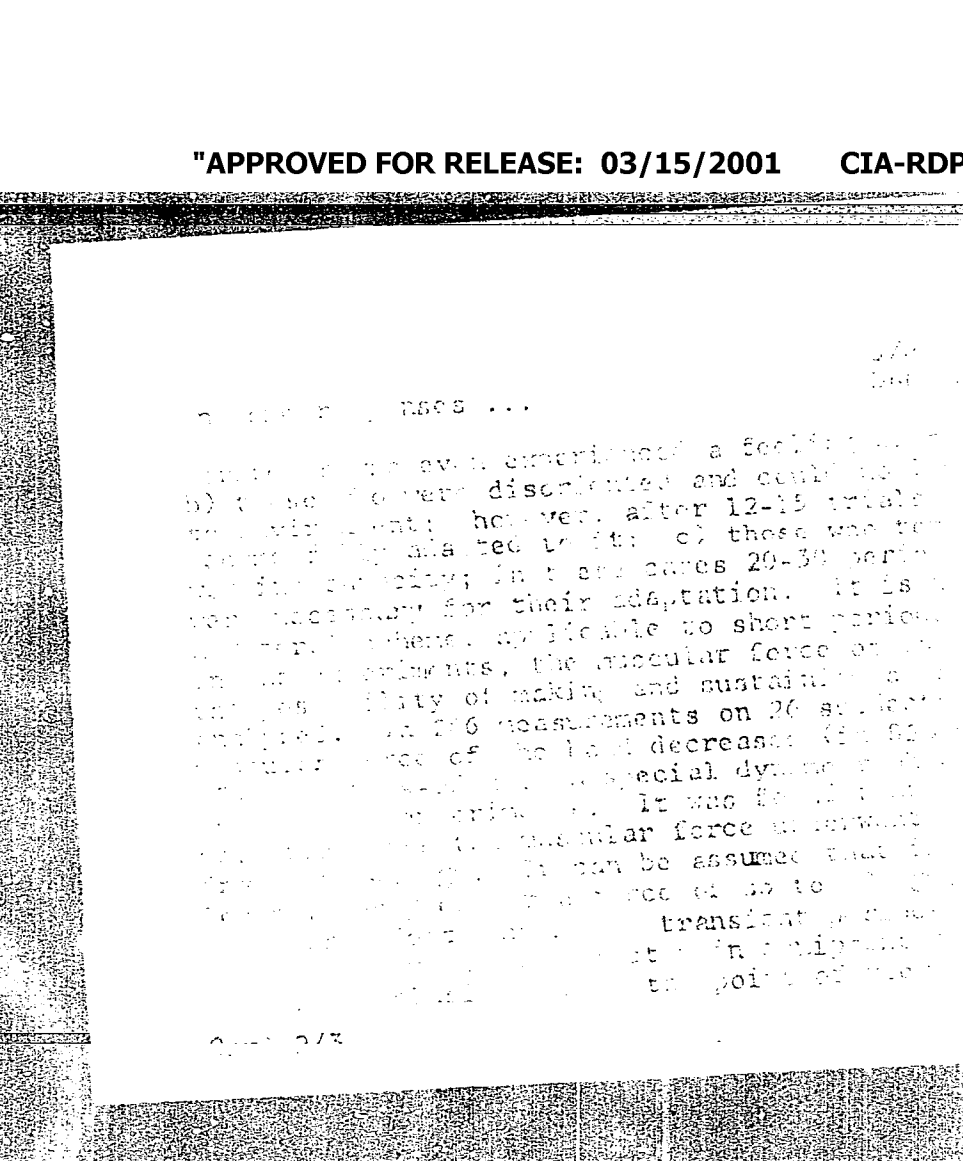
[illegible] The effect of prolonged [illegible] animals

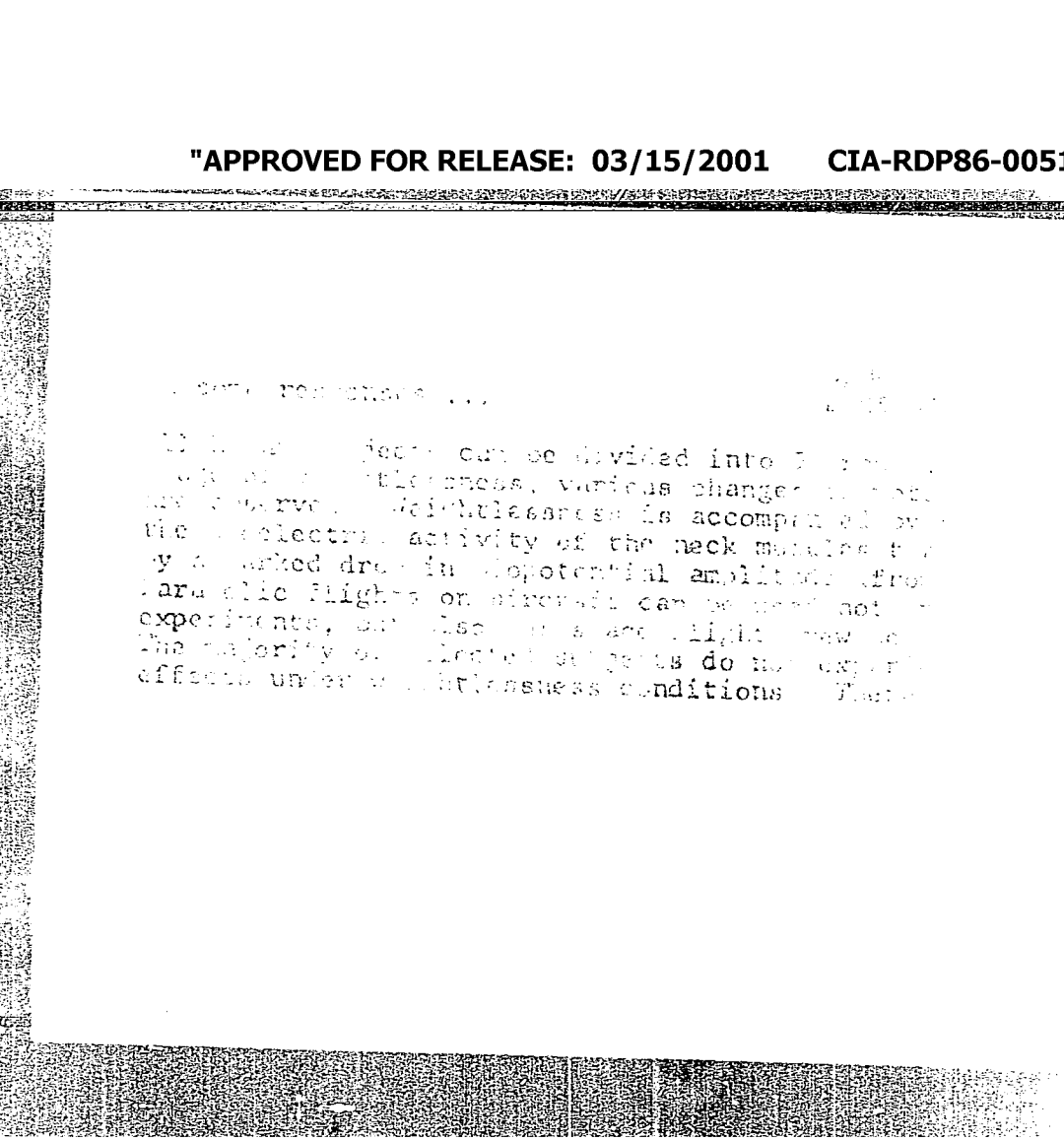
[illegible] ...Problemy kosmicheskoy bi[illegible] ...Sisakyan. Moscow, Izd-[illegible]

[illegible] ...teen dogs were subjected [illegible] ...tion of the chest to the sp[illegible] [illegible] ...inutes, and [illegible] runs were [illegible] [illegible] ...diogram, respiration and [illegible] [illegible] ...ring acceleration [illegible] [illegible] ...ostly remained [illegible] with a rise in blood pressure [illegible] 50 - [illegible] [illegible] value, and a 1.5 to 3-fold rise in [illegible] [illegible] returned to normal levels [illegible] [illegible] ...tion. The experimental [illegible] [illegible] ...als showed no deviations [illegible] [illegible] ...igation. There are 4 figures.

[illegible]







S/867
/405/

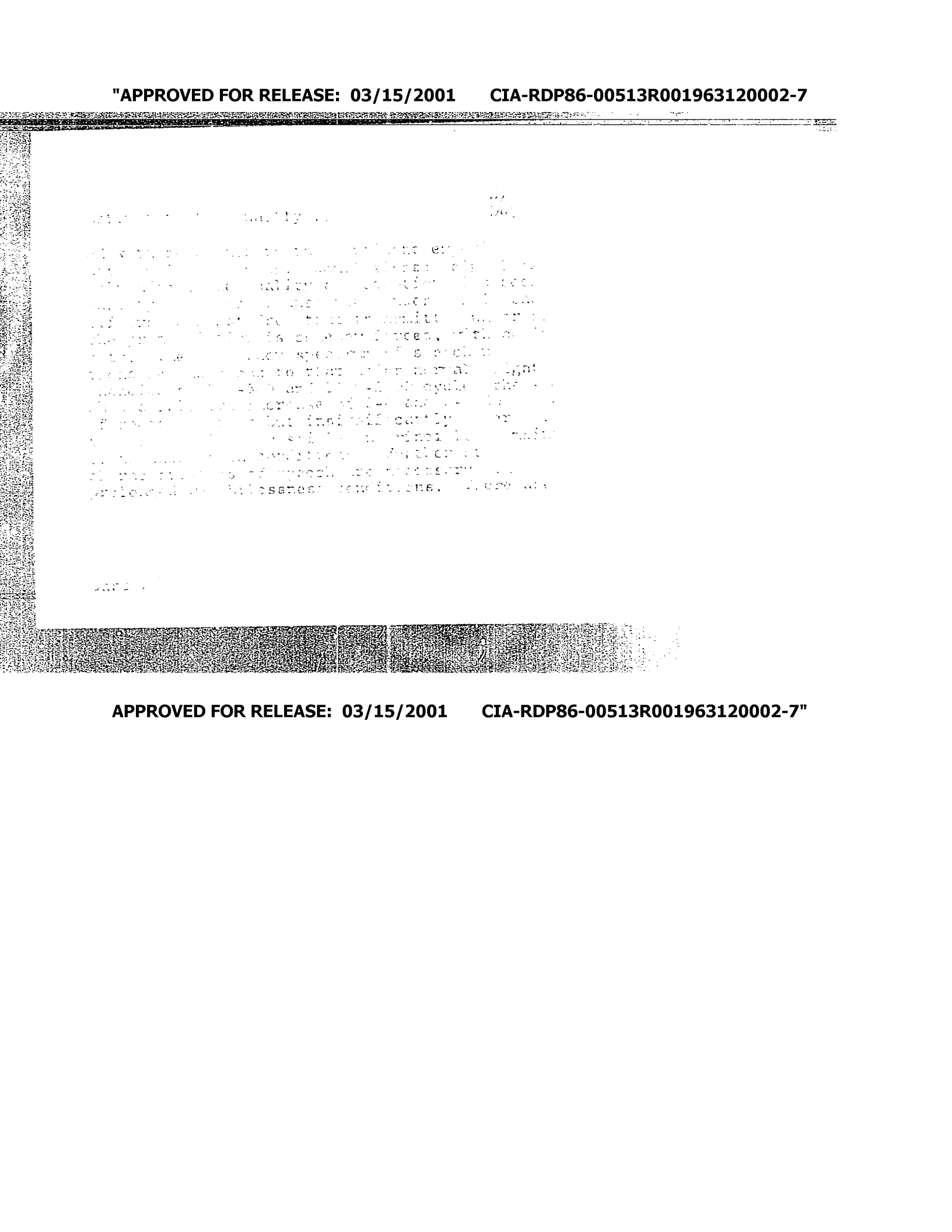
AUTHORS: Borshchevskiy, I.Ya., Belyakov, ... Kuznetsov, V.S. and Yuganov, Ye.

TITLE: Estimating the quality of speech ... mission under weightlessness co...

SOURCE: Problemy kosmicheskoy biologii, ... kyan and V. Yazdovskiy. Moscow, ... 215-217

TEXT: The investigations were conducted ... weightlessness ranging from 30 to 40 seconds on ... parabolic course. Four pilots participated in ... speech recordings were made during 25 flights. ... and ... stations were used. A tape-record... the output of the ground station receiver ... cycle ... reception and transmission. ... speech was determined from a standard sentence ... sequent for ... analysis. The ...

Card ...



27 2500

39457
S/216/62/000/003/002/002
1021/1221

AUTHOR: Yuganov, Ye. M., Isakov, P. K., Kaziyan, I. I., Afanasiev, D. V. and Pavlov, G. I.

TITLE: Motor activity of intact animals under conditions of artificial gravity

PERIODICAL: Akademiya nauk SSSR. Isvestiya. Seriya Biologicheskaya, no. 3,1962, 455–460

TEXT: The minimal effective value of artificial gravity necessary to maintain the body posture and coordination of movements of mice and rats under conditions of weightlessness as in the parabolic flight of an aeroplane was determined. Artificial gravity was created in a small size contrifuge which produced radial accelerations varying from 0.05 tp 1.0 g. Accelerations of 0.28 to 0.3 g were sufficient for prophylaxis of the unfavourable effect of weightlessness upon the motor reactions of the animals. There are 2 figures and 1 table. English-language references are: Beckh H. J. 1959. Flight experiments about human reactions to accelerations which are followed or preceeded by weightlessness. Aerospace medicine, 30, 6, 391–409; Graveline D. E. Balke B., McKensie R., Hartmann B. 1961. Psychobiologic effects of water immersion induced hypodynamics. Aerospace medicine, 32, 5.

ASSOCIATION: Institut normaloni i putologicheskoi fiziologii AMN SSSR (Institute of Normal and Pathological Physiology, AMS USSR) Moscow

SUBMITTED: February 6, 1962

Card 1/1

ACCESSION NR: AT4042720 S/0000/63/000/000/0504/0507

AUTHOR: Yuganov, Ye. M.; Markaryan, S. S.; Bryanov, I. I.; Sidel'nikov, I. A.; Vartbaronov, R. A.

TITLE: Methods of vestibular testing

SOURCE: Konferentsiya po aviatsionnoy i kosmicheskoy meditsine, 1963. Aviatsionnaya i kosmicheskaya meditsina (Aviation and space medicine); materialy° konferentsii. Moscow, 1963, 504-507

TOPIC TAGS: Coriolis acceleration, vestibular analyzer, angular acceleration, linear acceleration, disorientation, spatial orientation, vestibular mechanism, vegetative reaction/Barani chair

ABSTRACT: The angular, Coriolis, and linear accelerations to which aircraft pilots and cosmonauts are subjected effect the vestibular analyzer. This gives rise to two types of vestibular reactions. The first is an illusory one, which can lead to disorientation in space, and the second can cause vestibular-vegetative reactions which bring about a deterioration of general well-being. This

Card 1/5

means that methods of vestibular selection must be sufficiently reliable to be able to predict the appearance of these vestibular reactions in flight. The selection methods developed by us are based on the interaction of reflexes between afferent systems. The method of determining the threshold of sensitivity of the vestibular mechanism to the illusion of banking is performed on a special chair with unstable supports. The subject sits on this chair with his eyes closed while one of his vestibular mechanisms is stimulated by a 10-cps current for periods of 3 and 10 sec. If the subject fails to incline his body, the current is gradually increased (but not to exceed 3 mamp) until the desired inclination of the body in the direction opposite to the stimulated labyrinth is obtained. A second type of experiment is performed under similar conditions but with the eyes open and fixed on a small lighted bulb placed 60 cm away along the center line on the level of the eyes. The amount of current required to induce a sensation of banking in the direction of the stimulated labyrinth is measured. The difference between the amount of current required to produce this with the eyes closed and the amount required to produce the same sensation with the eyes open represents the magnitude of the inhibiting effect of the visual analyzer on the vestibular analyzer. The degree of motor reaction which accompanies the illusion is recorded on an oscil-

ACCESSION NR: AT4042720

lograph. Sensitivity to illusions of inclination is characterized by the amount of the current during the combined action of the stimulator for a 10-sec period. On the average it varies between 1.5 and 2.5 mamp. A current of less than 1.5 mamp indicates an increased sensitivity to illusions of banking in flight. In order to test the ability of the motor analyzer to exert an inhibiting effect on vestibular reactions, the subject, with his eyes closed, is rotated clockwise (10 turns in 20 sec), and three minutes later he is rotated for a similar period counter-clockwise. After each period of rotation, the chair is brought into an unstable position. Persons who are likely to lose their sense of orientation in flight experience a pronounced sensation of counter-rotation, lose their sense of balance for a period of thirty or more seconds, accompanied by complete spatial disorientation and the appearance of vestibular reactions for 10 to 15 sec. This method of evaluation of the tendency of pilots to lose their sense of spatial orientation has proved to be 80% effective, as compared with older methods which were only 25% effective. The degree to which vegetative reactions appear, due to the effects of intermittent Coriolis accelerations on the vestibular analyzer, is determined by tests on a Barani chair, which is rotated at the rate of 180° per sec for a period of 20 sec while the subject, with eyes closed, bends his head rhythmically to one side at the rate of 16 times per 20 sec. At the moment the chair stops

Card 3/5

the subject is requested to hold his head straight and to open his eyes. The subject is examined for signs of vegetative reactions (paleness, sweatiness, vomiting). If these signs are absent, a similar test is performed with rotation in the opposite direction. If signs of vegetative reactions do not appear, experiments are continued with variations. The subject is asked to bend his trunk forward 8 times in a 20-sec period instead of moving the head sidewise. The interval between rotations should not exceed one minute. If at any stage of this procedure paleness, sweatiness, or nausea appears, the subject should be considered unfit for flight school. A second test of tolerance to Coriolis accelerations is performed with the subject seated on a Barani chair which is rotated at the rate of 180° per sec while the subject moves his head forward and back through an arc of 35°. The time of onset of vegetative disorders is recorded. Persons with stable vestibular analyzers require 4 to 6 minutes before vegetative disorders appear. In persons with unstable vestibular analyzers, who are unfit for flight training, these symptoms arise after one or two minutes. A third method of testing tolerance to cumulative Coriolis accelerations is the so-called two-minute test. The subject, with eyes closed, is rotated on a Barani chair at the rate of 180° per sec for one minute. During this time he inclines his trunk forward and back every 5 sec on command. After 50 sec the experiment is performed with rotation in the opposite

ACCESSION NR: AT4042720

direction. Signs of vegetative reactions and subjective sensations are recorded. This test, performed on 200 subjects, has indicated that persons who can withstand the two-minute Coriolis test can withstand other forms of acceleration tolerance tests. It was found that these three methods of testing stability to Coriolis accelerations are capable of revealing hidden forms of vestibular-vegetative disruptions which cannot be determined by the standard tests.

ASSOCIATION: none

SUBMITTED: 27Sep63 ENCL: 00 SUB CODE:LS

NO REF SOV: 000 OTHER: 000

Card 5/5

VOLYNKIN, Yu.M.; GOZULOV, S.A.; GYURDZHIAN, A.A.; YEREMIN, A.V.; YUGANOV, Ye.M.

Some problems in current aviation medicine; a review of the literature. Voen. med. zhur. no. 2:61-66 '63. (MIRA 17:9)

YUGANOV, Ye.M.; KAS'YAN, I.I.; ASYAMOLOV, B.F.

Bioelectric activity of skeletal muscles under the conditions of alternating action of overloading and weightlessness. Izv. AN SSSR Ser. biol. 28 no.5:746-754 S-O'63 (MIRA 16:11)

1. Institute of Normal and Pathological Physiology, Academy of Medical Sciences of the U.S.S.R., Moscow.

*

ISAKOV, P. K.; YUGANOV, Ye. M.; KAS'YAN, I. I.

"The influence of gravitational force in organization of body functions and problems of cosmic flights."

report submitted for 15th Intl Astronautical Cong, Warsaw, 7-12 Sep 64.

ACCESSION NR: AT4037686 S/2865/64/003/000/0167/0175

AUTHOR: Yuganov, Ye. M.; Gorshkov, A. I.

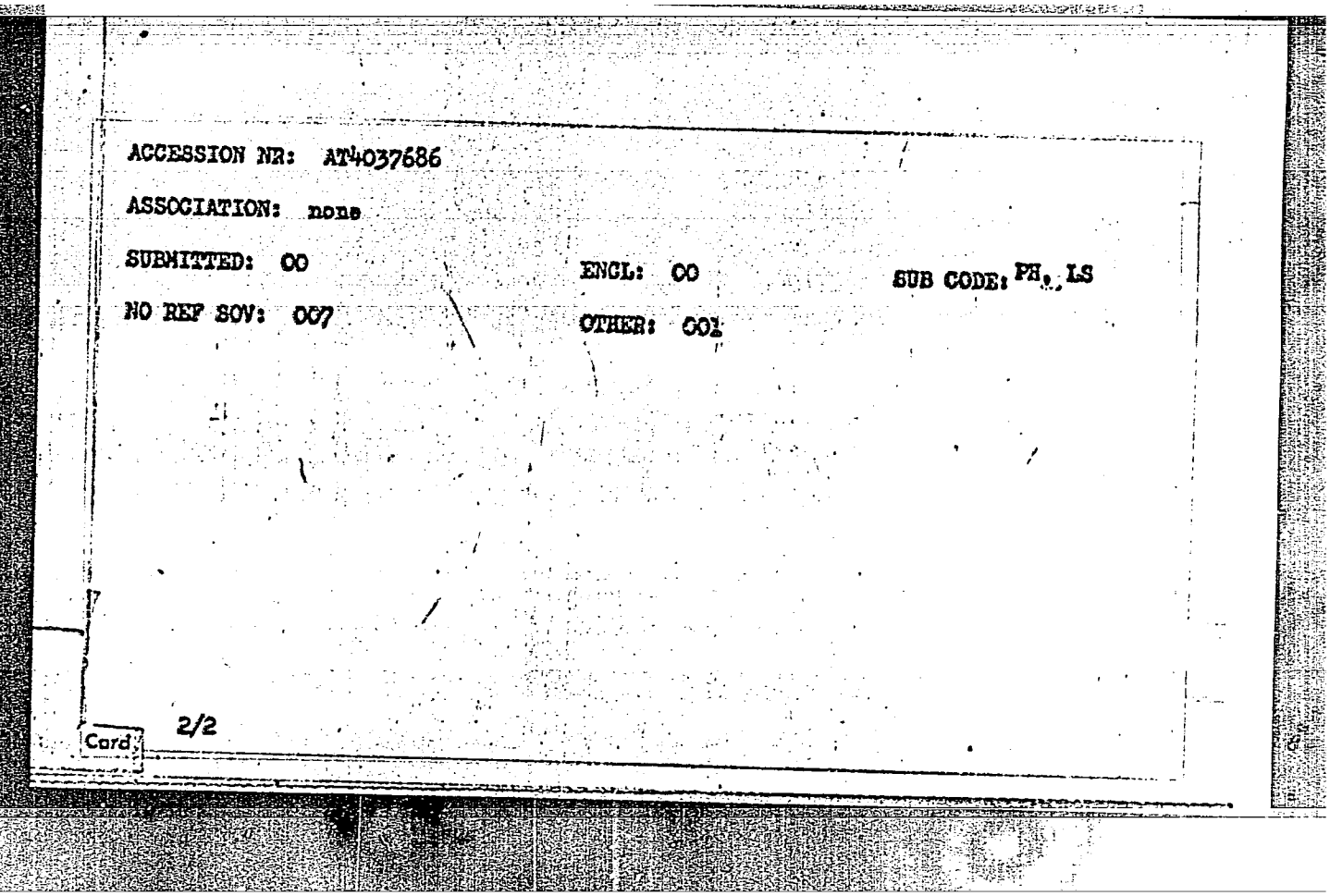
TITLE: Excitability of the vestibular apparatus in man during brief exposures to weightlessness

SOURCE: AN SSSR. Otdeleniye biologicheskikh nauk. Problemy* kosmicheskoy biologii, v. 3, 1964, 167-175

TOPIC TAGS: weightlessness, parabolic flight, Coriolis acceleration, manned space flight, vestibular apparatus, otolith

ABSTRACT: Volunteers were exposed to brief (20-30 sec) periods of weightlessness during parabolic flight in aircraft. In addition, the subjects were exposed to Coriolis accelerations while flying along parabolic trajectories or during ground tests. During brief periods of weightlessness the subjects' vestibular lability to angular accelerations, Coriolis accelerations, and galvanic current was lower than in controls. Weightlessness did not inhibit the otolithic function, although otolithic impulses were powerful inhibitors of the normal function of semicircular canals.

Card 1/2



ACCESSION NR: AT4037686

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00 SUB CODE: PH, LS

NO REF SOV: 007 OTHER: 002

Card 2/2

ACCESSION NR: AT4037687 S/2865/64/003/000/0176/0183

AUTHOR: Yuganov, Ye. M.; Afanas'yev, D. V. (Deceased)

TITLE: The vestibular analyzer and artificial weight of animals

SOURCE: AN SSSR. Otdeleniye biologicheskikh nauk. Problemy* kosmicheskoy biologii, v. 3, 1964, 176-183

TOPIC TAGS: rat, mouse, centrifuge, vestibular analyzer, labyrinth, weightlessness, motor reflex, acceleration

ABSTRACT: Experiments were performed on white rats and mice for the purpose of determining the minimum effective magnitude of artificial gravity required to maintain normal body posture and coordination of movements. The experiments were performed on normal intact animals as well as on animals that had had their labyrinths removed. Weightlessness was achieved by means of parabolic flights in aircraft and was 25-28 sec in duration. Artificial gravity was produced by means of a small centrifuge with a 900-mm arm which was set up in the cabin of the plane. Animals were subjected to accelerations which produced artificial

Card 1/2

ACCESSION NR: AT4037687

gravity ranging from 0.05 to 1.0g. The experiments established that a minimum acceleration of 0.3 g is required by intact animals for the maintenance of normal posture and coordination of movements. For animals without labyrinths an acceleration of 0.1 g is required for compensation of motor disturbances. The data obtained show clearly that the function of the vestibular analyzer in weightlessness hampers rather than assists the development and normalization of motor reflexes. Animals without labyrinths apparently develop a new system of interaction for the compensation of the loss of normal gravity.

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00 SUB CODE: PH, LS

NO REF SOV: 001 OTHER: 003

Card 2/2

ACCESSION NR: AP4037623 S/0216/64/000/003/0369/0375

AUTHOR: Yuganov, Ye. N.; Sidel'nikov, I. A.; Gorshkov, A. I.; Kas'yan, I. I.

TITLE: Sensitivity of the vestibular analyzer and sensory reactions of man during short-term weightlessness

SOURCE: AN SSSR. Izv. Seriya biologicheskaya, no. 3, 1964, 369-375

TOPIC TAGS: weightlessness, vestibular analyzer, parabolic flight, rotation, Coriolis acceleration, postrotational stability, nystagmus

ABSTRACT: Research on weightlessness has established that all persons may be classified into three groups on the basis of vestibular-sensory reactions. Group I consists of persons who can stand weightlessness without deterioration of general well-being or loss of work capacity. Group II consists of persons who suffer from illusory sensations concerning the orientation of their bodies in space. Group III consists of persons in whom adverse reactions appear rapidly and lead to the onset of motion sickness (nausea, vomiting, etc.), and

Card 1/3

ACCESSION NR: AP4037623

who become temporarily unable to work. A group of thirty subjects from all three categories, who had participated in parabolic flights, were subjected to a series of tests which involved rotation, rocking, Coriolis accelerations, inhibition of vestibular reactions, and post-rotational stability. The stability of the vestibular analyzer was judged on the basis of vegetative disturbances, duration of the post-rotational nystagmus, duration of illusions of counter-rotation, time required to regain balance on a chair with an unstable support, and duration of the "banking" illusion during the test involving inhibition of vestibular reactions. Results of these experiments show that the degree of sensory reactions under conditions of short-term weightlessness depends basically on variations in vestibular sensitivity of persons subjected to this test. Results obtained with ground experiments indicate that the ability of man to retain his work capacity in conditions of short-term weightlessness can be predicted on the basis of ground experiments. Ground tests show that persons in Group I are characterized by a low sensitivity of the vestibular analyzer to adequate stimulation and a sufficiently high level of inhibitory action on the vestibular analyzer by other afferent systems.

Card 2/3

ACCESSION NR: AP4037623

Group II persons manifest spatial illusions, an increased sensitivity of the vestibular analyzer to adequate stimuli, and a fairly pronounced inhibitory effect on the vestibular analyzer by other analyzer systems. Persons from Group III are characterized by high sensitivity of the vestibular apparatus to adequate stimulation and a weak inhibitory effect of other afferent systems on the vestibular apparatus. Orig. art. has: 1 table.

ASSOCIATION: none

SUBMITTED: 16May63 DATE ACQ: 05Jun64 ENCL: 00

SUB CODE: PH, LS NO REF SOV: 004 OTHER: 003

Card 3/3

GAZENKO, O.G.; KAS'YAN, I.I.; KOTOVSKAYA, A.R.; YUGANOV, Ye.M.; YAZDOVSKIY, V.I.

Physiological reactions of animals during their flight in the third, fourth and fifth spaceships. Izv. AN SSSR. Ser.biol. no.4:497-511 JJ-Ag '64. (MIRA 17:10)

AUTHOR: Isakov, P. K.; Yugunov, Ye. ...; Kas'yan, I. I.

...LE: The influence of gravity in determining ...
rganism

SOURCE: AN SSSR. Izvestiya. Seriya biolog...
...13-916

TOPIC TAGS: changed gravity, weightlessness, ... logical effect, venous pressure, gas exchange ...

...STRACT: An attempt is made to establish ... effects of weightlessness and acceleration ... that both phenomena can be regarded as ... intensity of the gravitational field, ... concerning their effect on bioelectrical ... muscles, venous pressure, and on the ... that this issue has been clouded by the ... the short-term weightlessness of parabolic ... ent periods were inadequate. It is shown ...

Card 1/...

L 16027-6
ACCESSION NR: AP4048650

to 5G results in a proportional increase in ... in the skeletal muscles, while weightlessness ... in their amplitude and often results in ... porting evidence is obtained by measuring the ... right ventricle of the heart, which rises b... transverse acceleration of 3G and drops by ... below the initial level) when weightlessness ... tory data on bioelectric activity and venous ... studies of gas-exchange levels existing dur... lessness. The gas-exchange rate rises during ... because of the increase in muscle tone required ... under these conditions; this also appl... In successive experiments, however, these ... since the stabilization level is below real ... this stabilization level, it is necess... that ... the weightlessness be considerably increas... should not exceed 2G. It is concluded that ... the effects of changed gravitational inter... the change in body weight which takes place ... art. has: 2 tables.

Card 2/3

ACCESSION NR: AP4048056

ASSOCIATION: none

SUBMITTED: 25Jun64 ENCL: 00

NO REF SOV: 006 OTHER: 001

Card 1/2

ISAKOV, P.K.; YUGANOV, Ye.M.; KAS'YAN, I.I.

A theory of weightlessness is needed. Av. i kosm. 47 no.11:31-33 N '64. (MIRA 17:11)

VOLYNKIN, Yu.M.; ARUTYUNOV, G.A.; ANTIPOV, V.V.; ALTUKHOV, G.V.; BAYKOVSKIY, R.M.; BELAY, V.Ye.; BUYANOV, P.V.; BRYANOV, I.I.; VASIL'YEV, P.V.; VOLOVICH, V.G.; GAGARIN, Yu.A.; GENIN, A.M.; GORBOV, F.D.; GORSHKOV, A.I.; GUROVSKIY, N.N.; YESHANOV, N.Kh.; YEGOROV, A.D.; KARPOV, Ye.A.; KOVALEV, V.V.; KOLOSOV, T.A.; KORESHKOV, A.A.; KAS'YAN, I.I.; KOTOVSKAYA, A.R.; KALIBERDIN, G.V.; KOPANEV, V.I.; KUZ'MINOV, A.P.; KAKURIN, L.I ; KUDROVA, R.V.; LEBEDEV, V.I.; LEBEDEV, A.A.; LOBZIN, P.P.; MAKSIMOV, D.G.; MYASNIKOV, V.I.; MALYSHKIN, Ye.G.; NEUMYVAKIN, I.P.; ONISHCHENKO, V.F.; POPOV, I.G.; PORUCHIKOV, Ye.P.; SIL'VESTROV, M.M.; SERYAPIN, A.D.; SAKSONOV, P.P.; TERENT'YEV, V.G.; USHAKOV, A.S.; UDALOV, Yu.F.; FOMIN, V.S.; FOMIN, A.G.; KHLEBNIKOV, G.F.; YUGANOV, Ye.M.; YAZDOVSKIY, V.I.; KRICHAGIN, V.I.; AKULINICHEV, I.T.; SAVINICH, F.K.; SIMPURA, S.F.; VOSKRESENSKIY, O.G.; GAZENKO, O.G., SISAKYAN, N.M., akademik, red.

[Second group space flight and some results of the Soviet astronauts' flights on "Vostok" ships; scientific results of medical and biological research conducted during the second group space flight] Vtoroi gruppovoi kosmicheskii polet i nekotorye itogi poletov sovetskikh kosmonavtov na korabliakh "Vostok"; nauchnye rezul'taty medikobiologicheskikh issledovanii, provedennykh vo vremia vtorogo gruppovogo kosmicheskogo poleta. Moskva, Nauka, 1965. 277 p. (MIRA 18:6)

[redacted], Ye.M.

YUGANOV, Ye.M.; GORSHKOV, A.I.; KAS'YAN, I.I.; BRYANOV, I.I.; KOLOSOV, I.A.; KOPANEV, V.I.; LEBEDEV, V.I.; POPOV, N.I.; SOLODOVNIK, F.A.

Vestibular reactions of astronauts during the "Voskhod" spaceship flight. Izv. AN SSSR. Ser. biol. no.6:877-883 N-D '65. (MIRA 18:11)

L 14269-66 FSS-2/EWT(1)/FS(v)-3 DD/RD
ACC NR: AT6003840 SOURCE

AUTHOR: Yuganov, Ye. M.

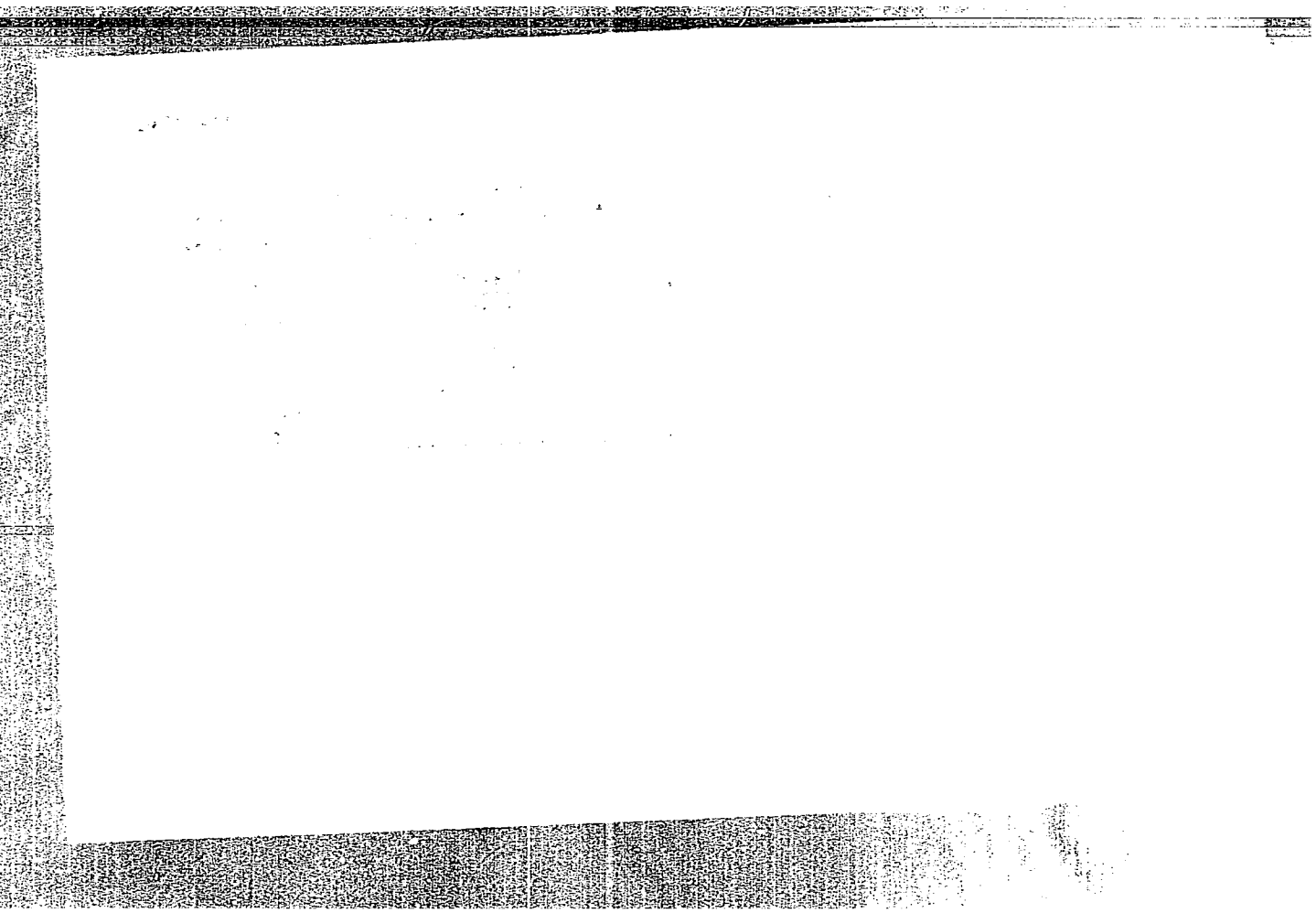
ORG: none

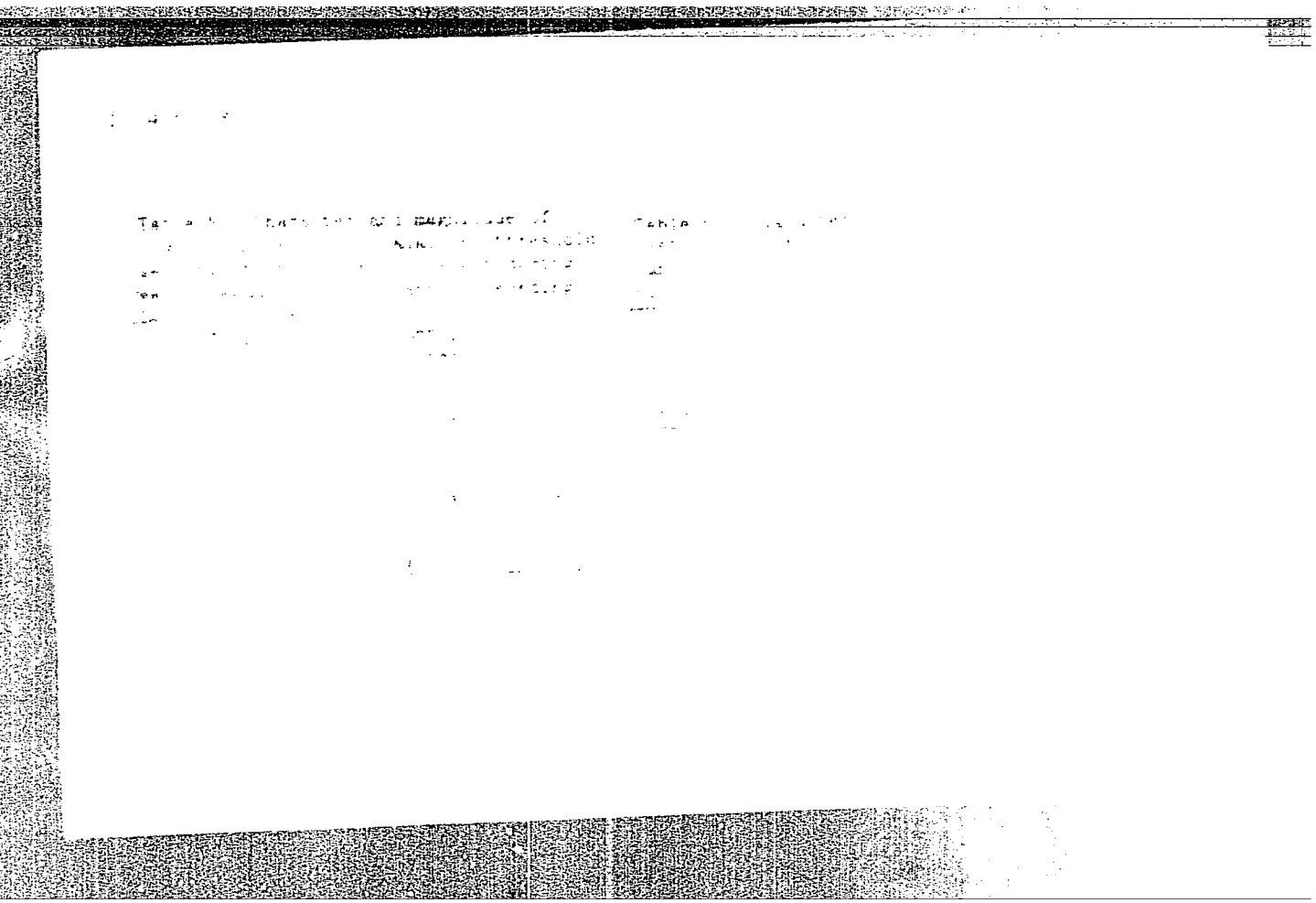
TITLE: The problem of functional character... and sacular portions of the vestibular appar... gravity

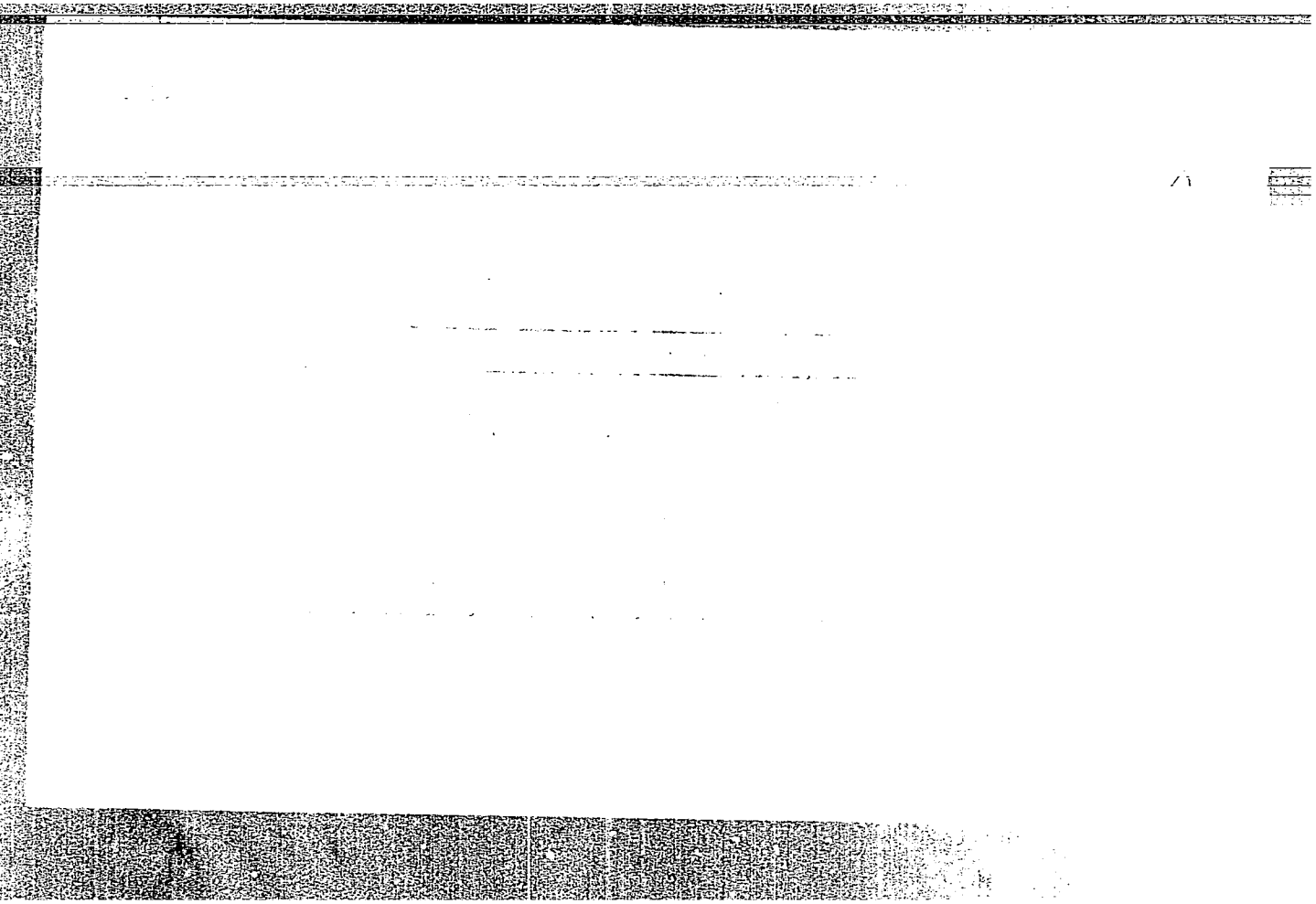
SOURCE: AN SSSR. Otdeleniye biologicheskikh nauk. ... t. ..., v. 4, 1965, 54-69

... weightlessness, ... human sense, autonomic nervous system, ... capsule

ABSTRACT: Investigations conducted during ... flights have shown that even upon brief ... sory and autonomic disruptions emanating fr... occur. Based on this observation, investig... creasing gravity loads and weightlessness ... weightlessness acts as a unique stim...







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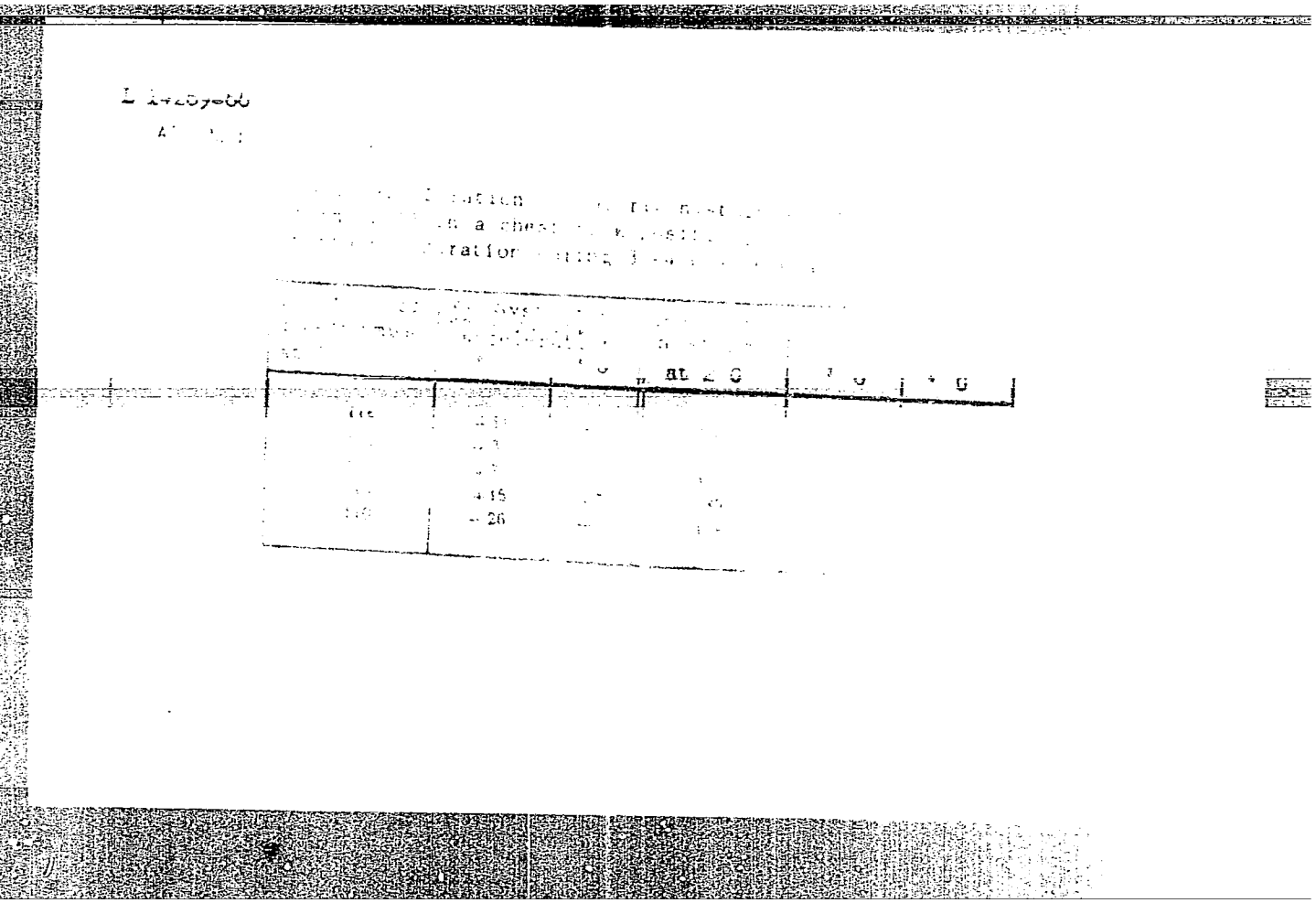

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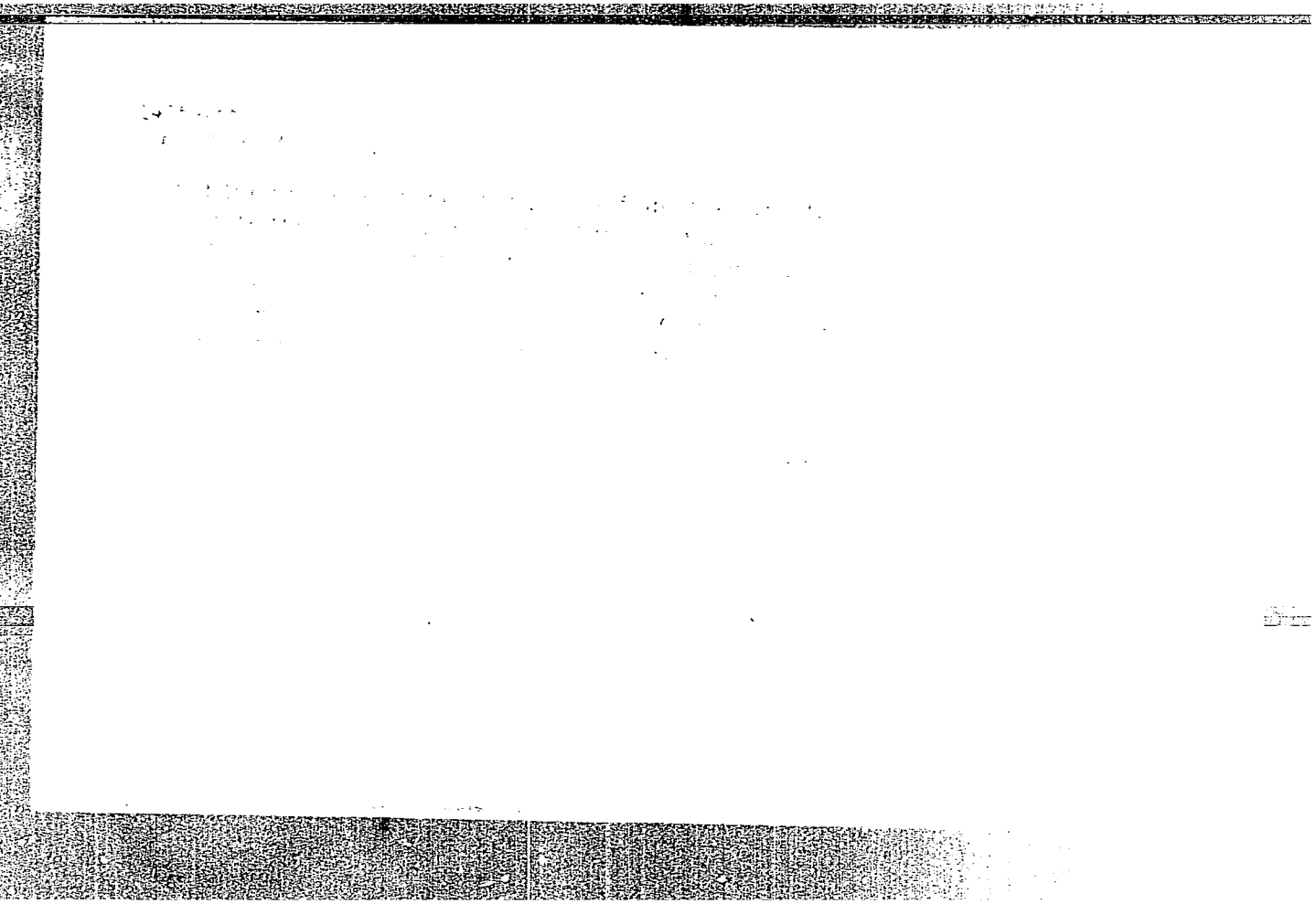

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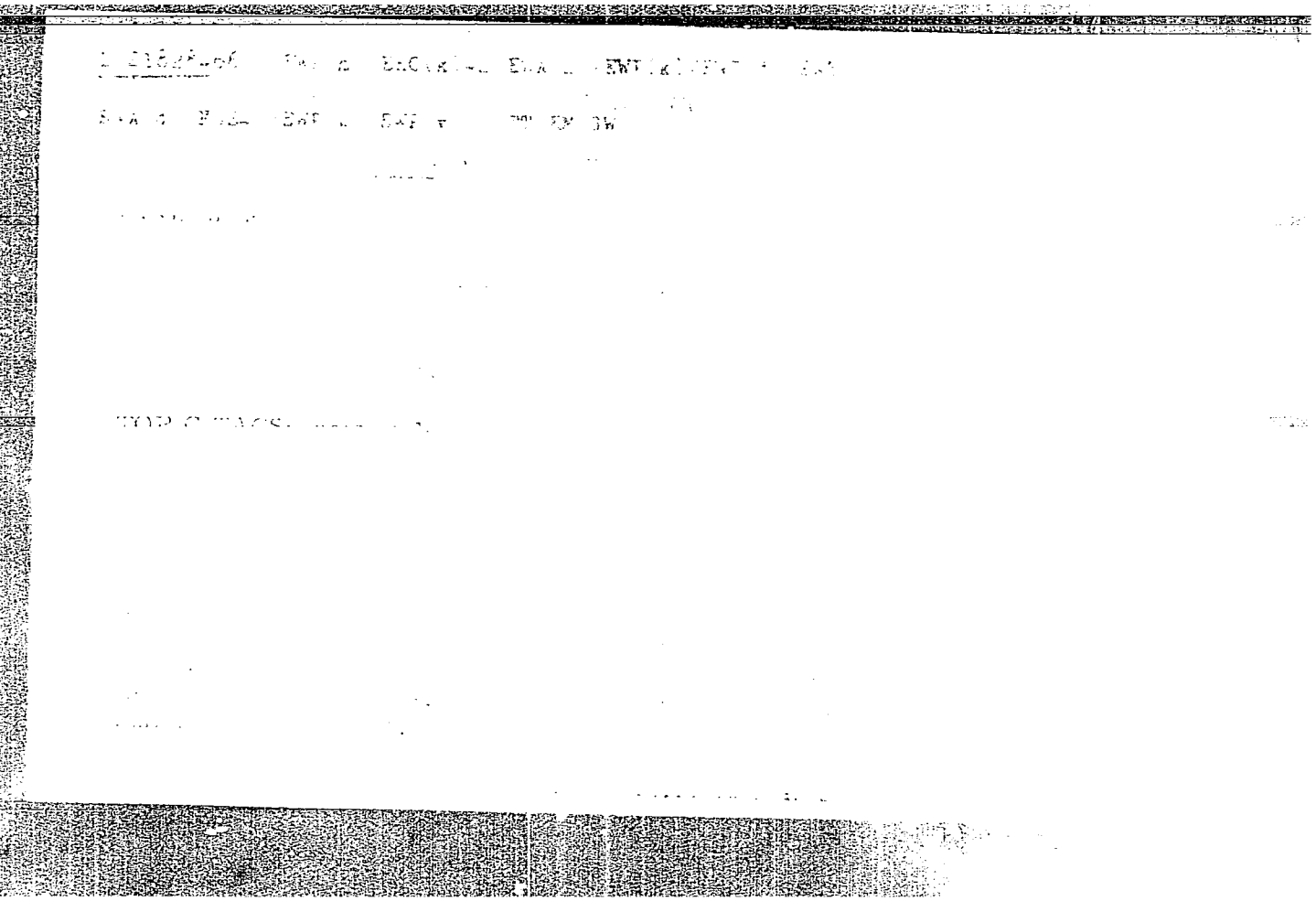

L 21828-66

Card 2/2 nst

L 46737-66 EWT(1) SCTB DD

ACC NR: AP6031940 SOURCE CODE: UR/0177/66/000/009/0059/0062

36
B

AUTHOR: Markaryan, S. S. (Lieutenant colonel; Medical corps; Candidate of medical sciences); Yuganov, Ye. M. (Colonel; Medical corps; Candidate of medical sciences); Sidel'nikov, I. A. (Major; Medical corps)

ORG: none

TITLE: Vestibular selection using a method of continuous Coriolis acceleration cumulation

SOURCE: Voyenno-meditsinskiy zhurnal, no. 9, 1966, 59-62

TOPIC TAGS: vestibular analyzer, vestibular training, vestibular function, cosmonaut selection, space physiology, CORIOLIS FORCE, VESTIBULAR DISTURBANCE

ABSTRACT: The article contains data characterizing the effectiveness of the selection method based on continuous cumulation of Coriolis accelerations. The value of this method is that it is well controlled. Experiments were conducted on pilots. Vestibular reaction was based on illusions of rocking, hot flashes, a tendency to perspire, paleness, and nausea. Pulse rate and the temperature of the head and hands were also monitored. Results showed that vestibular-sensory and autonomic reactions during cumulation of Coriolis accelerations developed progressively, beginning with a rocking sensation, and ending in nausea, sometimes with vomiting. Nausea developed within two minutes for people with fourth (least)-degree vestibular tolerance during Coriolis cumulation in a head-tilted-forward position; in those with third-degree

Card 1/2 UDC: 612.886:629.13

L 46737-66

ACC NR: AP6031940

vestibular tolerance, nausea developed within 2—5 min; for second-degree tolerance, within 5—10 min; for first-degree tolerance, within 10—15 min, and for the maximum-tolerance group, within 15—20 min. With the head tilted forward, nausea occurs 1—4 min later than with the head tilted to the side. The experiments showed that th the higher the tolerance, the later the symptoms developed. Pulse rate was insignificantly affected. In those with normal vestibular tolerance, recovery took place within 5—20 min after the experiments. In those with a low (fourth-degree) vestibular tolerance, recovery took place after 40—60 min. The results of the vestibular tolerance tests showed the percentages of those who developed sickness — on Khilov's swing, 4.9%; in ten repetitions of Voyachek's otolithic tests, 9.8%; during continuous cumulation of Coriolis accelerations within two minutes, 12.6%. It was concluded that the method of continuous cumulation of Coriolis acceleration can reveal latent forms of vestibular tolerance better than other methods. Thus, the continuous cumulation of Coriolis accelerations is the most effective method for studying vestibular tolerance and selecting flight candidates. Orig. art. has: 1 figure. [SC]

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TITLE: Material for the physiological and hygienic establishment of permissible levels of noise pulses (acoustic shock waves) [Paper presented at the Conference on Problems of Space Medicine held in Moscow from 24-27 May 1966]

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TOPIC TAGS: acoustic biologic effect, sonic boom, electroencephalography, psychophysiology, blood chemistry, endocrinology

ABSTRACT:

Supersonic aviation has added acoustic shock (the impact of pulsed noise, commonly called a sonic boom) to the range of noise effects. Physiological and hygienic norms for the intensity of acoustic shock must be established for future use in civil aviation. Foreign literature devoted to the effect of acoustic shock on man emphasizes its psychoacoustic effect. In these studies the effect of acoustic shock on human physiological functions was also studied. The function of auditory, vestibular, and motor analyzers

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was investigated, together with cardiovascular activity, mental working capacity, electrocutaneous resistance, and hormone and carbohydrate metabolism. EEG's and EKG's were also recorded.

Two series of experiments were conducted with human subjects: in the first the effect of a single acoustic shock with an intensity of 2.5, 5.0, or 7.5 kg/m^2 was studied, and in the second the cumulative effect of acoustic shock was investigated for 5 days.

Experimental results showed no reliable physiological changes under the influence of a single acoustic shock with an intensity of 2--2.5 kg/m^2. However, an acoustic shock of 5--5.5 kg/m^2 causes shortening of the R--R$_1$ interval of an EKG and decrease in the speed of arithmetical calculation. After single acoustic shocks of 7--7.5 kg/m^2, a moderate and brief disruption of the quality and speed of arithmetical calculation was noted. In addition, desynchronization of the alpha-rhythm and decrease in its amplitude were observed, as well as quickening of the pulse. Repeated and cumulative effects of acoustic shocks in the 7--7.5 kg/m^2 intensity range pro-

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duced changes [not described] in mental working capacity, EEG, EKG, and in the function of the auditory, vestibular and motor analyzers. However, there were no major discrepancies in humoral and endocrine function. Repeated acoustic shocks with an intensity of 9--9.5 kg/m^2 caused unfavorable psychoacoustic reactions, accompanied by shuddering and fright. Subjects complained of headaches, noise, and a full and stuffy feeling in the ears. Otoscopic examination showed small hemorrhages in tympanal epithelium. At the same time, the corticosteroid level in the blood increased reliably, indicating activitation of the pituitary-adrenal system. Changes in other physiological functions conformed to the pattern described above. The cumulative effect of acoustic shocks of 9.5 kg/m^2 is demonstrated by the relative degree of physiological change produced under these conditions and by the unfavorable psychoacoustic reactions. [H.A. No. 22; ATD Report 66-116]

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