ACCESSION NR: AT4042721

had no difficulty in working in a weightless state. Both felt that weightlessness presents no barrier in carrying out assigned flight tasks.

ASSOCIATION: none

SUBMITTED: 27Sep63 ENCL: 00 SUB CODE: LS

NO REF SOV: 000 OTHER: 000

Card 3/3

VOLYNKIN, Yu.M.; YAZDOVSKIY, V.I., prof.; GENIN, A.M.; GAZENKO, O.G.; GUROVSKIY, N.N.; YEMEL'YANOV, M.D.; MIKHAYLOVSKIY, G.P.; GORBOV, F.D.; SERYAPIN, A.D.; BAYEVSKIY, R.M.; ALTUKHOV, G.V.; KOPANEV, V.I.; KAS'YAN, I.I.; MYASNIKOV, V.I.; TERENT'YEV, V.G.; BRYANOV, I.I.; FEDOROV, Ye.A.; FOMIN, V.S.; ARUTYUNOV, G.A.; ANTIPOV, V.V.; KOTOVSKAYA, A.R.; KAKURIN, L.I.; TSELIKIN, Ye.Ye.; USHAKOV, A.S.; VOLOVICH, V.G.; SAKSONOV, P.P.; YEGOROV, A.D.; NEUMYVAKIN, I.P.; TALAPIN, V.F.; SISAKYAN, N.M., akademik, red.; KOLPAKOVA, Ye.A., red.izd-va; ASTAF'YEVA, G.A., tekhn.red.

[First group space flight; scientific results of medical and biological studies carried out during the group orbital flight of manned satellites "Vostok-3" and "Vostok-4] Pervyi gruppovoi kosmicheskii polet; nauchnye rezul'taty mediko-biologicheskikh issledovanii, provedennykh vo vremia gruppovogo orbital'nogo poleta korablei-sputnikov "Vostok-3" i "Voskot-4." Moskva, Izd-vo "Nauka," 1964. 153 p. (MIRA 17:3)

ACCESSION NR: AT4037693 S/2865/64/003/000/0226/0234

AUTHOR: Kakurin, L. I.; Tokarev, Yu. N.

TITLE: The problem of experimentally investigating the work capacity of cosmonauts as applicable to space flight tasks

SOURCE: AN SSSR. Otdeleniye biologicheskikh nauk. Problemy* kosmicheskoy biologii, v. 3, 1964, 226-234

TOPIC TAGS: Vostok, acoustics, manned space flight, simulation, cosmonaut, work capacity, crew structure

ABSTRACT: Ground experiments were conducted to determine the work capacity of cosmonauts under space-flight conditions and to arrange optimum task structuring for space crews. A mockup of the Vostok-type ships was used to simulate space-flight conditions as closely as possible. The specific objectives of the studies were 1) to work out the various tasks making up the flight program, 2) to evaluate work-rest schedules, and 3) to study the effect of sealed environment and prolonged wearing of special garb on work capacity. The subjects were healthy males trained to the peak of physical fitness who had previously taken part in similar

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experiments. Dressed in special clothing, each subject sat in a couch with his back nearly horizontal. In this position he worked, took food, and rested. Once a day he could move freely about the cabin for 40 min. The experiment lasted 3 days. A chemical air regeneration system was used. The behavior and condition of the subjects were continuously observed and physiological indices were recorded every 3 hr. Besides the physiological data, an important source of information was the subject's own evaluation of his feelings. These reports, made by radio and recorded in the logbook, were regarded as very important. Work capacity was evaluated not only by exact conformity to the timetable of the experimental program but also by the quality of the performance of set tasks of various kinds. Supplementary evaluation of work capacity was based on the following tests:
1) Analysis of telegraph transmissions. Morse code transmissions by the subjects were recorded and analyzed. This test was scored on the basis of the time required for transmission (i.e., sending speed) and the number of errors. The best scores were made on the second day, except for one subject who made his high score at the end of the first day. Sending speed was best on the second day then gradually decreased, apparently owing to fatigue. Error analysis confirms this: related symbols accounted for most of the errors at the beginning of the experiment, but toward the end dissimilar signals were confused in most cases. It is significant

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that most of the latter errors went unnoticed by the subjects. 2) Analysis of psychological and physiological tests. The subjects were required to name geometrical figures in order as they appeared on a special chart, over a microphone. The time required to read off 150 figures and the errors made were used for scoring. Another test was Krepelin's arithmetical calculation test. These tests confirm the existence of a daily efficiency cycle. In the majority of cases, work was performed more effectively in the morning hours than in the evening hours. 3) Analysis of radio reports and logbook entries. Six times a day the subjects reported medical control data, hygienic parameters of the cabin, instrument readings, and details of the operation of the life support systems. These reports were recorded on magnetic tape and then analyzed. The Morse code test is considered the most adequate of these test methods because it requires the greatest degree of coordination of neuromuscular activity with the sense organs. These investigations showed that the experimental program under evaluation simulates actual flight tasks as closely as possible, is fully within the physical capabilities of man, and may in principle be recommended for use during space flight. Since radio communication between earth and spacecraft is of the greatest importance, other experiments were conducted on auditory adaptation to background noise. Subjects were exposed to continuous noise from ventilator fans for 25 to 30 days and their auditory thresh-

VOLYNKIN, Yu.M.; ARUTYUNOV, G.A.; ANTIPOV, V.V.; ALTUKHOV, G.V.; BAYEVSKIY, 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, V.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)

L 19273-66 EWT(1)/FS(v)-3 SCTB DD/RD

ACC NR: AM6003837 SOURCE CODE: UR/2865/65/004/000/0027/0030

AUTHOR: Georgiyevskiy, V. S.; Kalgurin, L. I.; Kalinina, A. M.; Katkovskiy, B. S.; Kustov, V. V.; Mikhaylov, V. I.; Filipyuk, Z. I.; Tokarev, Yu. N.

ORG: none

TITLE: Effects of eight-hour isolation and hypokinesia on several physiological and biochemical indices in man

SOURCE: AN SSSR. Otdeleniye biologicheskikh nauk. Problemy kosmicheskoy biologii, v. 4, 1965, 27-30

TOPIC TAGS: isolation test, hypokinesia, test chamber, respiration, human physiology, biochemistry, man, EKG, blood pressure, blood circulation, physiologic parameter

ABSTRACT: A study was performed in order to determine the effects of short-term isolation and hypokinesia on the basic physiological and biochemical indices of man. Ten young men, 21—24 years of age, were kept for 8 hours in a sitting position in a hermetically sealed chamber with forced ventilation of atmospheric air. The oxygen content was 20—21%, and the CO_2 content was 0.01—0.03%. The temperature varied between 20—22° C and the relative humidy between 50—60%. The parameters measured included the

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L 14272-66
ACC NR: AT6003837

standard EKG, pulse frequency, arterial blood pressure, stroke and minute volumes of blood circulation, peripheral resistance, and the cardiac index. In addition, the frequency, depth, and per minute volume of respiration were measured, along with oxygen consumption, the coefficient of oxygen utilization, the amount of oxygen consumed from 1 liter of air, the vital capacity of the lungs, and certain other indices.

After 8 hours of isolation and hypokinesia, the majority of the subjects showed a diminution in pulse frequency (16%), an insignificant increase in stroke volume (11%), a diminution in per minute volume, and an increase in peripheral circulatory resistance (23%). Except for a slight tendency to bradycardia, the EKG did not show any deviations. Although changes in the respiratory functions were varied, they did not exceed limits of normal physiological-variation, except for a tendency toward retardation of forced exhalation of air of about 0.5 sec. After physical exercise, oxygen debt in most of the subjects was cancelled somewhat sooner, while ventilation debt was cancelled more slowly. Energy expenditures required by physical exercise dropped after the experiment at the expense of a diminution in oxygen debt. The number of errors in psychological (intelligence) tests

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ACC NR: AM6003837

tended to increase toward the end of the experiment, indicating a certain degree of inertia in nervous processes. The amount of carboxyhemoglobin in the blood diminished from 1.48 ± 0.48 to 0.51 ± 0.26 after the experiment and, the catalyzing activity of the blood increased. Both of these changes were statistically significant. The cholinesterase activity of the blood serum diminished by 8.8%. No significant changes were noted in the urea content of the blood. At the same time, the amount of ammonia and urea in urine tended to diminish. In general, 8 hours of isolation and hypokinesia did not lead to any substantial functional shift in the human organism. Orig. art. has: 3 tables. [ATD PRESS: 4091-F]

SUB CODE: 06 / SUBM DATE: none / ORIG REF: 004 / OTH REF: 002

GC

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L 11283-66 EWT(1)/FS(v)-3 SCTB DD/RD

ACC NR: AT6003867 SOURCE CODE: UR/2865/65/004/000/0333/0342

AUTHOR: Kotovskaya, A. R.; Kakurin, L. I.; Konnova, N. I.; Simpura, S. F.; Grishina, I. S.

44
B+1

ORG: none

2,44

TITLE: Effect of prolonged hypokinesia on human resistance to accelerations

SOURCE: AN SSSR. Otdeleniye biologicheskikh nauk. Problemy kosmicheskoy biologii, v. 4, 1965, 333-342

TOPIC TAGS: hypokinesia, acceleration, human physiology, cardiovascular system, space chamber test, space physiology, man, biologic acceleration effect

ABSTRACT: The effects of various durations of hypokinesia on the resistance of 5 male subjects to centrifugation were studied. The duration of force was chest-spine in a semi-prone position (25° from horizontal). Each subject was given a 30—40-sec 4-G trial run followed by two 7—8-G runs. The same procedure was followed after hypokinesia. The duration of hypokinesia was 3 days for 2 men and 20 days for 3 men.

The basic indices of human resistance to acceleration after hypokinesia were changes in maximum endurance time and the degree of changes in basic physiological reactions. Subjective illusions were also considered. Some results of the tests are shown in Tables 1-3.

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L 14283-66
ACC NR: AT6003867

Table 1. Changes in some human physiological reactions to 7-G transverse accelerations before and after 3 days of hypokinesia (mean)

Indices of physiological functions	Subject A			Subject B		
	Original value	Before hypokinesia	After hypokinesia	Original value	Before hypokinesia	After hypokinesia
Pulse rate/min	80	132	140	89	130	141
Resp. rate/min	14	27	29	16	17	22
Lung ventilation, liters/min	7.7	13.4	14.5	6.8	13.0	17.0
O_2 consumption, cm^3/min	330	375	500	260	360	450
Latent period of motor reaction response, sec	0.3 0.43	0.58 0.73	0.45–0.82	0.48 0.67	0.74	0.84–0.76
Visual acuity	1.0	0.5	0.9	0.9	0.6	0.6

In general, 3-day hypokinesia did not noticeably alter physiological reactions to 7-G centifugation; the duration of endurance was 4 min. The reaction of subjects to acceleration following a 20-day period of hypokinesia is shown in Tables 2 and 3.

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Table 2. Change in endurance time to 7-G centrifugation after 20 days of hypokinesia

Subject	Maximum endurance time	
	Before hypokinesia	After hypokinesia
A	4 min 46 sec	4 min 50 sec
B	4 min 30 sec	4 sec
C	5 min	6 sec

Table 3. Change in visual acuity during 7-G centrifugation before and after 20 days of hypokinesia

Subject	Original value	Visual acuity during centrifugation	
		Before hypokinesia	After hypokinesia
A	1.0	0.7	0.4
B	1.0	0.8	Blacked out
C	0.9	0.7	Blacked out

APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000620010005-7"

After a 20-day period of hypokinesia, subjects were pale, irritable, nervous, and tense, although they were able to withstand 4 G for 30 sec without difficulty. It took longer 5—10 min.) for cardiovascular and respiratory indices to return to normal following 20 days of hypokinesia and 7-G runs than during control runs (1—3 min). Hypokinesia did not alter motor reactions or peripheral blood indices in response to centrifugation.

Petechiae were more commonly encountered and more pronounced due to acceleration after 20 days of hypokinesia. These hemorrhagic syndromes persisted for 2—3 days after centrifugation. In conjunction with these effects, there was a tendency for small vessels to become more brittle after bedrest (positive endotrelial syndrome). In general, it was observed that a 20-day period of hypokinesia lowered human endurance to acceleration, whereas a 3-day period did not have this effect. The individual response to the experiment was pronounced (see Tables 2 and 3). It was concluded that prolonged restriction of motor activity and decreased hydrostatic pressure of the blood are the main pathogenic factors determining lowered human tolerance to acceleration. Orig. art. has: 5 figures and 3 tables. [ATD PRESS: 4091-F]

SUB CODE: 06 / SUBM DATE: none / ORIG REF: 004 / OTH REF: 006

L 29437-66 EWT(1) SCTB DD/GD

ACC NR: AT6012902 SOURCE CODE: UR/0000/65/000/000/0241/0244

27,
AUTHOR: Kakurin, L.I.; Kotovskaya, A.R.; Filosofov, V.K.; Chekhonadskiy, N.A.; 84
Chichkin, V.A.

ORG: none

TITLE: The influence of G-force and hypodynamia on the reaction of the operator

SOURCE: Sistema chelovek i avtomat (Man-automaton systems). Moscow, Izd-vo Nauka, 1965, 241-244

TOPIC TAGS: biologic gravity effect, hypodynamia, human physiology

ABSTRACT: Of special interest in the investigation of semiautomatic control systems is the question of the nature of the influence of such factors as G-force, weightlessness, hypodynamia (restricted movements), etc., on the reaction of the operator. The authors performed an investigation in which the input device of the man-operator was the visual analyzer, and the output device the motion of the hand (finger). The visual analyzer is a highly perfected organ and is characterized by a high resolution factor and relatively high reliability. For an operator under normal conditions, the mathematic expectancy of the delay time in the recognition of light signals is 0.20 sec; furthermore, as established by I. Ye. Tsibulevskiy (Zapazdyvaniye operatora pri obrabotke zritel'nykh signalov. — AiT, 1962, 33, no. 11), delay depends on the age of the operator (the correlation between delay and the operator's age is 0.42). The present article is devoted to the study of the influence of G-force and hypodynamia on the reaction

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ACC NR: AT6036572 SOURCE CODE: UR/0000/66/000/000/0187/0188

AUTHOR: Kakurin, L. I.; Biryukov, Ye. N. 28

ORG: none

TITLE: The problem of decalcification during hypodynamia in man as it applies to prolonged spaceflight conditions [Paper presented at the Conference on Problems of Space Medicine held in Moscow from 24 to 27 May 1966]

SOURCE: Konferentsiya po problemam kosmicheskoy meditsiny, 1966. Problemy kosmicheskoy meditsiny. (Problems of space medicine); materialy konferentsii, Moscow, 1966, 187-188

TOPIC TAGS: hypodynamia, space physiology, endocrinology, decalcification, mineral metabolism, blood chemistry

ABSTRACT: Limited muscular activity (hypodynamia) causes complicated polymorphic disorders. Experimental and clinical data indicate the development of muscular atrophy, a marked decrease in resistance to physical loading, orthostatic hypotension, and lowered tolerance to chest-back accelerations. These and other disorders of the circulatory, respiratory, neuromuscular, and neuroendocrine systems are known as the "hypokinesia syndrome" or "hypokinesia sickness".

It is known that a state of weightlessness decreases the force acting on the locomotor mechanism of the living organism. All muscular masses which ordinarily work against terrestrial gravity are deactivated. Spaceflight crews are exposed to these conditions.

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L 10953-67

ACC NR: AT6036572

Clinical and experimental observations of men exposed to hypodynamic conditions indicate that their calcium metabolism is altered. A noticeable increase in the calcium content of the blood and increased calcium elimination in the urine and feces has been observed. A tendency towards increased calcium mobilization in American astronauts has also been reported.

Taking into account the high physiological activity of calcium, it is likely that during pronounced decalcification a number of functional disorders related to the physiological participation of calcium will occur: in particular, cardiac muscle automatism, excitation conduction in synapses and neurons, the clotting and anticlotting state of the blood, and mineralization during bone tissue formation will be affected. At present, it has not been established whether a hypodynamia regimen will produce these complex physiological reactions related to human calcium metabolism. It is proposed that the severity of decalcification will be determined by the duration and degree of hypodynamia. Problems of prophylaxis applicable to prolonged spaceflight conditions can be successfully solved in terrestrial experiments. [W.A. No. 22; ATD Report 66-116]

SUB CODE: 06 / SUBM DATE: 00May66

Card 2/2 blp

KOTOVSKAYA, A.R.; KAKURIN, L.I.; KONNOVA, N.I.; SIMPURA, S.F.; GRISHINA, I.S.

Effect of prolonged hypokinesia on the human resistance to stresses. Probl. kosm. biol. 4:333-342 '65. (MIRA 18:9)

KAKURIN, S.N.; TURETSKIY, S.I.

[Electronic relays and relaxation oscillators; a manual on the second part of the course in "Theoretical principles of radio engineering."]Elektronnye rele i relaksatsionnye generatory; uchebnoe posobie po vtoroi chasti kursa "Teoreticheskie osnovy radiotekhniki." Moskva, M-vo vysshego i srednego spetsial'nogo obrazovaniia RSFSR, No.1. [Electronic relays]Elektronnye rele. 1961. 55 p. (MIRA 15:8)
(Electric relays) (Radio)

VISHNYAKOVA, M.S.; KAKURIN, S.N., dots., red.

[Lectures for the second part of a course in "Theoretical principles of radio engineering": LC-generators of sinusoidal oscillations with positive feedback] Lektsii po vtoroi chasti kursa "Teoreticheskie osnovy radiotekhniki": LC-generatory sinusoidal'nykh kolebanii s polozhitel'noi obratnoi sviaz'iu. Moskva, Vses. zaochnyi energeticheskii in-t, 1961. 84 p. (MIRA 17:8)

KAKURINA, A. C. Cand Vet Sci -- (diss) "The effect of bromine and novocaine upon the dynamics of vulnerary processes in horses and dogs." Ul'yanovsk, 1956. 23 pp (Min of Agr USSR. Kazan State Vet Inst im N. E. Bauman), 180 copies (KL, 42-57, 94)

USSR/Pharmacology and Toxicology. Hypnotics and Sedatives V-1

Abs Jour : Ref Zhur - Biol., No 10, 1958, No 47082

Author : Kakurina A.G.
Inst : Ulyanovsk Agricultural Institute
Title : The Effect of Bromine and Novocain Upon the Dynamics of the Healing of Wounds in Horses and Dogs.

Orig Pub : Tr. Ul'ganovskogo s.-kh. in-ta, 1956, 4, No 263-273

Abstract : The experiments carried out on 24 dogs and 9 horses, as well as observations of 14 sick horses demonstrated, according to the author, that sodium bromide, especially in combination with novocain block of short duration, accelerates the healing of wounds.

Card : 1/1

NESMEYANOV, A.N.; PEREVALOVA, E.G.; YUR'YEVA, L.P.; KAKURINA, L.N.

Reaction products of cyanidation of methyl- and ethylferrocene. Izv. AN SSSR. Ser. khim. no.10:1897-1899 O '64. (MIRA 17:12)

1. Institut elementoorganicheskikh soyedineniy AN SSSR i Moskovskiy gosudarstvennyy universitet im. Lomonosova.

KAKURINA, L.N.; KUCHEROVA, N.F.; ZAGOREVSKIY, V.A.

Derivatives of indole. Part 20: Fischer reaction of arylhydrazones of 3-(β-carbomethoxyethyl) tetrahydrothiopyran-4-one. Zhur. org. khim. 1 no.6: 1108-1111 Je '65. (MIRA 18:7)

1. Institut farmakologii i khimioterapii AMN SSSR.

L 24842-65 EWT(m)/EPF(c)/EWP(j) Pc-4/Pr-4 RPL RM/JW

ACCESSION NR: AP4047404 S/0062/64/000/010/1897/1899

AUTHOR: Nesmeyanov, A. N.; Perevalova, E. G.; Yur'yeva, L. P.; Kakurina, L. N.

TITLE: Investigation of the reaction products of the cyanation of methyl and ethylferrocene

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 10, 1964, 1897-1899

TOPIC TAGS: alkylferrocene, cyanation, cyanidation, alkylferrocene nitrile, alkylferrocene acid amide

ABSTRACT: Earlier work (A. N. Newmejanow, E. G. Perewalowa, L. P. Jurjewa, Ber. 93, 2729 (1960); Ye. G. Perevalova, L. P. Yur'yeva and Yu. I. Baukov, Dokl. AN SSSR 135, 1402 (1960)) on cyanation of ferrocene derivatives to obtain predominantly heteroannular isomeric nitriles was continued. The mixtures of nitriles obtained by cyanidation of methyl or ethylferrocene were converted to the corresponding amides in 60-75% yield by alkaline hydrolysis in the presence of hydrogen peroxide. The 1,2-, 1,3- and 1,1'-methyl- and ethylferrocene carboxylic acid amides were chromatographically separated on Al_2O_3, and

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L 24642-65
ACCESSION NR: AP4047404

converted to the corresponding nitriles by boiling in toluene with P_2O_5. Identification was made by IR and u. v. spectra and oxidation reduction potentials. The adsorption of the isomeric amides increased in the series 1,2 1,1'- 1,3.
Orig. art. has: 2 tables

ASSOCIATION: Institut elementoorganicheskikh soyedinenij Akademii nauk SSSR (Institute of Organometallic Compounds Academy of Sciences SSSR) Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University)

SUBMITTED: 03Mar64 ENCL: 00

SUB CODE: GC, OC NO REF SOV: 003 OTHER: 005

Card 2/2

KAKURIYA, Sh.K., red.; DZAGNIDZE, N.L., otv. za vypusk; GVERDTSITELI, N.P., tekhn. red.

[Tiflis; statistical collection published for the commemoration of the 40th anniversary of the Soviet regime in Georgia] Tbilisi; k 40-letiiu Sovetskoi vlasti v Gruzii. Statisticheskii sbornik. Tbilisi, 1961. 181 p. (MIRA 15:2)

1. Tiflis. Statisticheskoye upravleniye. 2. Nachal'nik Statisticheskogo upravleniya goroda Tbilisi (for Kakuriya).
(Tiflis--Statistics)

SAGAYDAK, I.I.; NEKRASOV, V.G.; KOPYRIN, I.A.; BORTS, Yu.M.; BRATCHENKO, V.P.; RYSYUKOV, N.Ye.; KAKUSHA, N.P.; SHAPIRO, V.Z.

Operation of a large capacity blast furnace with natural gas. Metallurg 10 no.7:16-19 Jl '65. (MIRA 18:7)

1. Orsko-Khalilovskiy metallurgicheskiy kombinat i Chelyabinskiy nauchno-issledovatel'skiy institut metallurgii.

KAKUSHADZE, A.M.; TSANAVA, G.G.

Using the Trefftz method in solving some problems in structural mechanics. Soob. AN Gruz. SSR 38 no.2:359-366 My '65. (MIRA 18:9)

KAKUSHADZE, A.M.; KVACHADZE, D.Ye.

General method of determining the stressed state of the base of point footings. Trudy GPI [Gruz.] no.1:41-44 '63. (MIRA 18:2)

KAKUSHADZE, A. M.

Kakushadze, A. M. "A new method of calculating thin plates", Izvestiya Tbilis. nauch.-issled. in-ta sooruzheniy i gidroenergetiki, Vol. II, 1948, p. 33-45.

SO: U-4630, 16 Sept. 53, (Letopis 'Zhurnal 'nykh Statey, No. 23, 1949).

KAKUSHADZE, A. M.

Kakushadze, A. M.- "A rectangular thin plate, hinge-fixed along the contour, under the action of a triangular load," A commemorative collection of transactions dedicated to the 25th anniversary of the Institute, (Gruz politekhn. in-t im. Kirova , No 17), Tbilisi, 1948, p. 125-29, (Resume in Georgian)

SO: U-5240, 17, Dec. 53, (Letopis 'Zhurnal 'nykh Statey, No. 25, 1949).

KAKUSHADZE, A. M.

26901

Smeshannyy Sposob Resheniya Nekotorykh Zadach Teorii Uprugosti. Tryoy, (Gruz. Politekhn, In-t IM. Kirdva), No. 18, 1949, S. 25-29. - Rezyume Na Gruz. Yaz. Bibliogr: 5 Nazv.

SO: LETOPIS NO. 34

DZHAPARIDZE, Bekhri Aliyevich; KAKUSHADZE, A.M., red.; MEGRELADZE, A., tekhn.red.

[Strength and stability of thin-walled rods] Prochnost' i ustoichivost' tonkostennykh sterzhnei. Red.A.M.Kakushadze. Tbilisi, Gos.izd-vo Adzharskoi ASSR, 1958. 230 p. (MIRA 14:1)

(Elastic rods and wires)

KAKUSHADZE, A.M.; URIDIYA, P.I.; KVACHADZE, D.Ye.

Approximate calculation of hollow shells. Trudy GPI [Gruz.] no.4: 45-49 '63. (MIRA 18:2)

KAKUSHADZE, A.M.; MSKHILADZE, G.G.

Designs for a sloping cylindrical shell on an elastic foundation. Soob. AN Gruz. SSR 30 no.5:617-623 My '63. (MIRA 16:11)

1. Institut stroitel'noy mekhaniki i seysmostoykosti, AN GruzSSR, Tbilisi. Predstavleno akademikom K.S.Zavriyevym.

21(1) SOV/89-6-5-13/33

AUTHORS: Aleksenko, Yu. N., Kakushadze, L. Ye.

TITLE: Radiation-induced Modification of Some Physical Properties of Graphites With Various Degrees of Graphitization (Radiatsionnyye izmeneniya nekotorykh fizicheskikh svoystv grafitov razlichnoy stepeni grafitizatsii)

PERIODICAL: Atomnaya energiya, 1959, Vol 6, Nr 5, pp 568-569 (USSR)

ABSTRACT: The prediction made by V. I. Klimenkov, and Yu. N. Aleksenko (Ref 1) that the increase of volume of graphite bombarded by neutrons due to de-graphitization is checked experimentally in the case of 6 graphite samples (5.5.70 mm) with different degrees of graphitization with a dose rate of $6.2.10^{20}$ neutrons/cm^2. The average neutron flux amounted to $(1.5 - 2).10^{13}$ n/cm^2.sec. The samples were kept at a temperature of 350-450°C during irradiation. Before and after irradiation the following sample measurements were carried out: 1) Measurement of length by means of an ordinary micrometer. 2) Electric resistance by means of a potentiometer PPTV-1. 3) Thermal conductivity. 4) Temperature of the samples by means of a thermal cross in conjunction with the potentiometer

Card 1/3

KAKUSHADZE, T.

$K_{\alpha 3}$ and K_{β} satellites of the lines of the K-series of X-ray spectra. Trudy Tbil. gos. ped. inst. 14:3-34 '59. (MIRA 15:8)
(X-ray spectroscopy)

KAKUSHADZE, T.

Kakushadze, T. "Comparative intensity of Roentgen spectra lines of cobalt," Trudy Tbilis, gos. ped. in-ta im. Pushkina, Vol. V, 1948, p. 55-63 - In Georgian language - Resume in Russian

SO: U-3264, 10 April 1953, (Letopis 'Zhurnal 'nykh Statey, No. 3, 1949).

Electronic Phenomena

3

C.A.

1951

Atomic magnetic moments of iron, cobalt, and nickel. N. S. Akulov and T. I. Kakushadze. *Doklady Akad. Nauk S.S.S.R.* 77, 593-6(1951).—The variation of the at. magnetic moments with the temp. not explained by the theory of Mott and Slater (Vonsovskiĭ and Sibur, *Ferromagnetism* 1948, p. 136 (*C.A.* 44, 925a)), is accounted for by the interaction of electrons in *s* and *d* bands. With spontaneous transitions disregarded, and a_{ij} = the mean probability of transition from band *i* to band *j*, the no. of transitions per sec. is $W_{ij} = a_{ij}n_i(n_{oj} - n_j)$, where n_i = no. of electrons in the *i*th band, n_{oj} = max. no. in the *j*th band, i.e. $n_{oj} - n_j$ = no. of free levels in the *j*th band. At sufficiently high temps., $a_{ij} = a_{ji}$, and at thermodynamic equil., $n_i(n_{oj} - n_j) = n_j(n_{oi} - n_i)$. For 2 overlapping bands, $n_1 + n_2 = n$, and $n_1 = [n_{o1}/(n_{o1} + n_{o2})]n$, and $n_2 = [n_{o2}/(n_{o1} + n_{o2})]n$. Applied to the *s* and *d* bands, $n_{o1} = 2$ and $n_{o2} = 10$. For Fe (8 electrons in the 3*d* and 4*s* bands) $n_1 = 1.67$, $n_2 = 6.67$; for Co ($n = 9$ electrons) $n_1 = 1.5$, $n_2 = 7.5$; for Ni ($n = 10$) $n_1 = 1.67$ and $n_2 = 8.33$. The nos. of unpaired 3*d* electrons ($10 - n_2$) for Fe, Co and Ni, are then 3.33, 2.50, and 1.67, resp. This compares with the exptl. 3.31, 2.30, and 1.10, resp., at sufficiently high temps. (above the Curie point, at 1450°K., and at 1173°K., resp.). The agreement is good for Fe and Co, but only approx. in the case of Ni. N. Thon

KAKUSHADZE, T I

Elektronnaya teoriya metallov (Electronc theory of metals) Tbilisi, Izd-vo Nauchno-Metodicheskogo Kabineta, 1954.

245 p. graphs, tables.

At head of title: Georgia (transcaucasia) Ministerstvo Prosveshcheniya.

"Tsitirovannaya literatura": p. 240-243.

KAKUSHADZE, T.I.; MIKADZE, A., dots., red.

[Electron theory of metals] Elektronnaia teoriia metallov. Tbilisi, Izd-vo Nauchno-metod. kabineta, 1954. 245 p. (MIRA 16:7)
(Free electron theory of metals)

137-58-4-8004

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 4, p 231 (USSR)

AUTHOR: Kakushadze, T. I.

TITLE: The Active Function of Oscillations of the Crystal Lattice (Ob aktivnoy roli kolebaniya kristallicheskoy reshetki)

PERIODICAL: Tr. Tbilissk. gos. ped. in-ta, 1955, Vol 10, pp 563-571

ABSTRACT: The effect of thermal oscillations in the crystal lattice upon the properties of metals is investigated.

A.S.

1. Crystals--Lattices--Oscillation effects 2. Metals--Properties --Crystal lattice oscillation effects

Card 1/1

KAKUSHADZE, T. I.

"Some Satellites of Spectral Lines"

Materials of the 2nd All-Union Conference on X-ray Spectroscopy; Moscow, January 31 February 4, 1957 (Materialy II Vsesoyuznogo soveshchaniya po rentgenovskoy spektroskopii; Moskva, 31 yanvarya - 4 fevralya g.)

a

Izvestiya Akademii Nauk SSSR, Seriya fizicheskaya 1957, Vol 2, Nr 10, pp 1341 - 1342 (USSR)

Georgian Academy of Sciences, Inst. of Physics

KAKUSHADZE, T. I.

Call Nr: TA 459 .K28

AUTHOR: Kakushadze, T.I., Corr. Member, Acad. of Sciences, Georgian SSR

TITLE: Transition Metals and Alloys (Perekhodnyye metally i splavy)

PUB. DATA: Izdatel'stvo nauchno-metodicheskogo kabineta, Tbilisi, 1957, 242 pp., 2000 copies

ORIG. AGENCY: Ministerstvo Prosveshcheniya Gruzinskoy SSR

EDITORS: Tavadze, F.N., Prof., Corr. Member, Acad. of Sciences, Georgian SSR, ED. of Publ. House: Pataraia, L.

PURPOSE: The book is intended for scientists engaged in solid-state physics research and for engineers specializing in the field of metallurgy.

Card 1/7

Transition Metals and Alloys (Cont.)

TABLE OF CONTENTS

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Transition Metals and Alloys (Cont.)

KAKUSHADZE, T.I.

137-58-3-5796

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 3, p 188 (USSR)

AUTHOR: Kakushadze, (No initials given)

TITLE: The Effect of Cold Working on the Magnetic Properties of Cu (Vliyaniye kholodnoy obrabotki na magnitnyye svoystva Cu)

PERIODICAL: Tr. Telavsk. gos. ped. in-ta, 1957, Vol 2, pp 417-434

ABSTRACT: Investigations were carried out in order to study the influence of various methods of cold working (rolling, drawing, forging) on the diamagnetic susceptibility χ. Powdered and rod-shaped specimens were prepared from electrolytic Cu containing up to 0.19 percent of ferromagnetic impurities in one instance and up to 0.02 percent in another. The specimens were annealed at temperatures of 900-1000°C for a period of eight hours; part of the specimens was quenched in water, while another part was allowed to cool in the oven for a period of 12-19 hours. The χ was measured by the "Gui" method. It is demonstrated that the reduction of χ of Cu does not depend on the ferromagnetic contamination. The χ diminishes with the degree of deformation but increases again when the deformation becomes severe. Magnetic recovery of Cu occurs at temperatures below the

Card 1/2

SOV/137-58-11-23225

Translation from: Referativnyy zhurnal. Metallurgiya, 1958, Nr 11, p 198 (USSR)

AUTHOR: Kakushadze, T. I.

TITLE: Lattice Vibration and Spectrum-line Satellites (Kolebaniye reshetki i satellity spektral'nykh liniy)

PERIODICAL: Tr. Tbilissk. gos. ped. in-ta, 1957, Vol 11, pp 605-614

ABSTRACT: A critique of the existing theory of the formation of satellites (S). The author assumes that Valasek's theory on the origination of short-wave S agrees with his concepts. With K S as an example it is shown that in transition metals $K \rightarrow M_{II, III}$ transitions at ordinary temperatures are accompanied by high-energy s-d transitions corresponding to long-wave S having a relative intensity of 11-25% relative to K , whereas at elevated temperatures the relative intensity during primary excitation must amount to approximately 50%.

I. D.

Card 1/1

S/058/61/000/009/010/050
A001/A101

AUTHOR: Kakushadze, T.

TITLE: $K_{\alpha 3}$ and $K_{\beta'}$ satellites of the K-series lines of roentgen spectra

PERIODICAL: Referativnyy zhurnal. Fizika, no. 9, 1961, 78, abstract 9V9 ("Tr. Tbilissk. gos. ped. in-ta", 1959, v. 14, 3-34, Georg. summary)

TEXT: The author investigated theoretically transitions leading to the origination of $K_{\alpha 3}$ and $K_{\beta'}$ satellites of the $K_{\alpha 1}$ and $K_{\beta 1}$ lines of the roentgen spectrum for transition elements of the Fe group. It is established that the short wavelength satellite $K_{\alpha 3}$ is originated at the $L_{III} \rightarrow K$ transition with a simultaneous jump of the excited valence electron from the 4s-level of the quasi-continuous 4s-band, corresponding to the atom considered, to the 3d-level of the same atom; origination of the long wavelength satellite $K_{\beta'}$ is brought about at the $M_{II,III} \rightarrow K$ transition with the simultaneous jump of the 3d electron into the quasicontinuous 4s-band (to the 4s-level of the other atom). The absence of a long wavelength satellite of the $K_{\alpha 1}$ line and a short wavelength satellite of the $K_{\beta 1}$, line is explained, as well as the high diffusivity of the $K_{\beta'}$ satellite. Relative intensity is quantitatively estimated. It is shown that the dif-

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S/058/62/000/007/040/068
A061/A101

24.7000

AUTHOR: Kakushadze, T. I.

TITLE: Group transitions in semiconductors

PERIODICAL: Referativnyy zhurnal, Fizika, no. 7, 1962, 14 - 15, abstract 7E115 ("Tr. Tbilissk. gos. ped. in-ta", 1960, v. 15, 5 - 10; Georgian summary)

TEXT: By making use of the fact that a strong interaction with the crystal lattice is able to ensure the isoenergetic and, consequently, nonradiative transition of an electron from the base region into the conduction band of a semiconductor at the expense of the rebuilding energy of the residual group of electrons (Houston, W. V. "Phys. Rev.", 1939, v. 15, 1255), the author calculated the orders of magnitude of radiative and isoenergetic transition probabilities at different temperatures. In accordance with experiments, the group transition theory yields a value for the electron mean free path length, which is much smaller than the lattice parameter. For both the formation of temperature-dependent luminescence bands of multiactivator phosphors and the quenching of lumines-

Card 1/2

KAKUSHADZE, T.I.; KOKONOVA, M.G.

Nature of some satellites. Izv.vys.ucheb.zav.; fiz. no.5:158-164 '61. (MIRA 14:10)

1. Tbilisskiy pedagogicheskiy institut imeni A.S.Pushkina.
(Quantum theory)

29102
P/045/61/020/010/003/003
B108/B104

24.3500

AUTHOR: Kakushadze, T. I.

TITLE: Group transitions in crystalline phosphors

PERIODICAL: Acta Physica Polonica, v. 20, no. 10, 1961, 857 - 868

TEXT: The author applies the principles of the theory of group transitions to the luminescence of crystal phosphors. It has been shown by W. H. Houston (Phys. Rev., 15, 1255 (1939)) that group transitions are caused by strong electron-lattice interactions. Houston had concluded that group transitions are more probable than single transitions. Energy is conserved in group transitions, so that they are radiationless. The mean time τ_0 of radiationless transition of a conduction electron depends largely on the band structure of the semiconductor. At room temperature, τ_0 assumes values between 10^{-1} and 10^{-12} sec, depending on the kind of semiconductor. Group transitions of electrons may be caused by bombardment with high-momentum particles (electrons, hot ions) which may lower the valence band. It has been found in experiments that in a number of semiconductors the electron mean free path is much shorter than the lattice constant. This

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Group transitions in crystalline...

phenomenon is ascribed to the fact that a large number of electrons participate in each group transition. The latter are radiationless because the deep holes, arising in the energy absorption by a valence electron from a conduction electron reaching the valence band, exchange the transition energy for a large number of phonons. Before a radiationless group transition of a conduction electron can take place, either transition to the F or D localized levels with photon emission, or transition to the activator level with luminescence occurs. The latter phenomenon, that is, luminescence may be observed, for instance, in ZnO, ZnS, CaS, etc. When the forbidden band width is larger than the valence band even at high temperatures, transition of conduction electrons to the D localized level leads to a bright luminescence. The "cold flare", i.e., the low-temperature emission of pre-excited phosphors is explained by the passage of electrons from deep levels to shallow adhesion levels. Quenching of luminescence with rising temperature, which occurs in many phosphors at about 400°K, is ascribed to the low value of τ_0. The temperature limits of the luminescence bands in the spectra of multiactivator phosphors (Adirovich, E. I., Dokl. Akad. Nauk SSSR, 58, 1927 (1947)) are also explained in the framework of the group-transition theory. There are

KAKUSHADZE, T.I.

Temperature redistribution of electrons in the outer conduction band of elements. Izv.vys.ucheb.zav.; fiz. no.3:142-149 '63. (MIRA 16:2)

1. Tbilisskiy gosudarstvennyy pedagogicheskiy institut imeni A.S.Pushkina.

S/139/63/000/001/023/027
E202/E420

AUTHOR: Kakushadze, T.I.

TITLE: Group transitions in crystalline phosphors

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Fizika, no.1, 1963, 147-154

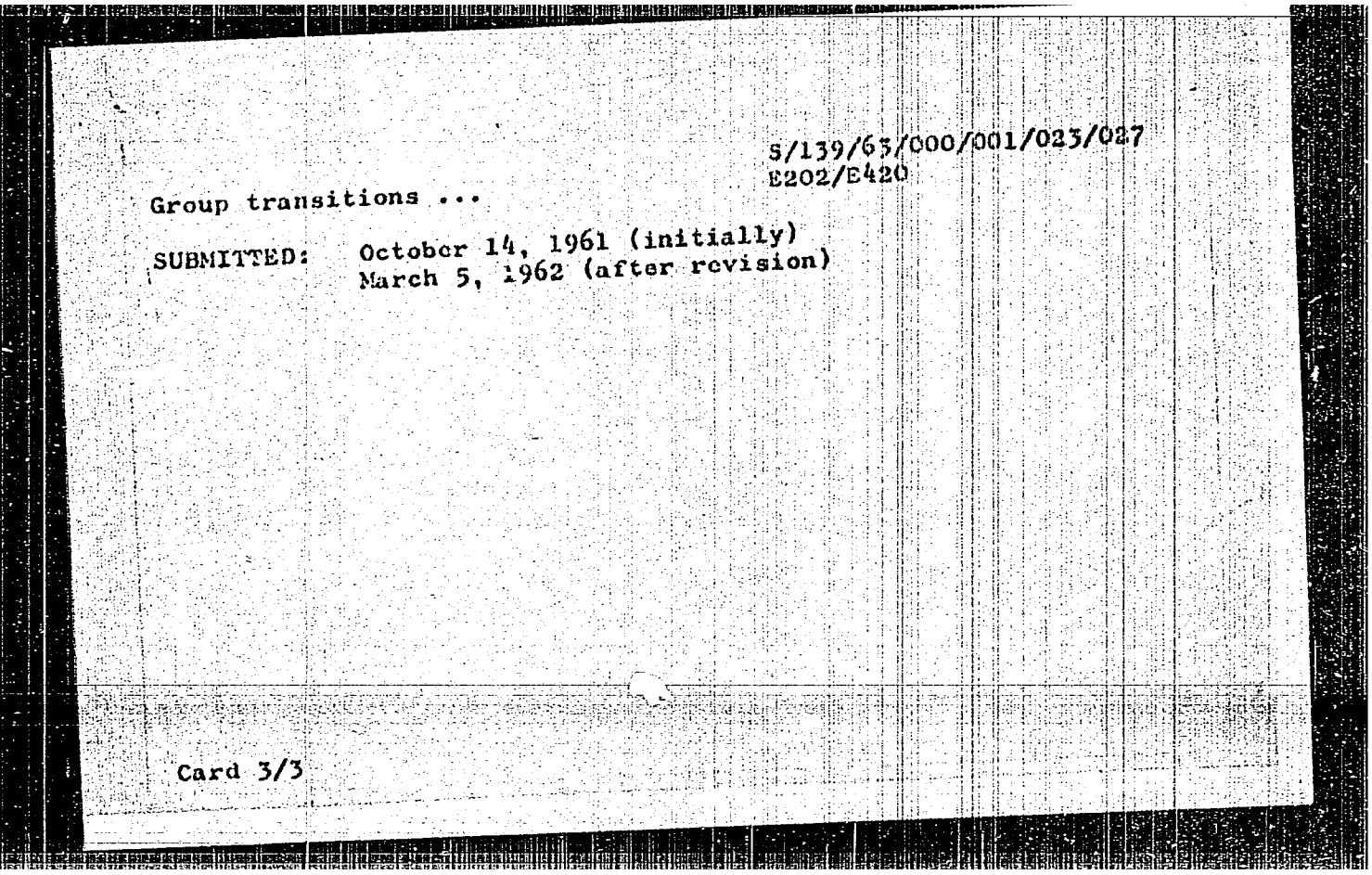
TEXT: After a brief explanation of the group (pair) transition theory and formulation of the fundamental relations, it is used to explain the anomalously strong contraction of the average time τ for the group transition of a conductivity electron into the valency band. This phenomenon can only be explained by the theory of group transitions when the mean free path of the electron is considerably smaller than the lattice parameter. Isoenergetic radiationless transitions are also briefly discussed, showing how the large transition energy of the conductivity electron is captured by another electron or group of electrons in the valency band, as a result of which a deep hole is created. The luminescence of ZnO, ZnS, CaS etc is explained on the basis that the transition of conductivity electrons to the F and D local levels is accompanied by the emission of photons. A brief explanation of

Card 1/3

Group transitions ...

candoluminescence is given. This is the bright luminescence corresponding to the transition of conductivity electrons to the local D levels; for example the intensity of niobium oxide in the blue region of the spectrum at 560°C exceeds the value of the black body radiation 85000 times. The excitation of luminescence during the exposure of the sample to slow electrons is also briefly discussed in terms of the above theory, following the experiments of R.E.Stader and S.F.Kaisel (T. Opt. Soc. Am., v.44, 1953, 135). Cold-scintillation, quenching of luminescence and the temperature limits of the luminescence bands of multi-activated luminophors are also discussed. The latter phenomenon of the appearance of luminescence bands with different temperature limits is briefly discussed in the case of ZnS·Cu. At a relatively low temperature a band corresponding to the transition to the D level of Zn is formed, while with increase in temperature the Zn band is weakened and the copper band is enhanced. There are 5 figures.

ASSOCIATION: Tbilissiy Gospedinstitut imeni A.S.Pushkina
(Tbilisi State Pedagogic Institute imeni A.S.Pushkin)



S/139/63/000/001/023/027
E202/E420

Group transitions ...

SUBMITTED: October 14, 1961 (initially)
March 5, 1962 (after revision)

Card 3/3

KAKUSHADZE, T.I.

Group transitions in antiferromagnetic substances. Izv.vys.ucheb.zav; fiz.no.2:3-6 '63. (MIRA 16:5)

1. Tbilisskiy gosudarstvennyy pedagogicheskiy institut imeni A.S. Pushkina.
(Magnetic materials) (Quantum theory)

L 16798-63 EWT(1)/EWG(k)/BDS AFFTC/ASD/ESD-3/IJP(C) Pz-4

AT

ACCESSION NR: AP3006774 S/0139/63/000/004/0010/0015

AUTHOR: Kakushadze, T. I.

TITLE: High-frequency magnetic lattice field and its effect on the properties of solid states. II.

SOURCE: IVUZ. Fizika, no. 4, 1963, 10-15

TOPIC TAGS: x-ray spectrum, x-ray satellite, long-wave satellite, L-satellite, Auger electron, x-ray satellite origin, long-wave satellite theory, k-satellite

ABSTRACT: A theory is developed for the origin of certain long-wave satellites in the x-ray spectrum of elements whose energy shift is of the order of the energy of an optical transition. It is shown that for elements with atomic numbers Z = 12—17 the K_{β}', satellites arise as a result of Auger transitions. For elements Z = 55—70, the mechanism giving rise to $L_{\beta_{10}}$, L_{γ_9}, and $L_{\beta_{10}}$ satellites is believed to be identical to that for satellites in

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L 16798-63
ACCESSION NR: AP3006774

elements Z = 20—32, which was described in an earlier paper by the author. These satellites depend on the induction effect of isoenergetic group transitions of electrons. It is also shown that lattices of elements Z = 20—32 and Z = 55—70 are characterized by high-frequency magnetic fields which decrease the group transition period τ_{gr}. A decrease in τ_{gr} is believed to be necessary for the formation of long-wave satellites not caused by Auger transitions. It is noted that long-wave satellites of this type are observed in strongly magnetic substances and in nonmagnetic substances with strongly magnetic energy states near the ground state. These data are in agreement with the theoretical assumption that a decrease in τ_{gr} is caused by strong interaction of electrons with the lattice. Orig. art. has: 7 formulas and 1 table.

ASSOCIATION: Tbilisskiy gosped institut im. A. S. Pushkina (Tbilisi State Pedagogical Institute)

SUBMITTED: 25Jan62 DATE ACQ: 27Sep63 ENCL: 00

SUB CODE: PH NO REF SOV: 005 OTHER: 005

Card 2/2

KAKUSHADZE, T.I.; KOKONOVA, M.G.

Fine structure of V, Cr, and Co in the spectral region of the $K\beta_{1,3}$-line. Soob. AN Gruz. SSR 39 no.1:49-54 Jl '65. (MIRA 18:10)

1. Tbilisskiy gosudarstvennyy pedagogicheskiy institut imeni A.S. Pushkina. Submitted February 23, 1965.

L 43972-66 IJP(c) AT
ACC NR: AP6032095 SOURCE CODE: GE/0061/65/016/05-/0220/0223

(UR)

AUTHOR: Kakushadze, T.

ORG: Pedagogical Institute, Tbilisi

B 31

TITLE: Experimental check of group electron transitions in solids

SOURCE: Annalen der Physik, v. 16, no. 5-6, 1965, 220-223

TOPIC TAGS: electron transition, molecular physics

ABSTRACT: The author refers to the paper by Schorling, P. O., published in Arkiv Fisik, v. 19, 1961, p. 47, and takes exception to the conclusions reached by Schorling from the data he obtained. The author concludes that the data, rather, justify the conclusions reached in his papers published in Annalen der Physik, v. 3, 1959, p. 352 and v. 8, 1961, p. 366. Orig. art. has: 2 figures, 2 formulas and 1 table. [Orig. art. in Eng.] [JPRS: 33,733]

SUB CODE: 20 / SUBM DATE: 01Dec64 / ORIG REF: 002 / SOV REF: 004
OTH REF: 004

Card 1/1 egh

0919 1207

ACC NR: AP7009579 SOURCE CODE: UR/0251/66/044/003/0557/0561

AUTHOR: Mirianashvili, M. M. (Corresponding Member of the Academy of Sciences Georgian SSR); Kakushadze, T. L.; Gvelesiani, L. P.

ORG: Tbilisi State University (Tbilisskiy gosudarstvennyy universitet)

TITLE: Mixed cadmium ferrites of spinel structure

SOURCE: AN GruzSSR. Soobshcheniya, v. 44, no. 3, 1966, 557-561

TOPIC TAGS: ferrite, crystal lattice structure, saturation magnetization

SUB CODE: 20

ABSTRACT: The article considers mixed cadmium ferrites, which are solid solutions of magnetic ferrites Me $Fe_2 O_4$ (Me = Co, Ni, Cu, Mn, etc.) with a cadmium ferrite (Cd $Fe_2 O_4$). The electron configurations of zinc and cadmium ions are identical, as is also the structure of the lattice in which the Zn^{2+} and Cd^{2+} ions crystallize. The radius of the Cd^{2+} ion is 30% greater than that of the Zn^{2+} ion, so that for the conversion of the Cd^{2+} ion in a mixed cadmium ferrite into an extremely magnetic ion with $\mu = 8\ \mu_B$ there should be present in the second coordination sphere a greater number of divalent magnetic Me^{2+} ions with vacancies in the outer 3d shells than in the case of the zinc ion. A table is given of experimental data for the saturation magnetization of the mixed cadmium $Me_{1-\delta}\ Cd_\delta\ Fe_2 O_4$ in Bohr magnetons, extrapolated for 0°K. The article also presents curves expressing the theoretical dependence of the saturation magnetization of cadmium ferrites on the concentration δ of cadmium. Orig. art. has: 4 figures, 3 formulas and 1 table. [JPRS: 40,100]

Card 1/1 0930 1110

CHERKASOV, L.M., kand.tekhn.nauk; KAKUSHKIN, S.V., inzh.; CHEBOTAREV, M.B., inzh.; KIRIYA, G.Sh., inzh

Improving the design of ingot molds and using converter pig iron for their founding. Stal' 23 no.7:618-621 Jl '63. (MIRA 16:9)

1. Dnepropetrovskiy metallurgicheskiy institut i zavod im. Petrovskogo.
(Ingot molds—Design and construction)
(Iron founding)

KUDRYASHOV, Yu.B.; KAKUSHKINA, M.L.

New method of determining the activity of tissular hemolysins. nauch. dokl. vys. shkoly; biol. nauki no.4:85-89 '59.
(MIRA 12:12)

1.Rekomendovana kafedroy biofiziki Moskovskogo gosudarstvennogo universiteta im. M.V. Lomonosova.
(HEMOLYSIS AND HEMOLYSINS)

KUDRYASHOV, Yu.B.; MAL'TS, V.; GONCHARENKO, Ye.N.; KAKUSHKINA, M.L.; LOMSADZE, B.A.; SIN VEN'-DYUAN'; SYUE YUY-KHUA [Hsüeh Yü-hua]; CHZHAN CHZHEN'-LYAN'

Toxic effect of oleic acid and its oxidation products; cytotoxic factor in radiation injury of animals. Radiobiologiia 1 no.1:78-85 '61. (MIRA 14:7)

1. Moskovskiy gosudarstvennyy universitet, kafedra biofiziki.
(RADIATION—PHYSIOLOGICAL EFFECT)
(OLEIC ACID—TOXICOLOGY)

KAKUSHKINA, M. I.

(b)

Electrical Conductivity and Autolysis of Tissues of Irradiated Animals

E. V. Barbakova, M. I. Kakushkina, O. P. Kol'e and I. M. Parkhomenko

The changes in electrical conductivity and rate of autolysis were measured in the liver, spleen and skeletal muscles of white mice and rats exposed to lethal doses of ^{60}Co γ-rays. The measurements were carried out with isolated organs directly after their extirpation as well as after their survival for many hours; they started on the day of irradiation and lasted until the animals died. Analogous measurements were carried out on controls. The electrical conductivity was measured with an A.C. bridge. The rate of autolysis was determined from the free aminoacid content in the tested organs.

Irradiation decreased the dispersion of the electrical conductivity of the liver and spleen. The dispersion increased with time mainly due to an increase in the low-frequency resistance. Simultaneously, autolysis increased. The increase in the low-frequency resistance and in the rate of autolysis in the liver of irradiated animals was more pronounced than in control animals. The opposite effect was found for the spleen. The resistance of skeletal muscle of irradiated animals also showed an increase. In the case of protracted survival the dispersion of resistance and the rate of autolysis of isolated muscles showed little change both for irradiated and control animals.

The change of the low-frequency resistance of surviving tissues is related to the change of the rate of autolytic processes in these tissues. Effects which lower the rate of autolysis result in an inhibition of the increase of resistance of a surviving isolated organ. The trend of physico-chemical processes and of the autolytic processes in the surviving tissues of irradiated animals differs from the trend of these processes in the surviving tissues of normal animals mainly in the rates of these processes.

Biophysics Chair of the Faculty of Soil Biology of the Moscow State University, USSR

report presented at the 2nd Intl. Congress of Radiation Research, Harrogate/Yorkshire, Gt. Brit., 5-11 Aug 1962

BURLAKOVA, Ye.V.; KAKUSHKINA, M.L.; KORNEYEVA, N.V.

Effect of X-raying on the eggs of Artemia salina L. Nauch. dokl. vys. shkoly; biol. nauki no.3:83-87 '63. (MIRA 16:9)

1. Rekomendovana kafedroy biofiziki Moskovskogo gosudarstvennogo universiteta im. M.V.Lomonosova.
(Crustacea--Eggs) (X rays--Physiological effect)

KAKUSHKINA, M. L.
AID Nr. 974-9 22 May

PROTECTION AGAINST RADIOMIMETIC EFFECT OF OLEIC ACID OXIDATION PRODUCTS BY ANTIRADIATION DRUGS (USSR)

Kakushkina, M. L., N. P. Korolev, and Yu. B. Kudryashov. IN: Akademiya nauk SSSR. Doklady, v. 149, no. 4, 1 Apr 1963, 973-975.
S/020/63/149/004/024/025

The effect of cysteamine, cysteine, cystineamine, and AET on radiomimetic hemolysis, induced in γ-irradiated (100 to 1000 kr) erythrocytes by incubation with various concentrations of oxidized oleic acid, was experimentally investigated. Post-incubation erythrograms showed an increase in the number of erythrocytes and a decrease in their stability. These effects are similar to those produced by ionizing radiation damage. The addition of cysteamine eliminates these changes almost completely in the case of ionizing radiation injury. The erythrograms of erythrocytes incubated with oxidized oleic acid in the presence of cysteamine showed the latter to have a protective effect in this case as well. AET afforded the greatest protection against both radiation and

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AID Nr. 974-9 22 May

PROTECTION AGAINST RADIOMIMETIC EFFECT [Cont'd] S/020/63/149/004/024/025

radiomimetic effects, while α-amine gave no protection in either case. Cystineamine gave unequal protection against radiation and radiomimetic effects. The data indicate that the oxidation products of unsaturated fatty acids participate in the primary radiation reactions of biological objects. Erythrograms of the effects of radiomimetic agents are useful for rapid preliminary evaluation and selection of antiradiation agents. [AB]

Card 2/2

ACCESSION NR: AP4043219 S/0205/64/004/004/0632/0637

AUTHOR: Kakushkina, M. L.; Kudryashov, Yu. B.; Rachinskiy, F. Yu.; Dmitriyeva, N. G.

TITLE: The use of radiomimetic (erythrocytic) models for studying the potential radioprotectors of the thiazolidine group

SOURCE: Radiobiologiya, v. 4, no. 4, 1964, 632-637

TOPIC TAGS: radiation protection, radiomimetic model, thiazolidine, oleinic acid, erythrocyte

ABSTRACT: Thiazolidine derivatives in 0.02-M concentrations were selected as potential radioprotective agents. In each test, the comparative effectiveness of mercamine on irradiated human erythrocytes was studied. Oxidized oleinic acid with standard toxicity was employed as the radiomimetic agent. Preparation of the solutions and their addition to the erythrocytes took place immediately before the tests. It was determined that oleinic acid destroyed half the erythrocytes in 1.5—2.0 minutes. The hemolytic activity of oleinic acid was established after erythrocytes were washed in a potassium

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ACCESSION NR: AP4043219

hydroxide bath (0.05 M) and a phosphate buffer (pH 7) was added. The effectiveness of potential radioprotectors was evaluated as a function of decreased hemolysis rate. The comparative ability of compounds to protect against the effects of oleinic acid was established by irradiating the erythrocytes with gamma rays from a GUT-Co-400 in 100—1000-kr doses. The criterion for erythrocyte damage under these conditions was the time it took to destroy half of them with respect to the controls. It was found that thiazolidine derivatives exerted a protective influence against the effects of gamma radiation and oleinic acid and that the mechanism of this influence depended upon the character of the radicals in the displacement of hydrogen atoms. The authors conclude that radiomimetic models can be employed for preliminary evaluation of aminothiole-type radioprotectors or those compounds which possess the ability to form aminothioles. Orig. art. has: 2 figures and 2 tables.

ASSOCIATION: none

SUBMITTED: 25Nov63	ATD PRESS: 3087	ENCL: 00
SUB CODE: LS,OC	NO REF SOV: 005	OTHER: 001

Card 2/2

BURLAKOVA, Ye.V.; KAKUSHKINA, M.L.

Study of the electrical conductivity of the spleen tissue in irradiated animals. Nauch. dokl. vys. shkoly; biol. nauki no.3:87-90 '64 (MIRA 17:8)

1. Rekomendovana kafedroy biofiziki Moskovskogo gosudarstvennogo universiteta.

KAKUSHKINA, M.L.

Formation of toxic (hemolytic) lipids in animals injured by radiation. Vest. Mosk. un. Ser. 6: Biol., pochv. 19 no.5:11-17 S-O '64. (MIRA 17:12)

1. Kafedra biofiziki Moskovskogo universiteta.

KAKUSHKINA, M.L.; KUDRYASHOV, Yu.B.; RACHINSKIY, F.Yu.; DMITRIYEVA, N.G.

Use of a radiometic (erythrocytic) model for the study of potential radioprotective agents of the thiazolidine group. Radiobiologiia 4 no.4:632-637 '64. (MIRA 17:11)

L 27636-66 EWT(m)

ACC NR: AP6018429 (A,N) SOURCE CODE: UR/0325/65/000/003/0072/0076

AUTHOR: Burlakova, Ye. V.; Kakushkina, M. L.

ORG: Department of Biophysics, Moscow State University im. M. V. Lomonosov (Kafedra biofiziki Moskovskogo gosudarstvennogo universitota)

TITLE: Investigation of electric conductivity and autolysis of muscles of irradiated animals

SOURCE: Nauchnyye doklady vysshey shkoly. Biologicheskiye nauki, no. 3, 1965, 72-76

TOPIC TAGS: rat, cobalt, radioisotope, muscle physiology, electric conductivity

ABSTRACT: Three series of experiments were performed on non-irradiated white rats and white rats irradiated with Co^{60} (1,000 r, 500 r per min). Electrical conductivity was measured in a wide range of frequencies (0.2, 2, 10, 20, 50, 100, and 1,000 cps). In the first series of experiments the magnitude of high-frequency and low-frequency resistance was measured on the second day after irradiation. In the second series measurement of resistance was combined with determination of autolysis of muscle tissue on the third day after irradiation. In the third series, autolysis of the muscle tissue of irradiated and non-irradiated rats was determined on the third day after irradiation. Autolysis proceeded somewhat slower in irradiated rats. The difference, however, was negligible. In most experiments electrical resistance of surviving muscles was somewhat less for irradiated animals. A correlation apparently exists between these values. Orig. art. has: 2 figures and 1 table. [JPRS]

SUB CODE: 06, 18 / SUBM DATE: 15Jan64 / ORIG REF: 011 / OTH REF: 001

Card 1/1 nc

L 29836-66 EWT(m)
ACC NR: AP6012874 SOURCE CODE: UR/0205/66/006/002/0272/0277 27 B

AUTHOR: Kudryashov, Yu. B.; Kakushkina, M. L.; Mekhtiyeva, S. M.; Rachinskiy, F. Yu.; Sumarukov, G. V.; Filenko, O. F.

ORG: Moscow State University im. M. V. Lomonosov (Moskovskiy gosudarstvennyy universitet)

TITLE: Comparative evaluation of the protective activity of potential radioprotective agents (Bunte salts) on various biological models

SOURCE: Radiobiologiya, v. 6, no. 2, 1966, 272-277

TOPIC TAGS: radioprotective agent, radiation biologic effect, ~~experiment animal~~ mouse, blood

ABSTRACT: It has been postulated that the aminoalkylthiosulfuric acids or Bunte salts can be hydrolized in vivo to yield radioprotective aminoalkylthiols. In order to confirm this and develop a means of testing potential radioprotective agents against in vitro models, the activity of 7 of these salts was compared with that of 3 known radioprotective agents in male white mice irradiated with 200 — 1000 rad, and in intact human erythrocytes,

UDC: 577.391:628.58

Card 1/3

Card 2/3

L 29836-66

ACC NR: AP6012874

haploid yeast cells (Zygosaccharomyces bailii), or solutions of β-carotene irradiated with 1000 rad/min; the protective agents were injected intraperitoneally 25 — 30 min before irradiation or added to the suspension 1 — 5 min before irradiation or addition of a radiomimetic agent. The results shown in the table indicate that compounds can be tested for radioprotective activity in in vitro systems, but that prolonged contact is required. Orig. art. has: 1 table, 1 figure, and 2 formulas. [08]

SUB CODE: 06/ SUBM DATE: 05Aug64/ ORIG REF: 009/ OTH REF: 001/ ATD PRESS: 5,013

Card 3/3

ACC NR: AP6022781 SOURCE CODE: UR/0301/66/012/002/0147/0150

AUTHOR: Kakushkina, M. L.; Kudryashov, Yu. B.; Sivkova, V. G.; Skulachev, V. P. 47 B

ORG: Biological-Soil Faculty, Moscow State University im. M. V. Lomonosov (Biologo-pochvennyy fakul'tet Moskovskogo gosudarstvennogo universiteta)

TITLE: Mechanism of disturbance of oxidative phosphorylation in irradiated animal tissues 19

SOURCE: Voprosy meditsinskoy khimii, v. 12, no. 2, 1966, 147-150

TOPIC TAGS: radiation biologic effect, phosphorylation, rabbit, oxidation, fatty acid, oxidation, kinetics, oleic acid, cell physiology, biologic respiration, reaction mechanism

ABSTRACT: Experimental evidence previously presented indicated that the oxidation products of fatty acids possess radiomimetic properties and are highly reactive compounds which cause the development of pathologic processes in an irradiated organism. It may be assumed that the formation of these active compound have a definite effect on the energy mechanisms of the cells. The functional activity of mitochondria in the presense of the oxidation products of fatty acids and lipids isolated from the tissues of irradiated animals was studied. The functional activity of the mitochondria was determined by measuring the ratio of phosphorylated to free oxidation in them, the P/O ratio. Upon adding oleic acid to mitochondria, the P/O ratio dropped with an increase in acid

Card 1/2

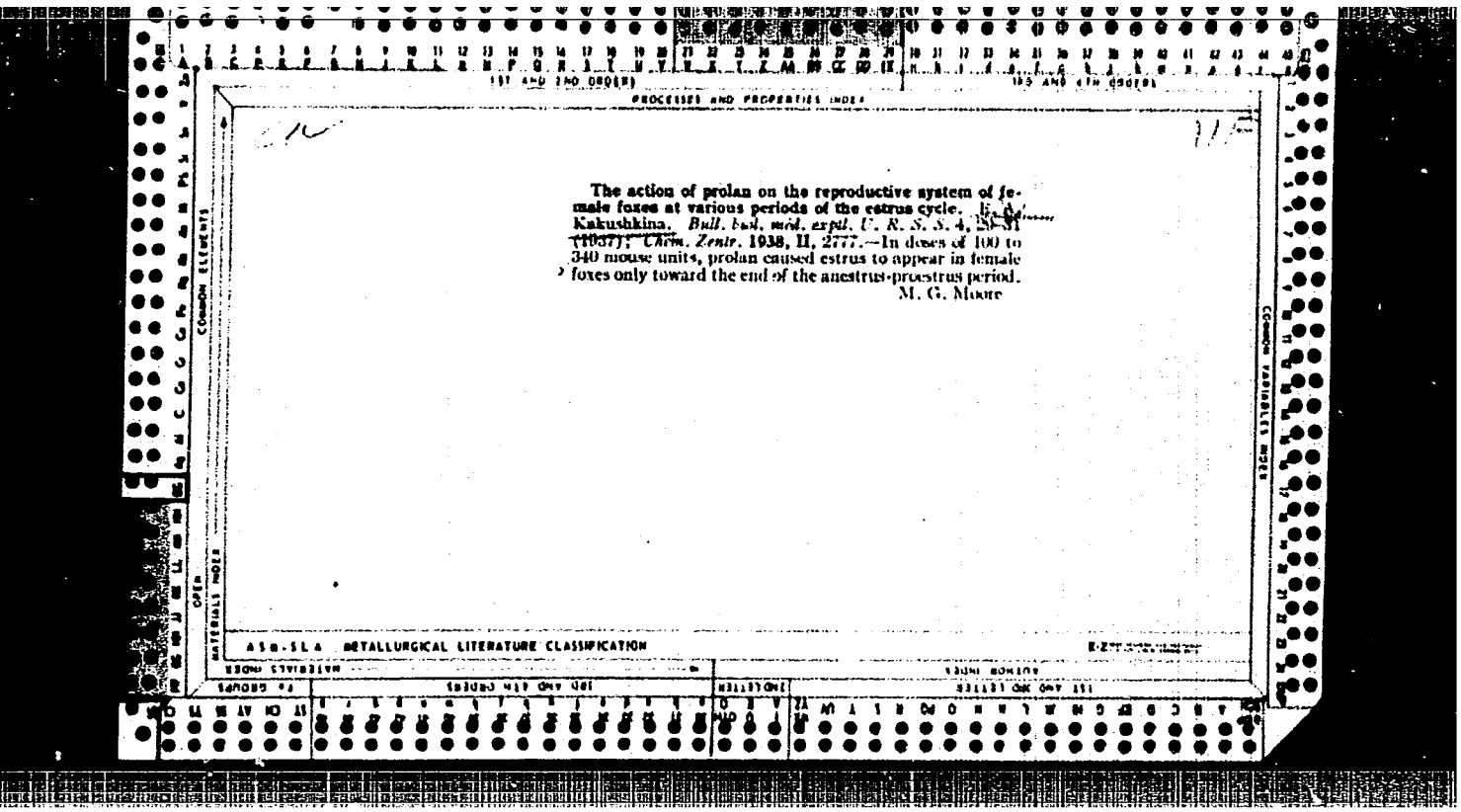
UDC: 617-001.28-008.921.8-092

0945 0751

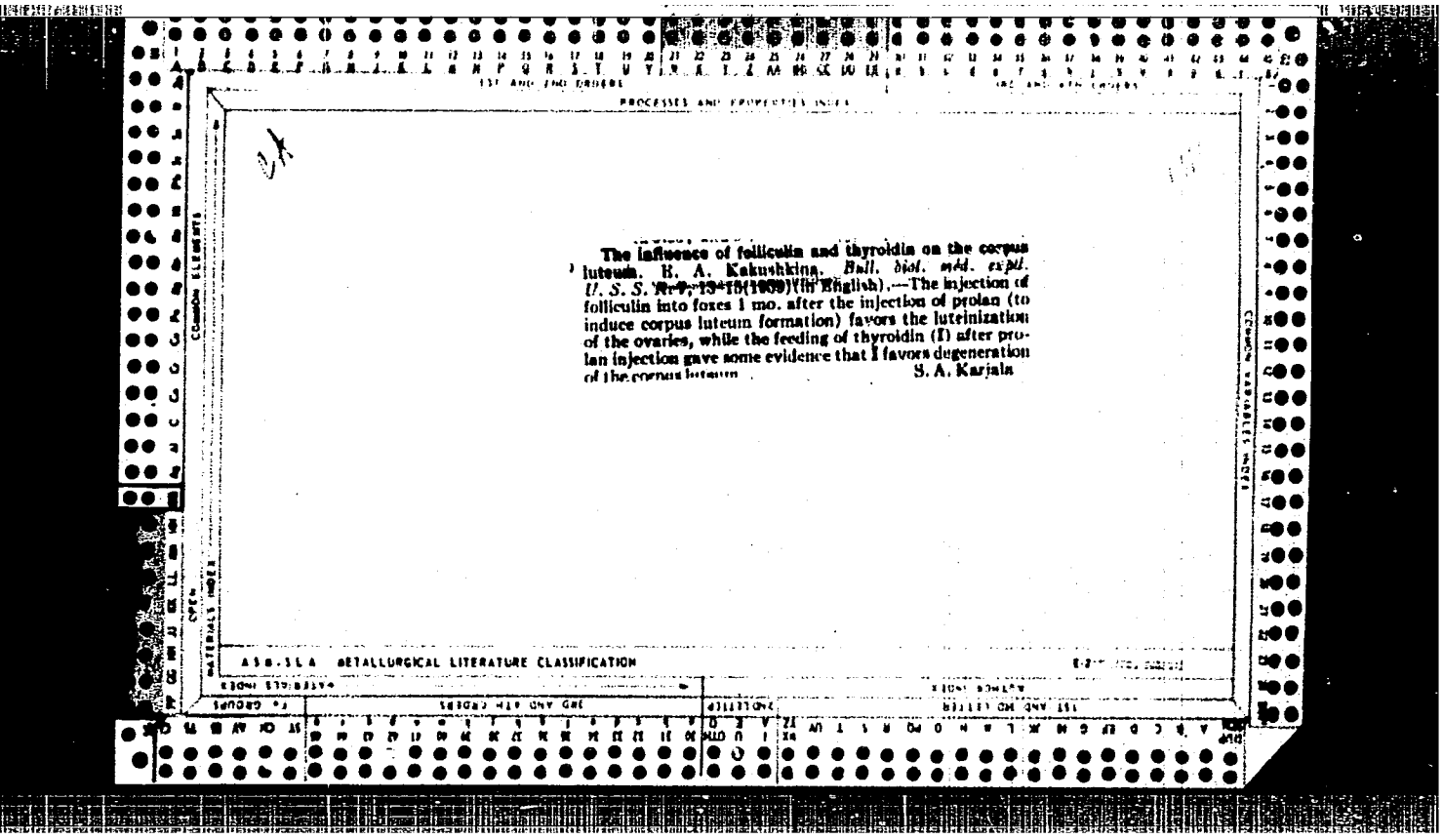
concentration. Analysis of the results of individual measurements of the rates of oxidation and phosphorylation indicated that when the oleic acid content in the reaction mixture is increased, the phosphorylation process is suppressed. The respiration rate of mitochondria remained constant in a wide range of concentrations but decreased with very high contents of oleic acid.

The inhibition of phosphorylation in conjunction with respiration was also observed in the acetone fraction of lipids from rabbit liver irradiated with a dose of 1,000 roentgens. Thus, in the tissues of the irradiated animals, compounds of the lipid nature are present which inhibit the oxidative phosphorylation process. The addition of serum albumin considerably activates oxidative phosphorylation. The conjugating effect of albumin confirms the fact that the disruption of phosphorylation caused by the lipids in the liver of irradiated animals depends on the presence of free unsaturated fatty acids. Orig. art. has: 3 figures. [JPRS]

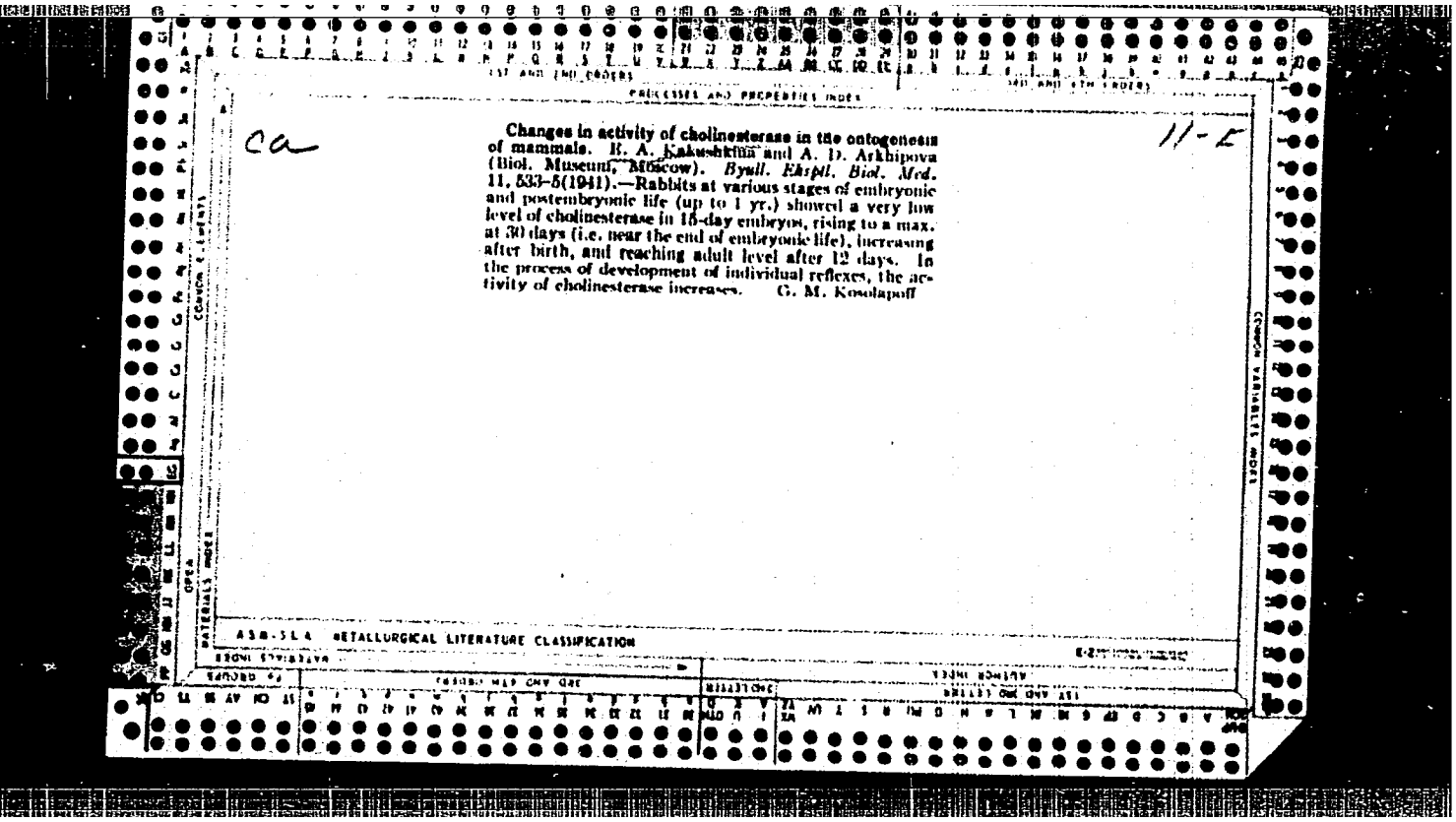
SUB CODE: 06 / SUBM DATE: 30Aug64 / ORIG REF: 008 / OTH REF: 006



The action of prolan on the reproductive system of female foxes at various periods of the estrus cycle. [illegible] Kakushkina. *Bull. biol. méd. exptl. U. R. S. S.* 4, [illegible] (1937); *Chem. Zentr.* 1938, II, 2777.—In doses of 100 to 340 mouse units, prolan caused estrus to appear in female foxes only toward the end of the anestrus-proestrus period.
M. G. Moore



The influence of folliculin and thyroidin on the corpus luteum. B. A. Kakushkina. *Bull. biol. méd. expl. U. S. S. R.* 7, 13-15 (1939) (in English).—The injection of folliculin into foxes 1 mo. after the injection of prolan (to induce corpus luteum formation) favors the luteinization of the ovaries, while the feeding of thyroidin (I) after prolan injection gave some evidence that I favors degeneration of the corpus luteum. S. A. Karjala



ca

11-E

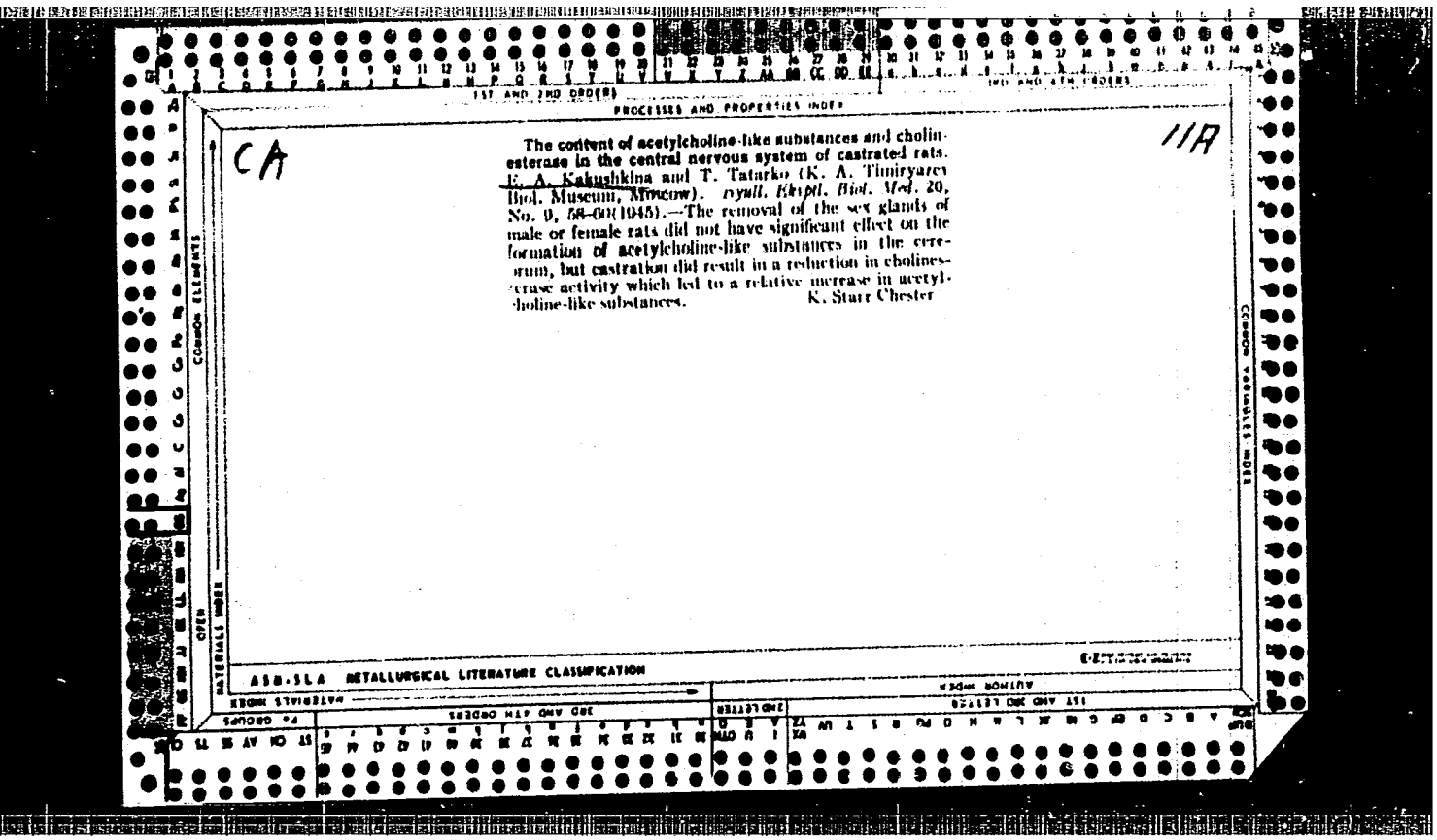
Changes in activity of cholinesterase in the ontogenesis of mammals. E. A. Kakushkina and A. D. Arkhipova (Biol. Museum, Moscow). *Byull. Eksptl. Biol. Med.* 11, 533–5(1941).—Rabbits at various stages of embryonic and postembryonic life (up to 1 yr.) showed a very low level of cholinesterase in 18-day embryos, rising to a max. at 30 days (i.e. near the end of embryonic life), increasing after birth, and reaching adult level after 12 days. In the process of development of individual reflexes, the activity of cholinesterase increases. G. M. Kosolapoff

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

KAKUSHKINA, E.A.

"The Problem of Ontogenesis of the Nervous Activity and Neuro-Humoral Relationships." (p.208) by E.A. Kakushkina (Moscow)

SO: Advances in Modern Biology (Uspekhi Sovremennoi Biologii) Vol. XV, 1942, No. 2



CA

11A

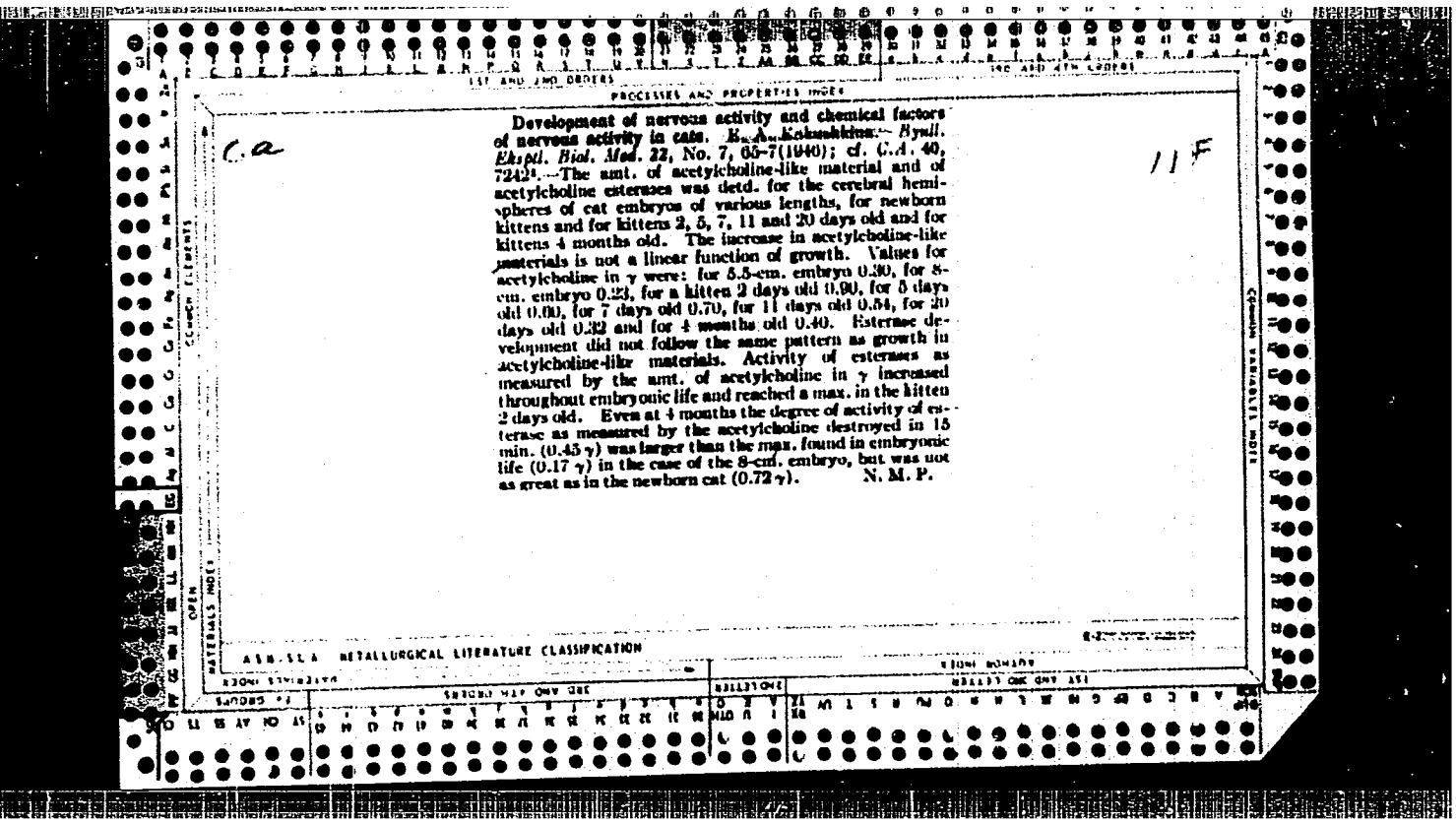
The content of acetylcholine-like substances and cholinesterase in the central nervous system of castrated rats. E. A. Kakushkina and T. Tatarko (K. A. Timiryazev Biol. Museum, Moscow). *Izvest. Akad. Nauk S.S.S.R., Biol. Ser.* No. 6, 58–60(1945).—The removal of the sex glands of male or female rats did not have significant effect on the formation of acetylcholine-like substances in the cerebrum, but castration did result in a reduction in cholinesterase activity which led to a relative increase in acetylcholine-like substances. K. Starr Chester

11-G

CP

The neurohumoral factors of behavior of animals in ontogenesis. K. A. Kakushina. *J. Gen. Biol.* (U.S.S.R.) 7, 393–404(1946); *Amer. Rev.* 53, 361-2(1948); cf. *C.A.* 41, 6318*i*; 43, 1039*b*.—Changes in the concn. of acetylcholine in the embryonic development of rabbits, fowl, and cats are described. In early embryonic life it first increases, later it tends to be destroyed by cholinesterase.

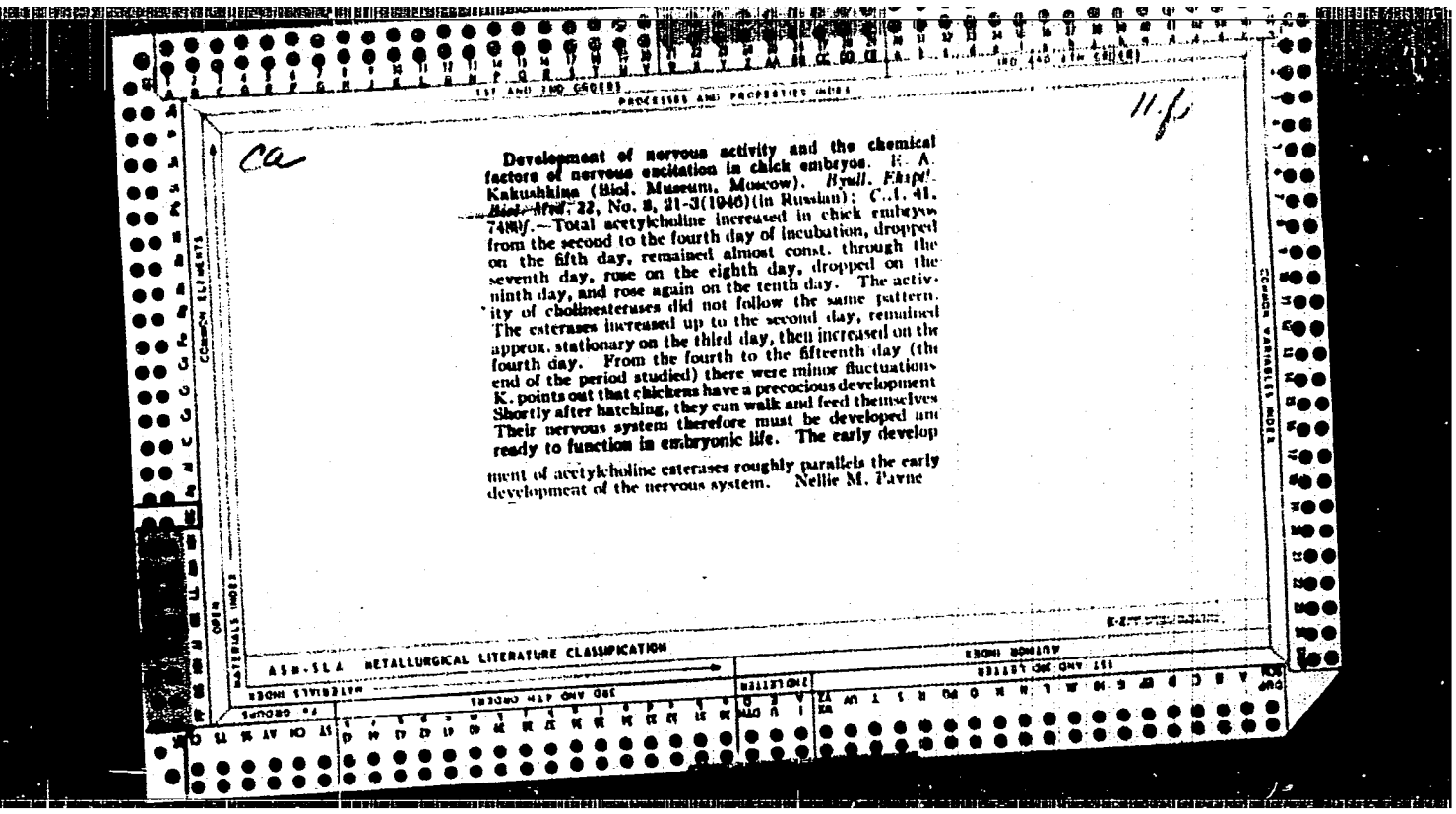
W. C. Tobie



C.a

11F

Development of nervous activity and chemical factors of nervous activity in cats. K. A. Kakushkina.— *Byull. Eksptl. Biol. Med.* **22**, No. 7, 65–7(1940); cf. *C.A.* **40**, 7242⁴.—The amt. of acetylcholine-like material and of acetylcholine esterases was detd. for the cerebral hemispheres of cat embryos of various lengths, for newborn kittens and for kittens 2, 5, 7, 11 and 20 days old and for kittens 4 months old. The increase in acetylcholine-like materials is not a linear function of growth. Values for acetylcholine in γ were: for 5.5-cm. embryo 0.30, for 8-cm. embryo 0.23, for a kitten 2 days old 0.90, for 5 days old 0.00, for 7 days old 0.70, for 11 days old 0.54, for 20 days old 0.32 and for 4 months old 0.40. Esterase development did not follow the same pattern as growth in acetylcholine-like materials. Activity of esterases as measured by the amt. of acetylcholine in γ increased throughout embryonic life and reached a max. in the kitten 2 days old. Even at 4 months the degree of activity of esterase as measured by the acetylcholine destroyed in 15 min. (0.45 γ) was larger than the max. found in embryonic life (0.17 γ) in the case of the 8-cm. embryo, but was not as great as in the newborn cat (0.72 γ). N. M. P.

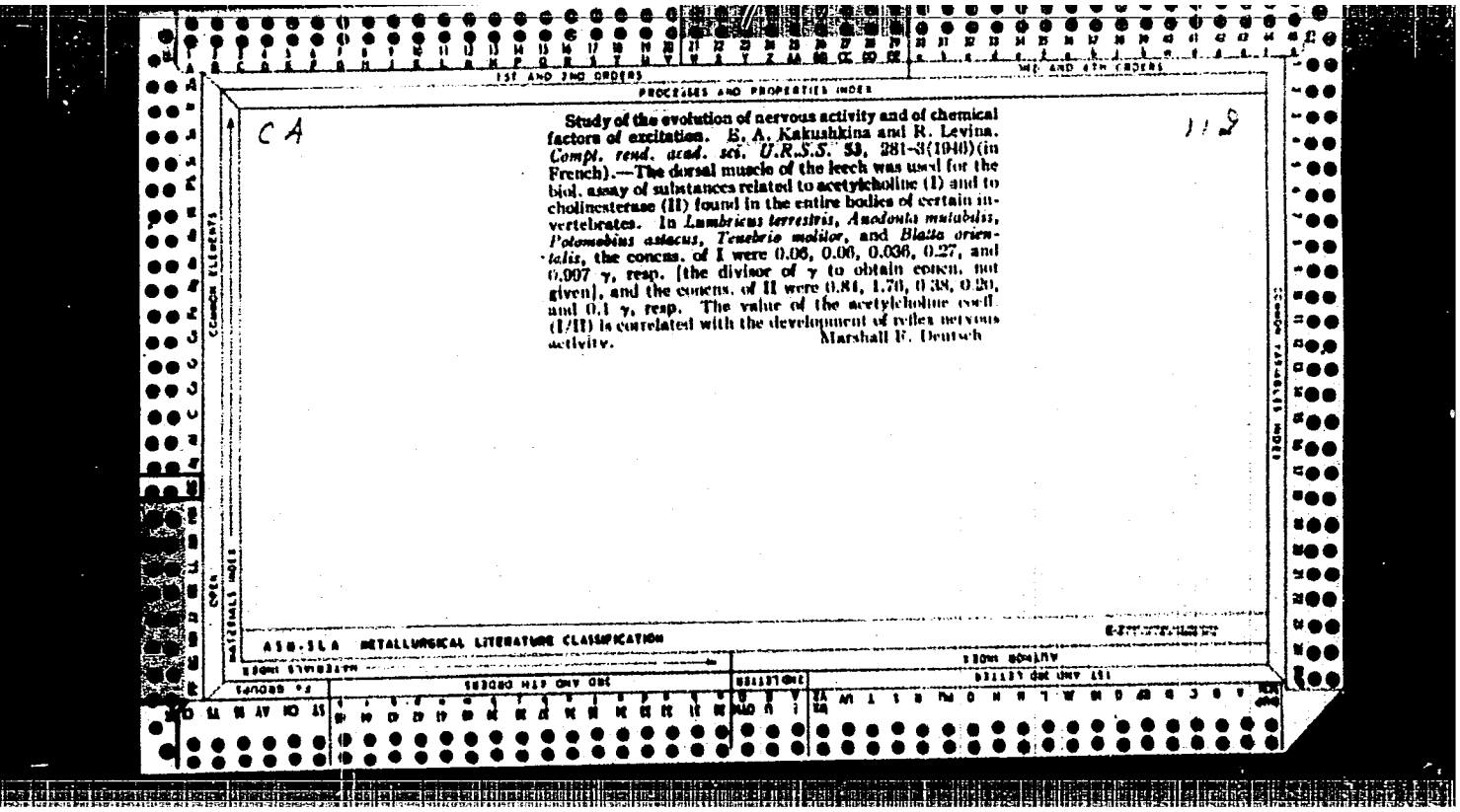


Ca

Development of nervous activity and the chemical factors of nervous excitation in chick embryos. E. A. Kakushkina (Biol. Museum, Moscow). *Byull. Eksptl. Biol. Med.* 22, No. 3, 21-3(1946)(in Russian); *C.A.* 41, 748*f*.—Total acetylcholine increased in chick embryos from the second to the fourth day of incubation, dropped on the fifth day, remained almost const. through the seventh day, rose on the eighth day, dropped on the ninth day, and rose again on the tenth day. The activity of cholinesterases did not follow the same pattern. The esterases increased up to the second day, remained approx. stationary on the third day, then increased on the fourth day. From the fourth to the fifteenth day (the end of the period studied) there were minor fluctuations. K. points out that chickens have a precocious development. Shortly after hatching, they can walk and feed themselves. Their nervous system therefore must be developed and ready to function in embryonic life. The early development of acetylcholine esterases roughly parallels the early development of the nervous system. Nellie M. Payne

11.f.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



CA

Study of the evolution of nervous activity and of chemical factors of excitation. B. A. Kakushkina and R. Levina. *Compt. rend. acad. sci. U.R.S.S.* 53, 281-3(1946)(in French).—The dorsal muscle of the leech was used for the biol. assay of substances related to acetylcholine (I) and to cholinesterase (II) found in the entire bodies of certain invertebrates. In *Lumbricus terrestris*, *Anodonta mutabilis*, *Potamobius astacus*, *Tenebrio molitor*, and *Blatta orientalis*, the concns. of I were 0.06, 0.00, 0.036, 0.27, and 0.007 γ, resp. [the divisor of γ to obtain concn. not given], and the concns. of II were 0.81, 1.70, 0.38, 0.20, and 0.1 γ, resp. The value of the acetylcholine coefficient (I/II) is correlated with the development of reflex nervous activity.

Marshall F. Deutsch

1129

KAKUSHKINA, Ye. and ARKHIPOVA, A.

"Senescence in the Organism and Chemical Factors of Nervous Excitation,"
Dokl. AN SSSR, 53, No.5, 1946

KAKUSHKINA, Ye. A.

"Hormones, Mediators and Nervous Activity," Sub. 16 Jun 47, Moscow City Pedagogical Inst imeni V. P. Potemkin.

Dissertations presented for degrees in science and engineering in Moscow in 1947.

SO: Sum.No.457, 18 Apr 55

PA 21T88

KAKUSHKINA, E.

USSR/Medicine - Hormones Jan 1947
Medicine - Estrogens

"Effect of the Female Sex Hormone (Folliculin) on the Production of Mediators in the Central Nerve System," E. Kakushkina, T. Tatarko, 2 pp

"Dok Ak Nauk SSSR" Vol LV, No 3

No appearance of acetylcholine in rats. Presence of folliculin rarely diminishes the activity of esterase. Submitted by L.A.Orbeli, State Museum imeni K.A. Timiryazev, 16 Jul 46.

21T88

CA

11-14

Action of phenamine (benzedrine?) on content of acetylcholine and activity of cholinesterase in central nervous system. F. Kakushkina and L. Petkevich (State Biol. Museum, Moscow). *Fiziol. Zhur. S.S.S.R.* 37, 81–5 (1951).—Phenamine administered subcutaneously to rats at 10 mg./kg. dose does not affect the concn. of acetylcholine in the large hemispheres of the brain, but cholinesterase activity declines over 20–40 min., then rises considerably above normal (over 250%). G. M. Kosolapoff

KAKUSHKINA, Ye.A.

Pavlovian theory and role of endocrinology in obstetrics and gynecology. Akush..gin..no.6:13-20 Nov-Dec 1952.. (CLML 23:4)

1. Doctor Biological Sciences. 2. Of the Institute of Obstetrics and Gynecology (Director -- L. G. Stepanov), Ministry of Public Health USSR.

KAKUSHKINA, Ye.A.; MENTOVA, V.N.

Chemical factors of neural stimulation in experimental hypertension. Fiziol.zhur. 39 no.3:324-333 My-Je '53. (MLRA 6:6)

1. Institut terapii Akademii meditsinskikh nauk SSSR, Moscow.
(Hypertension) (Nervous system)

Differences of cholinesterase activity in individual animals apparently depend on the type of their higher nervous activity. Investigations on dogs indicate that the cholinesterase activity of theblood serum is elevated during a state of experimentally induced hypertension. During this state, the cholinesterase level varies with the arterial pressure. Administration od phosphacol to dogs with high blood pressure lowers both the activity of cholinesterase and the arterial pressure. When the activity of cholinesterase drops below a certain level (50% of normal), the arterial pressure rises.

251T18

KAKUSHKINA, Ye.A.; MENTOVA, V.N.

Changes in the blood cholinesterase and the effect of phosphacol on hypertension in dogs. Trudy Vses.ob-va fiziol.biokhim.i farm. 2: 206-213 '54. (MLRA 8:7)

1. Institut terapii Akademii meditsinskikh nauk SSSR.
(PHOSPHATES, effects,
diethyl p-nitrophenyl phosphate, on blood cholinesterase & exper. hypertension)
(BLOOD,
cholinesterase in exper. hypertension, eff. of diethyl p-nitrophenyl phosphate)
(CHOLINESTERASE, in blood,
in exper. hypertension, eff. of diethyl p-nitrophenylph phosphate)
(HYPERTENSION, experimental,
blood cholinesterase in & eff. of diethyl p-nitrophenyl phosphate)

Kakushkina E. A.

The isolation and quantitative determination of estrone, estradiol, and of estriol in the urine of nonpregnant women by the method of chromatographic adsorption. E. A. Kakushkina and V. G. Orlova (Inst. Obstet. and Gynecol., Moscow). *Biokhimiya* 21, 26-32(1956).—To 250 ml. of a 24-hr. urine specimen add 15% by vol. of concd. HCl and hydrolyze for 10 min. Cool and ext. the acid and neutral steroids 4 times with ether which was previously treated with a satd. soln. of Na_2CO_3. Separate the phenolic held steroids (estrones) from the ether soln. by the following 2 steps; 1) ext. with 0.1 *N* NaOH, and 2) evaporate the ether and ext. the residue with toluene, then ext. the toluene soln. with 1 *N* NaOH. Combine the 2 alk. exts. and acidify with HCl and again separate the estrogens with the aid of ether. Evaporate the ether. Dissolve the residue in 3 ml. of 2% soln. of methanol in benzene and run through the chromatographic adsorption column at the rate of 0.5 ml. per min. The column should be 10 mm. in diam. and 100 mm. high. The adsorbent consists of 3 g. of baked standard Al_2O_3 of not less than second degree activity. Moisten it with benzene prior to using. When the adsorption has been completed, add 3 ml. of benzene to the column. Elute the estrone with 15 ml. of 2% soln. of methanol in benzene; elute the estradiol with 10 ml. of 5% soln. of methanol in benzene; elute the estriol with 10 ml. of 30% methanol in benzene. Add the eluants gradually (approx. 3 ml. at a time) insuring an uninterrupted process of elution in each instance. Evaporate each estrogenic fraction thus obtained to complete dryness and make quant. detns. colorimetrically by the method of Cohen. It is claimed that 90-95% of the estrogen components can thus be isolated and identified. The absorption curves of the estrogens of non-pregnant women thus secured are in agreement with the absorption curves of the corresponding cryst. products, indicating the high degree of purity of the fractions isolated by the method described. It is also claimed that the total analytical procedure requires only 5 instead of 18 hrs. for completion.

B. S. Levine

KAKUSHKINA, Ye.A.; ORLOVA, V.G.

Chromatographic quantitative determination of estradiol, estrone, and estriol in the urine of a nonpregnant woman. Lab.delo 4 no.2: 11-16 Mr-Ap '58. (MIRA 11:4)

1. Laboratoriya endokrinologii (zav. Ye.A.Kakushkina) Instituta akusherstva i ginekologii Ministerstva zdravookhraneniya RSFSR.
(ESTROGENS)

LESNOY, S.K.; KAKUSHKINA, Ye.A.; ORLOVA, V.G. (Moskva)

Studies on estrogen metabolism in women in acute and subacute genital inflammatory diseases [with summary in English]. Probl.endok. i gorm. 4 no.6:72-77 N-D '58. (MIRA 12:2)

1. Iz otdeleniya konservativnoy ginekologii (zav. - prof. S.K. Lesnoy) i endokrinologicheskoy laboratorii (zav. - doktor biologicheskikh nauk Ye.A. Kakushkina) Nauchno-issledovatel'skogo instituta akusherstva i ginekologii (dir. L.G. Stepanov).

(ESTROGENS, in urine,
in gyn. dis. (Rus))
(GYNECOLOGICAL DISEASES, urine in
estrogens (Rus))

KAKUSHKINA, Ye.A.

Proportion of estradiol, estrone and estriol in urine as a diagnostic test of the functional state of the female genital system [with summary in English]. Akush. i gin. 34 no.2:55-60 Mr-Ap '58. (MIRA 11:5)

1. Iz laboratorii endokrinologii (zav. Ye.A. Kakushkina) Nauchno-issledovatel'skogo instituta akusherstva i ginekologii (dir. L.G. Stepanov) Ministerstva zdravookhraneniya RSFSR.

(ESTROGENS, in urine
correlation of estradiol estrone and estriol as diag. test of funct. state of genital system (Rus))
(GENITALIA, FEMALE, physiol.
determ. of funct. state by correlation of estradiol, estrone and estriol in urine (Rus))