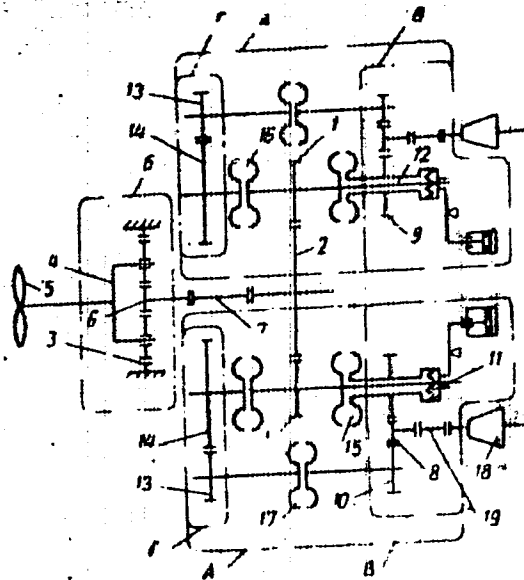


AA0052390

Ioffe, L. Ya.;  
Komarova, L. K.;  
Pyzh, O. A.;  
Rodin, A. S.



14.3.67 as 1181577/27-11. IOFFE L.YA. et al. (11.9.69)  
Bul 16/5.5.69. Class 65f. Int. Cl. B 63j.

2/2

19820992

UDC 537.52

USSR

GOLUBOVSKIY, YU. B., KAGAN, YU. M., and KOMAROVA, L. L.

"On the Emission of a Continuous Spectrum of Electron Retardation by Atoms in a Positive Argon Discharge Column"

Leningrad, Optika i Spektroskopiya, Vol 34, vyp 2, Feb 73, pp 226-229

Abstract: In the medium pressure region at  $p > 1$  torr the emission spectrum of a positive inert-gas discharge column displays a continuous spectrum, whose intensity increases with an increase in pressure. It has been proved that this continuous spectrum is emitted during electron retardation by gas atoms. The expression for the intensity of the continuous spectrum  $I_\omega$  is

$$I_\omega = nn_a h\omega \int_{\sqrt{\frac{2A\omega}{\pi}}}^{\infty} \frac{d\sigma(\epsilon)}{d\omega} f(\epsilon) d\epsilon$$

where  $n$  and  $n_a$  are the electron and atom concentrations,  $d\sigma(\epsilon)$  is the cross section of the process in which an electron with energy  $\epsilon$  during collision with an atom emits a quantum in the frequency range  $\omega - \omega + d\omega$ , and  $f(\epsilon)$  is the

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USSR

GOLUBOVSKIY, YU. B., et al., Optika i Spektroskopiya, Vol 34, vyp 2, Feb 73, pp 226-229

energy distribution function of the electrons. It has been shown that this cross-section can be expressed through the total cross-section for the elastic scattering of electron by atom, and a formula has been given for the case in which the total elastic scattering cross-section does not depend on the velocity and the energy distribution of the electrons is Maxwellian. This formula can be generalized for the case in which the total cross-section does depend on the velocity. For a Maxwellian distribution of electrons with the temperature T it will take the form

$$I_{\omega} = 5 \cdot 10^{-3} \frac{nn_a}{m^{3/2} c^2} h (kT)^{-3/2} \int_{\lambda_{\omega}}^{\infty} \sqrt{\epsilon - h\omega} \sqrt{\epsilon} \times \\ \times (\epsilon(\epsilon - h\omega) + (\epsilon - h\omega) \alpha(\epsilon)) e^{-\epsilon/kT} d\epsilon.$$

This formula was previously used by the authors to find the electron concentration n from the measured intensity  $I_{\omega}$  in a positive neon and helium discharge column. However, whereas in helium the energy distribution of slow

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USSR

GOLUBOVSKIY, YU. B., et al., Optika i Spektroskopiya, Vol 34, vyp 2, Feb 73, pp 226-229

electrons is Maxwellian at any electron concentration  $n$ , in neon and argon the slow electron distribution can be considered Maxwellian only for a rather large electron concentration; i.e., for discharge currents which are not too small. This limitation can be avoided if formula (1) is used and if  $f(\mathcal{E})$  is taken to be the following approximate expression for the distribution function valid for any electron concentration  $n$ :

$$f(u) = C \left( \frac{m}{2kt} \right)^{3/2} \exp \left[ - \int_0^u \frac{1 + \gamma_2 \frac{u^2}{\lambda(u)}}{1 + \gamma_1 u \lambda(u)} du \right].$$

A comparison of the calculated intensity values with experimentally measured values shows satisfactory agreement.

The authors thank A. N. STAROSTIN for advising them of the form for formula (2), and R. I. LYAGUSHCHENKO for discussing the results.

3/3

USSR

UDC 537.535.1

GOLUBOVSKIY, Yu. B., KAGAN, Yu. M., KOMAROVA, L. L., Leningrad State University imeni A. A. Zhdanov

"Parameters of a Positive Column in Argon at Moderate Pressures"

Leningrad, Zhurnal Tekhnicheskoy Fiziki, Vol 42, No 11, Nov 72, pp 2366-2370

Abstract: The theory of a positive discharge column in inert gases at moderate pressures is briefly outlined, and the results of measurements of the electric and optical parameters of a positive discharge column in argon at pressures from 10 to 80 mm Hg and discharge currents from 5 to 500 ma are presented for a tube radius of 1.2 cm. The measurements are compared with theoretical data.

1/1

KOMAROVA, L. M.

SYSTEMATIC APPROACH IN MEDICAL SUPPORT OF CREW MEMBERS  
Article by L. M. Komarova, Moscow, Meditsina Vozdushnogo Flota  
Leonovskiy Ekspeditsionnyy (Leningrad) Priblizheniya k  
Orlovskiy i Meditsina, Russkaya, 1971, pp 156-163.

and flight (for example, to other medical) involve such which is unknown and which is necessarily accompanied for the human body, such a situation makes it necessary to solve the problem of creating aboard the ship "on-board hospital" for the effective medical servicing of the crew. Two aspects of this problem have been dealt with in the appropriate literature, from which it follows that the diversity and complexity of the problem leads researchers to the conclusion that the solution is possible only with the participation of a wide range of specialists with different backgrounds. Thus, individual specialists in one way or another have spoken out in favor of a systematic approach in the development of complex problems. The essence of the systematic (systemic) approach is the orientation of the investigated object as a unified complex (that is, system) of interrelated and interdependent elements, whose important property is functional unity.

A unified approach to all elements of a system in which the properties of the whole are determined by the properties of the elements, and vice versa, the properties of the elements are characteristics of the whole, makes it possible to formulate sound requirements on the individual elements of the system and thereby limit the area of "willpower" decisions in creating systems. We will examine some aspects of application of the systemic approach to the creation of a medical research information system (MIS) for the "on-board hospital". Such a system is intended for implementing research enabling the physician-computer to carry out periodic general examinations for evaluating the health of crew members and to make a thorough analysis of individual functional systems and

SPRS 57499  
14 JULY 72

1/2 015 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--USE OF THE FLAG METHOD FOR STUDY OF THE DISTRIBUTION OF SANDFLIES  
ON THE SURFACE OF SANDY DESERT -U-  
AUTHOR--(03)-DUBROVSKIY, YU.A., KOMAROVA, L.V., SIDOROVA, G.A.  
COUNTRY OF INFO--USSR  
SOURCE--ZOOLOGICHESKIY ZHURNAL, 1970, NR 1, PP 89-95  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--SAND FLY, DESERT, POPULATION LEVEL, MEASUREMENT  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAHE--3003/1199 STEP NO--UR/0439/70/000/001/0089/0095  
CIRC ACCESSION NO--AP0130214

UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0130214

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SANDFLY POPULATION IN NATURAL FOCI OF CUTANEOUS LEISHMANIASIS IN EASTERN TURKMEN SSR WAS DETERMINED WITH FLAGS OF STICKY PAPER ON TAMPED GROUND. STUDIES WERE CONDUCTED IN MAY AND JUNE, 1968, WITH 20 TIMES 30 CM FLAGS MOISTENED WITH CASTOR OIL.

THE NUMBER OF SPECIMENS OF PHLEBOTOMUS CAUCASICUS AND SERGENTHOMYIA GREKOVI ON THE SURFACE OF BURROWS INHABITED BY GREAT GERBILS (THE CHIEF DWELLING PLACE OF SANDFLIES IN THIS AREA) WAS 2 TO 7 TIMES GREATER THAN THE NUMBER OF SPECIMENS ON THE SURFACE OF UNINHABITED BURROWS. BETWEEN BURROWS, THE SANDFLY DENSITY WAS 2.1 TIMES SMALLER THAN ON THE SURFACE OF UNINHABITED BURROWS AND EIGHT TIMES LESS THAN ON THE SURFACE OF INHABITED BURROWS. THE SANDFLY POPULATION WAS IDENTICAL ON SLIGHT ELEVATIONS AND DEPRESSIONS OF THE DESERT FLOOR RANGING IN HEIGHT FROM 3-4 TO 8-10 M. NO DIFFERENCES IN DISTRIBUTION OF SANDFLIES SPECIES, SEX OF DEVELOPMENTAL STAGE ON VARIOUS LANDSCAPES FEATURES OR DIFFERENCES IN ADAPTAION TO BURROW SURFACE OR SPACES BETWEEN BURROWS WERE FOUND. IT WAS CONCLUDED THAT THE VERY EVEN DISTRIBUTION OF SANDFLIES WAS CAUSED BY THE VERY SLIGHT VARIATION IN COMPOSITION AND HUMIDITY OF THE GROUND IN VARIOUS PARTS OF THE LANDSCAPE.

FACILITY: INSTITUTE OF EPIDEMIOLOGY AND MICROBIOLOGY, AMN, SSSR, MOSCOW. FACILITY: INSTITUTE OF FRIENDSHIP OF PEOPLES IMENI PATRICE LUMUMBA, MOSCOW.

UNCLASSIFIED



UDC 669.295:537.533.35

USSR

KOMAROVA, M. F., BUYNOV, N. N., IOFFE, A. YA., KAGANOVICH, L. I., and GAVRILOVA, A. B., Institute of Metal Physics, UNTs [ expansion unknown ] Academy of Sciences USSR

"Effect of Small Additions of Beryllium, Titanium, and Zirconium on the Structure and Properties of AL9 Alloy"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 36, No 1, 1973, pp 140-148

Abstract: Metallographic and electron microscopic studies were conducted and the mechanical properties of AL9 alloy, alloyed with Be, Ti, and Zr, determined. The hypoeutectic alloy has the following composition (in %): 7 Si, 0.3 Mg, 0.015 Cu, 0.1 Zn, and 0.25 Fe with varying small amounts of the alloying elements. Results of analysis showed that the small amounts of Be, Ti, and Zr, taken in limits from 0.001 to 0.1% (separately or together) do not alter the nature of the eutectic in the alloy, its quantity and silicon particle size in the eutectic or the size of the solid solution nucleus between the eutectic colonies. Investigation in the work of alloying showed changes in the kinetics of decomposition of the supersaturated solid solution, acceleration of the formation of the metastable beta'-phase and silicon particles, and refining of the particles and an increase in their number. These factors promoted increased alloy strength where joint alloying increased this strength by 30-40%. Six figures, 13 bibliographic references. 1/1

- 39 -

KOMAROVA, M. L.

ROLE OF PECULIARITIES IN EXTERNAL STRUCTURE IN THE HYDRODYNAMICS OF HIGH-SPEED FISH

[Article by G. F. Kozhats and M. L. Komarova, Novosibirsk; Kiev, Blonika, Russian, no 5, 1971, Izd-vo Naukova Dumka, pp 101-109]

JPRS 55712  
15 MAY 72

There is now a marked increase in interest in studies of the hydrodynamic characteristics of marine animals and the volume of information has also increased correspondingly. Many researchers are attempting to explain the so-called Grey paradox, understood as the noncorrespondence between the muscular capabilities of a marine animal and the velocity which it develops. Unfortunately, most of the proposed hypotheses are very poorly supported by theoretical or experimental data and some of them contradict the known facts of hydromechanics.

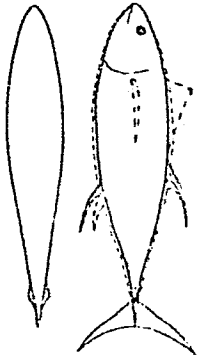


Fig. 1. Configuration of body of tunas: Neothunnus albacoro Lowe (solid line); Xiphiodae (dashed line).  
We will examine the soundness only of some hypotheses pertaining to tunas, sharks and representatives of Xiphiodae (swordfish, marlin, sailfish).

USSR

UDC 547-94

YAKHONTOVA, L. D., KOMAROVA, M. N., PEREL'SON, M. YE., BLINOVA, K. F.,  
and TOLKACHEV, O. N., "All Union Scientific Research Institute of Medicinal  
Plants, Leningrad Chemical-Pharmaceutical Institute

"Hypecoum Erectum Alkaloids. Structure of Hypecorine and Hypecorinine"

Tashkent, Khimiya Prirodnikh Soyedineniy, No 5, 1972, pp 624-628

Abstract: Two new alkaloids were isolated from the Hypecoum erectum L. grass --  
hypecorine, m.p. 154-156° and hypecorinine, n.p. 197-198°. The structures  
of these compounds were determined on the basis of their chemical reactions  
and IR, UV, NMR, and mass-spectroscopic data. Hypecorine was assigned  
the structure of 7-methyl-2,3,11,12-dimethylenedioxy-9-oxahomospirobenzyl-  
tetrahydroisoquinoline, and hypecorinine was identified as 7-methyl-2,3,11,  
12-dimethylenedioxy-15-keto-9-oxahomospirobenzyltetrahydroisoquinoline.  
Both compounds are optically inactive, probably due to the ease of the  
racemization stemming from their spiroaminoketal structures.

1/1

Pathology

USSR

UDC 616.24-002.5-06:616.24-003.667-07:616.12-073.97

KOMAROVA, O. I., and MOSKALEVA, A. I., Scientific Research Institute of Tuberculosis, Sverdlovsk

"Electrocardiogram after Physical Loads in Patients With Asbestotuberculosis"

Moscow, Problemy Tuberkuleza, Vol 48, No 7, 1970, pp 19-21

Abstract: Electrocardiograms after physical loading were obtained for 78 patients with asbestotuberculosis and compared with those of 78 patients with ordinary pulmonary tuberculosis. The patients with asbestotuberculosis exhibited a 37% frequency of pathological changes in the EKG, as compared to 27% for those with ordinary tuberculosis. The EKG change was of the dystrophic type in most cases. Pathological changes after physical loading were generally shown by patients who had disturbances of the EKG in a state of rest, although the disturbances during rest were relatively weak. It was previously established that the reactivity of the cardiovascular system to various external effects is lowered in asbestotuberculosis. This lowered reactivity, which was also observed in silicosis, is part of an adaptation process that prevents decompensation in pulmonary lesions.

1/1

172 009 UNCLASSIFIED PROCESSING DATE--ZONOV70  
TITLE--ALCOHOLYSIS DURING THE PREPARATION OF UNSYMMETRIC DIESTERS OF  
PHTHALIC ACID -U-  
AUTHOR--(65)-KCHARGVA, R.P., ZVESOKINA, L.I., IGNATOVA, G.N., GRISHKO,  
N.I., LUKTEV, S.M.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. PRIKLD. KHIF. (LENINGRAD) 1970, 43(5), 1186-8  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--PHTHALATE, ALCOHOLYSIS, ESTERIFICATION, GAS CHROMATOGRAPHY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3004/1943 STEP NO--UR/0080/70/043/005/1186/1188  
CIRC ACCESSION NO--AP0132204  
UNCLASSIFIED

2/2 009

UNCLASSIFIED

PROCESSING DATE--20NDV7G

CIRC ACCESSION NO--AP0132204

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MONOAMYL PHTHALATE (I) OR  
MONONONYL PHTHALATE (II) WERE ESTERIFIED WITH NONYL ALC. OR AMYL ALC.,  
RESP., IN THE PRESENCE OF 1.0PERCENT H SUB2 SO SUB4 (ON I OR II). GAS  
CHROMATCG. OF THE UNSYM. DIESTER SHOWED THAT AT THE OPTIMUM REACTION  
CONDITIONS BETTER YIELDS WERE OBTAINED WHEN I WAS USED AS A STARTING  
ESTER. I UNDERGOES ALCOHGLYSIS FASTER THAN II DECREASING THE FINAL  
YIELDS.

UNCLASSIFIED

1/2 026 UNCLASSIFIED PROCESSING DATE--18SEP70  
TITLE--LOW TEMPERATURE MODIFICATION OF THE LOWER MOLYBDENUM CARBIDE -U-  
AUTHOR--(04)-YEREMENKO, V.N., VELIKANOVA, T.YA., LISTOVNICKIY, V.YE.,  
KOMAROVA, S.A.  
COUNTRY OF INFO--USSR K  
SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(1), 11-14  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY, PHYSICS  
TOPIC TAGS--MOLYBDENUM COMPOUND, CARBIDE, X RAY DIFFRACTION, CRYSTAL  
STRUCTURE, THERMAL EFFECT, ELECTRIC RESISTIVITY, THERMOGRAPHIC ANALYSIS  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1984/0151 STEP NO--UR/0363/70/006/001/0011/0014  
CIRC ACCESSION NO--AP0054947  
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--19SEP70

2/2 026

CIRC ACCESSION NO--AP0054947

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THERMOGRAPHIC AND X RAY

DIFFRACTION METHODS WERE USED. DURING X RAY DIFFRACTION INVESTIGATION OF MO-C ALLOYS, CAST AND ANNEALED IS GREATER THAN 1200DEGREES (WITH C CONTENT 12.538 AT. PERCENT AT IS LESS THAN 1634DEGREES AND UP TO 50 AT. PERCENT C AT LOWER TEMPS.), ONLY THE PSEUDOHXAGONAL LATTICE WAS OBSD. FOR THE MO SUBC-BASED PHASE, WITH THE PARAMETERS: ALPHA EQUALS 2.993, C EQUALS 4.739 KX, AND C-A EQUALS 1.58 (AT 31 AT. PERCENT C); AND ALPHA EQUALS 3.015, C EQUALS 4.739 KX, AND C-A EQUALS 1.57 (AT 33.75 AT PERCENT C). A PHASE TRANSITION WAS OBSD. AT 1170 PLUS OR MINUS 13DEGREES IN THE LOWER MO CARBIDE MO SUB2 C, ACCOMPANIED BY AN EXOTHERMAL EFFECT (DURING COOLING) WITH A SIGNIFICANT TEMP. HYSTERESIS. A DECREASE IN THE SYMMETRY OF THE CRYST. LATTICE, I.E. RHOMBOHEDRAL DISTORTION OF THE ORTHORHOMBIC MO SUB2 C STRUCTURE, IS OBSD. THE MO CARBIDES STUDIED HAD THE COMPS. OF MOC SUB0.48 AND MOC SUB0.51, RESP. EXPTS. WERE PERFORMED RELATIVE TO THE MEASUREMENT OF SP. ELEC. RESISTIVITY OF MOC SUB0.48 AS DEPENDENT ON THE QUENCHING TEMP. WITHIN THE TRANSITION TEMP. RANGE. THE ELEC. RESISTIVITY OF THE ALLOY QUENCHED FROM 1400DEGREES DOES NOT DIFFER FROM THE ELEC. RESISTIVITY OF THE CAST ALLOY. WITH DECREASED QUENCHING TEMP. THE ELEC. RESISTIVITY DECREASES TO 1050DEGREES, WHERE UPON IT REMAINS UNCHANGED. THE DEPENDENCE OF THE P VALUE ON THE QUENCHING TEMP. OF THE SAMPLE CAN BE ASSOCD. WITH THE CHANGE IN ITS CRYST. STRUCTURE. AN-ADDNL. THERMAL EFFECT WAS OBSD. AT 1634DEGREES.

UNCLASSIFIED



UDC 612.321

USSR

KOMAROVA, T. F.

"Determining Tolerance to Glucose as a Method of Evaluating the Force of the Stimulation Process in Dogs"

Leningrad, Metodiki Otsenki Svoystv Vysshey Nervnoy Deyatel'nosti, "Nauka," 1971, pp 56-64

Abstract: The existence of a direct and close dependence between the size of the maximum dose of caffeine and the speed with which sugar concentration in the blood decreases after being loaded with glucose was established. The correlation coefficient is  $r = +0.73$ . Repeated studies of glucose tolerance in the same animal give evidence of the stability of this indicator. Five illustrations, three tables, and 13 bibliographic entries.

1/1

1/2 024 UNCLASSIFIED PROCESSING DATE--16OCT70  
 TITLE--THE STATE OF PROTEIN AND AMINOACID SPECTRUM OF THE BLOOD SERUM IN  
 RELATIVES OF PATIENTS WITH LUPUS ERYTHEMATOSUS -U-  
 AUTHOR--(03)-GLAVINSKAYA, T.A., PAVLOVA, L.T., KOMAROVA, V.D. *R*

COUNTRY OF INFO--USSR

SOURCE--VESTNIK DERMATOLOGII I VENEROLOGII, 1970, NR 4, PP 18-22

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--SKIN DISEASE, BLOOD CHEMISTRY, PROTEIN, AMINO ACID, GLOBULIN,  
GAMMA GLOBULIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1990/0566

STEP NO--UR/0206/70/000/004/0018/0022

CIRC ACCESSION NO--AP0108781

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--16OCT70

2/2 024

CIRC ACCESSION NO--AP0108781

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE AUTHORS STUDIES PROTEIN AND AMINOACID SPECTRUM OF THE BLOOD SERUM, AS WELL AS LABILE GLOBULINS IN 57 RELATIVES FROM FAMILIES OF 37 PATIENTS WITH DIFFERENT FORMS OF LUPUS ERYTHEMATOSUS. CLINICALLY HEALTHY MEMBERS OF FAMILIES OF THE PATIENTS WERE FOUND TO HAVE DISPROTEINEMIAS, THE CHARACTER OF WHICH WAS SIMILAR TO THAT IN LUPUS ERYTHEMATOSUS. IN MOTHERS WHOSE CHILDREN SUFFERED FROM LUPUS ERYTHEMATOSUS THE MOST IMPORTANT FINDINGS WERE HYPOALBUMINEMIA AND HYPERGAMMAGLOBULINEMIA. IN CHILDREN WHOSE MOTHERS SUFFERED FROM LUPUS, ERYTHEMATOSUS A TENDENCY TO HYPOGAMMAGLOBULINEMIA WAS OBSERVED RELATIVELY MORE FREQUENTLY. DIRORDERS OF THE PROTEIN SPECTRUM WERE ACCOMPANIED BY DISBALANCE OF SOME FREE AMINOACIDS, MOST FREQUENTLY OF TYROSINE, LESS FREQUENTLY OF CYSTINE AND PHENYLALINE.

FACILITY: KAFEDRA KOZHNYKH I VENERICHESKIKH BOLEZNEY GOR'KOVSKOGO MEDITSINSKOGO INSTITUTA IM. S. M. KIROVA.

UNCLASSIFIED

USSR

KOMAROVA-GUSHCHINA, V. P., First Joint Clinical Hospital, Alma-Ata, and Brucellosis Division, Institute of Regional Pathology, Ministry of Health Kazakh SSR

"Dispensary Treatment of Brucellosis Patients"

Alma-Ata, Zdravookhraneniye Kazakhstana, Vol 30, No 5, May 71, pp 7-10

Abstract: Because of the frequency of primary chronic brucellosis cases which are of the infectious-allergic type and are distinguished by a protracted and acyclic course., treatment of brucellosis by the dispensary method is of advantage. This type of treatment is applied at the First Joint Clinical Hospital in Alma-Ata. Only patients with Acute or subacute brucellosis or with a chronic form in the state of decompensation are hospitalized; all other patients are treated on an ambulatory basis. In addition, patients who have been discharged from the hospital are subjected to supplementary treatment. During 1964-68, 13,125 persons were examined at the cabinet for brucellosis. Among them, there were 814 fresh cases of the disease. In this category, there were 151 patients who became sick during the year of the examination and 663 patients who had contracted the disease previously. Relapses in cases of chronic brucellosis were not of a pronounced seasonal character, but associated with the incidence of other diseases among the patients such as the common  
1/2

USSR

KOMAROVA-GUSHCHINA, V. P., Zdravookhraneniye Kazakhstana, Vol 30, No 5,  
May 71, pp 7-10

cold, influenza, acute respiratory catarrh, tonsillitis, cholecystitis, pneumonia, etc. To prevent recurrences of brucellosis, these diseases were treated instead of applying specific measures for the prophylaxis of brucellosis recurrences. Care was taken to eliminate inflammatory conditions which could aggravate brucellosis and thus provoke its recurrence in an acute form.

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UDC 621.391.2.018.756:62-50.001.57

USSR

BESHANOV, A. M., ZOLOTAREV, V. F., KOMAROVSKIKH, K. F., SHKUROPAT, I. G.

"Study of the Properties of a Neuristor Line Based on Plane-Epitaxial Thyristors"

Moscow, Radiotekhnika i Elektronika, Vol. XVI, No 2, February 1971, pp 399-403

Abstract: This article contains the results of a study of a neuristor pulse in a line based on plane-epitaxial thyristors with a stepsize of 0.7 and 0.1 mm. It is demonstrated that with a thyristor stepsize of 0.7 a quite strong relation is exhibited for a RC-circuit capacitance of 50-60 picofarads; for a neuristor line with a stepsize of 0.1 mm an additional inserted capacitance is no longer needed. When investigating the delay time of the neuristor pulse, a weak relation is noted between the delay time (within the limits of 5%) and the bias; additional devices for stabilizing the scanning speed are no longer needed here. In addition, by varying the bias it is possible to change the propagation rate of the neuristor pulse within broad limits of  $10^6$  to  $2 \cdot 10^3$  cm/sec.

1/2

USSR

BESHANOV, A. M., et al., Radiotekhnika i Elektronika, Vol XVI, No 2, February 1971, pp 399-403

Thus, it is found that it is possible to manufacture a neuristor line with an active element (thyristor) stepsize no greater than 100 microns based on plane-epitaxial technology. The neuristor pulse length is 100-50 nanoseconds. Providing coupling of the neuristor line thyristors through the lower base leads to the fact that the neuristor pulse encompasses less than 1 cascade. This makes it possible to vary the propagation rate as pointed out above. Within certain limits the scanning rate depends weakly on the bias and has a maximum for a load capacitance of about 100 picofarads.

2/2

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UDO 621.382.322

USSR

AYRAPETYANTS, S.V., KOMAROVSKIY, K.F., MURYGIN, V.I., POSPELOV, V.V., STAFEYEV, V.I.

"Field Effect Transistor"

USSR Author's Certificate No 263750, filed 4 Dec 68, published 15 June 70 (from  
RZh--Elektronika i yeye primeneniye, No 12, December 1970, Abstract No 12B422P)

Translation: A field effect transistor is proposed which contains one p-n junction and an insulated gate electrode, with the p-n junction located perpendicular to the gate electrode, and the length of the base more than twice the diffusion length of the minority charge carriers. The transistor has a region of negative resistance in the volt-ampere characteristic (S-type).

1/1

- 82 -



UDC 621.382.33

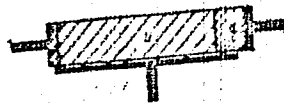
USSR

AYRAPETYANTS, S. V., KOMAROVSKIKH, K. F., MURYGIN, V. I., POSPELOV, V. V.,  
STAFEYEV, V. I.

"A Field-Effect Transistor"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 8,  
10 Feb 70, pp 57-58, Patent No 263750, Filed 4 Dec 68

Translation: This Author's Certificate introduces a field-effect transistor which contains a PN junction and an isolated gate electrode. The transistor differs because to produce an S-shaped current-voltage characteristic, the PN junction is arranged perpendicularly to the gate electrode, and the base is longer than two diffusion lengths for the minority charge carriers.



1/2 012  
 TITLE--A FIELD EFFECT TRANSISTOR -U-  
 UNCLASSIFIED  
 PROCESSING DATE--11SEP70  
 AUTHOR--AYRAPETYANTS, S.V., KOMAROVSKIY, K.F., MURYGIN, V.I., POSPELOV,  
 V.V., STAFYEV, V.I.  
 COUNTRY OF INFO--USSR  
 SOURCE--PATENT NO 263750  
 REFERENCE--MOSCOW, OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI NO  
 DATE PUBLISHED--10FEB70  
 SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR.  
 TOPIC TAGS--PATENT, FIELD EFFECT TRANSISTOR, TRANSISTORIZED CIRCUIT  
 CONTROL MARKING--NO RESTRICTIONS  
 DOCUMENT CLASS--UNCLASSIFIED  
 PROXY REEL/FRAE--1992/1098  
 STEP NO--UR/0482/70/000/000/0000/0000  
 GIRC ACCESSION NO--AA0112220  
 UNCLASSIFIED

PROCESSING DATE--11SEP70

UNCLASSIFIED

2/2 012

CIRC ACCESSION NO--AA0112220  
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THIS AUTHOR'S CERTIFICATE INTRODUCES A FIELD EFFECT TRANSISTOR WHICH CONTAINS A PN JUNCTION AND AN ISOLATED GATE ELECTRODE. THE TRANSISTOR DIFFERS BECAUSE TO PRODUCE AN S SHAPED CURRENT VOLTAGE CHARACTERISTIC, THE PN JUNCTION IS ARRANGED PERPENDICULARLY TO THE GATE ELECTRODE, AND THE BASE IS LONGER THAN TWO DIFFUSION LENGTHS FOR THE MINORITY CHARGE CARRIERS.

UNCLASSIFIED

Acc. Nr. APC105554

Abstracting Service:  
CHEMICAL ABST.

K

Ref. Code  
UR0449

126618n Magnetodiodes made from nickel-doped silicon. Karakushan, E. I.; Kovarskii, V. Ya.; Komarovskikh, K. F.; Kruzhanov, Yu. V.; Stafeev, V. I. *USSR Phys. Tech. Poluprov.* 1970, 4(3), 828-30 (Russ). S-diodes were prepd. from Ni- and P-doped Si from the melt. The semi-insulating n-type Si platelets had a resistivity of 2 kilohm-cm, a thickness of 180-660  $\mu$ , and a diam. of the p-n junction of 150  $\mu$  (it was formed by the diffusion of evapd. Al); the 2nd contact was alloyed Au + Sb. The sensitivity to a magnetic field was characterized by the dynamic current (I) magnetosensitivity,  $\gamma_i = \partial I / \partial H |_{U_a - R_L - V}$ , where  $U_a$  is the source voltage,  $R_L$  the load resistance, and  $H$  the magnetic field strength. The  $H$  dependence of  $\gamma_i$  had a sharp max., which increased with increasing  $U_a$  and decreasing  $R_L$ . The max.  $\gamma_i$  at room temp., with  $U_a = 13$  V and  $R_L = 80$  ohms, was 60 mA/kOe in a field of 1.3 kOe. The switching coeff. (ratio of the current without field to that in a field) was 70-250. The voltage magnetosensitivity,  $\gamma_v$ , increased with increasing  $I$  and increasing  $H$ . In a field of 5 kOe at  $I = 10$  mA,  $\gamma_v = 6$  V/kOe. Peter Vajda J

4

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REEL/FRAME  
19880569

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UDC 537.312.62

USSR

ARSHINOV, V. I., DMITRIYEVA, S. K., KANDYBA, P. Ye., KOMAROVSKIKH, N. I.,  
LAVRISHCHEV, V. P., LAPIR, G. M., MAZITOV, R. K.

"Film Cryotrons Based on Au-Pb Intermetallic Compounds"

Elektron. tekhnika. Nauch.-tekhn. sb. Mikroelektronika (Electronic Technology. Scientific and Technical Collection. Microelectronics), 1971, vyp. 3(29), pp 92-97 (from RZh-Radiotekhnika, No 12, Dec 71, Abstract No 12D691)

Translation: The paper describes the manufacturing technique and results of an experimental study of a new type of film cryotron having a diode of intermetallic compounds of gold with lead, and a gate and passive lines of lead. Basic electrophysical indices for the proposed type of cryotron are higher and less sensitive to deviations from given technological conditions than for conventional tin-lead cryotrons. Resumé.

1/1

4

USSR

UDC 621.396.6-181.48(088.8)

ARSHINOV, V. I., DMITRIYEVA, S. K., KANDYBA, P. Ye., ~~KOMAROVSKIKH, N. I.~~,  
LAVRISHCHEV, V. P., LAPIR, G. M., MAZITOV, R. K., OLEYNIKOVA, V. A.

"A Method of Making Diodes for Thin-Film Cryotrons"

USSR Author's Certificate No 297129, filed 16 Oct 69, published 6 Apr 71  
(from RZh-Radiotekhnika, No 11, Nov 71, Abstract No 11V368 P)

Translation: The proposed method for making diodes for thin-film cryotrons is based on sequential application of films of gold and a superconducting metal. As a distinguishing feature of the patent, a lead film with subsequent annealing at a temperature of 100-120°C is used as the superconducting metal to improve the technique of making the cryotronic integrated microcircuits, to increase speed, and to make the output signal more reliable. Resumé.

1/1

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USSR

UDC: 621.318.57

ARSHINOV, V. I., DMITRIYEVA, S. K., KANDYBA, P. Ye., KOMAROVSKIKH, N. I.,  
LAVRISHCHEV, V. P., LAPIR, G. M., MAZITOV, R. K., OLEYNIKOVA, V. A.

"A Method of Making Diodes for Thin-Film Cryotrons"

Moscow, Otkrytiya, izobreneniya, promyshlennyye obraztsy, tovarnyye znaki,  
No 9, Mar 71, Author's Certificate No 297129, Division H, filed 16 Oct 69,  
published 2 Mar 71, p 176

Translation: This Author's Certificate introduces a method of making diodes for thin-film cryotrons. The procedure is based on sequential application of gold and superconducting metal films. As a distinguishing feature of the patent, the technology of making cryotron integrated circuits is improved and the speed and output signal voltage of the cryotrons are increased by using a lead film as the above-mentioned metal with subsequent annealing at 100-120°C.

1/1

UDC 621.039.538.7

USSR

KOMAROVSKIY, A.N. (Ed.)

"Materials And Construction Of The Shielding Of Nuclear Installations"

Materialy i konstruktсии zashchit yadernykh ustanovok (cf. English above),  
Sb. Mosk. inzh.-stroit. in-t, No 77 (Collection Of Moscow Engineering And  
Construction Institute, No 77), Moscow, 1971, 139 pp, ill. 56 k. (from  
RZh: Yadernyye reaktory, No 6, June 1972, Abstract No 6.50.126)

Translation: The collection contains the results of studies which can be used during design and construction of the radiation shielding of nuclear reactors and accelerators, and during construction of hot laboratories. The collection is intended for scientific workers and engineers working in the field of planning and construction of objects of the atomic industry, and also for students specializing in this specialization.

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AA0046402- KOMAROVSKIY, V.A. 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent,

1/70

241727 TURBINE FLOWMETER contains housing (1), turbine (2), elastic brackets (3), flow directing part (4), electro-pneumatic transformer (5), ring (6), synchronous motor (7), back flow directing part (8), diaphragm (9), and arm (10). The ring (6) is made from the material with a large coefficient of thermal expansion. With the increase of temperature it reduced the gap between the ring and the hub of the turbine to compensate for the change in viscosity and density of fluid.

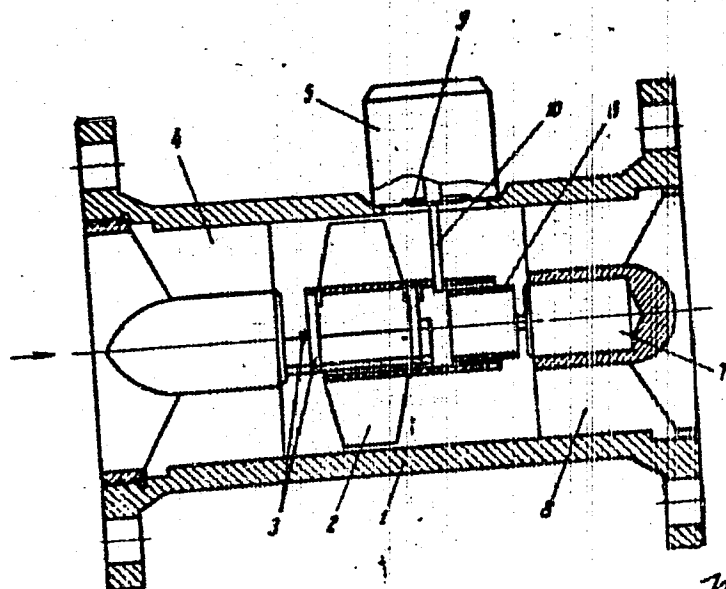
17.1.68 as 1210257/18-10.V.P.SUVOROV et al.THERMAL POWER ENG.RES.INST. (25.8.69) Bul 14/18.4.69.  
Class 42e. Int.Cl.G 01f.

18

1/3

19781596

AA0046402



*2/3*

*MT*

19781597

AA0046402

AUTHORS: Suvorov, V. P.; Komarovskiy, V. A.; Komlyakov, V. A.; Kornaukhova, N. N.

Gosudarstvenny Nauchno - Issledovatel'skiy Institut Teploenergeticheskogo  
Priborostroeniya

19781598

*File*

*КОМАШЧЕНКО, V.N.*

*Senior Director*



DEPARTMENT OF THE ARMY  
U.S. ARMY POLYMER SCIENCE AND TECHNOLOGY CENTER  
315 BRIDGEMAN SQUARE BLDG.  
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Reference Number:  
PSC/IT: 23 113-72  
DIA T.O.M. No. 73021 01

DATE: 7 SEP 72

TRANSLATION

ENGLISH TITLE: HETEROGENEOUS SOLAR CONVERTORS BASED ON POLYCRYSTALLINE  
CALCIUM SULFIDE AND CADMIUM SELENIDE

RUSSIAN TITLE: Гетерогенные солнечные преобразователи на основе  
полукристаллического сульфата кальция и селенида кадмия

*Ил. - Специальное/своя конструкция*

AUTHOR: V.N. Komashchenko, A.I. LANGUAGE: Russian

*Назначение: ГРАТ: Технологическая*  
TRANSLATOR: A. Jamboly, Lee Ezzner

SOURCE: *Техника и Микроэлектроника*  
Техника и Микроэлектроника, REQUESTOR: Mr. Turner, AEC57-CE  
No. 4, PP 112-121.

CIRC: PD11/000243/COM

Approved for public release Distribution unlimited

UDC 621.383.567

USSR

K  
KOMASHCHENKO, V.N., MARCHENKO, A.I., FEDORUS, G.A.

"Heterogeneous Solar Transducers Based On Polycrystalline Cadmium Sulfide And Cadmium Selenide"

Poluprovodn. tekhn. i mikroelektronika. Resp. mezhved. sb. (Semiconductor Technology And Microelectronics. Republic Interdepartmental Collection), 1970, No 4, pp 112-121 (from RZh--Elektronika i yeye primeneniye, No 8, August 1970, Abstract No 8B218)

Translation: This paper gives the results of development of polycrystalline photo-transducers based on cadmium sulfide and cadmium selenide. The method of preparation and the photoelectric and electrical properties of the devices are described. The phototransducers possess high photosensitivity in all the visual region of the spectrum. The efficiency of conversion of the energy of solar radiation into electricity is ~ 3 percent. The photocells are characterized by a high stability of their parameters in time. Using as an example studies of the electrical (voltage and capacitance) characteristics of heterogeneous  $p(\text{Cu}_{2-x}\text{Se})-n(\text{CdSe})$ , conclusions are drawn concerning the prevalence of the tunnel-recombination process in the mechanism for passage of the current through the heterogeneous system developed. 8 ill. 1 tab. 11 ref.

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KOMASHKO, A.A.

Microelectronics

MICROELECTRONICS

Excerpts from Russian-language book edited by F. V. Lukin,  
Microelektronika, No 5, 1972. Sovetskoye Radio Publishing House,  
Moscow, UDC 621.382:621.396:6-181.5.

OPRS 57333  
25 October 1972

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[I - USSR - F]

culite, an important role is played by the choice of a constant current source.

The article analyzes the dependence of instability of the logic differential of the integrated circuits for the current switches on change in the stabilizing factors (supply voltage, temperature, and technological scatter in the component parameters) by using different modifications of the constant current source.

Recommendations are given for the optimal selection of the constant current source.

The article contains 4 figures, 1 table, and 5 bibliographic references.

UDC 621.386.3.211.27

Distribution of Thermomechanical Deformations in the Surface Region of Thermally Oxidized Silicon. Vailiyev, K.A., Kozlov, B.I., Kozlov, A.A., Malov, A.G., and Ruker, A.V. In the Collection Mikroelektronika, edited by I.V. Lukin, No 5, p 282, Sovetskoye Radio Publishing House, 1972.

The article theoretically analyzes the distribution of elastic deformations in the surface region of thermally oxidized silicon. The authors examine the case of a dense oxide film on a semiconductor and the case of termination of its denseness. The value obtained agrees with the theoretical computation. The authors discuss the results of experiments testifying to the localization of the deformation of denseness of the layer of silicon at the sites of termination of the surface of the oxide. They show the influence of thermomechanical deformations on the chemical activity and volt-Faraday characteristics of the MDP structures.

The article contains 3 figures and 11 bibliographic references.

UDC 621.383.42:546.48.22/23

Investigation of the Longitudinal Operating Mode of CDS-CDSa Film Photoreceptors. Vdovenskoy, A.A., Krol'sovets, K.H., Kozlov, V.A., and Skarzhnevskaya, L.P. In the collection Mikroelektronika, edited by I.V. Lukin, No 5, p 298, Sovetskoye Radio Publishing House, 1972.

The article describes a manufacturing method and the parameters of the CDS-CDSa photoreceptors, operating in a longitudinal mode. The authors mention their high specific sensitivity (0.5-1 A/V<sup>1/2</sup>) and the weak dependence of the

parameters on temperature of the surrounding atmosphere. They give a comparison of the parameters of the photoreceptors during operation in longitudinal and transverse modes.

The article contains 11 figures and 6 bibliographic references.

UDC 621.383.311 + 621.396.6-181.416

Analysis of Several Characteristics of the Operation of a Resonance High-Frequency Hybrid-Film Amplifier Made According to a Circuit with a Common Emitter. Azenov, A.I., Pyschakov, V.I., Korosyukov, P.Y., Shafermatov, G.I., and Kuvshin, V.M. In the Collection *Mikroelektronika*, edited by F.V. Lukin, No 5, p 310, Sovetskoye Radio Publishing House, 1972.

The article cites an analysis of the operation of a resonance microminiature high-frequency amplifier, operating in a linear mode. The authors show that with a constant time of the emitter circuit equal to zero, the magnitude of the capacitance of the blocking condenser is found to be the least. They also established that, for contemporary case-free high-frequency dynamic capacitances on the frequency characteristics of the cascade can be ignored.

The article contains 6 figures, 2 tables, and 6 bibliographic references.

-END-

11.73u  
CSOI 0702/73-6



1/2 016 UNCLASSIFIED PROCESSING DATE--27NOV70  
 TITLE--N GALAXIES AS A METAGALACTIC POPULATION -U-  
 AUTHOR--(02)--KOMBERG, B.V., OZERNOY, L.M. **K**  
 COUNTRY OF INFO--USSR  
 SOURCE--ASTROPHYS. SPACE SCI. (NETHERLANDS), VOL 7, NO. 1, P. 31-53 (APRIL 1970)  
 DATE PUBLISHED---APR70  
 SUBJECT AREAS--ASTRONOMY, ASTROPHYSICS  
 TOPIC TAGS--GALAXY, METAGALAXY, RADIO BRIGHTNESS, OPTIC BRIGHTNESS  
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 DOCUMENT CLASS--UNCLASSIFIED  
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UNCLASSIFIED

PROCESSING DATE--27NOV70

2/2 016

CIRC ACCESSION NO--AP0136013

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. OPTICAL AND RADIO DATA ABOUT N GALAXIES (NG) AS KNOWN AT PRESENT ARE SUMMARISED AND COMPARED WITH THE CORRESPONDING DATA ABOUT SEYFERT GALAXIES (SYG), BLUE COMPACT GALAXIES (BCG) AND QUASISTELLAR OBJECTS (QSG AND QSS). INFORMATION ABOUT NORMAL GALAXIES AND HARO AND MARKARYAN OBJECTS IS ALSO UTILIZED. THE LUMINOSITY FUNCTIONS OF DIFFERENT SOURCES IN THE OPTICAL AND RADIO RANGES ARE CONSTRUCTED, BASED ON THE OBSERVATIONAL FACTS. ALONG WITH SOME GENERAL PROPERTIES OF NG AND SYG, BCG, QSS AND QSG, A NUMBER OF DIFFERENCES BETWEEN THESE OBJECTS ARE NOTED. IN PARTICULAR UBV COLOURS OF NG AND SYG CHANGE INSIDE RING DIAPHRAGMS FOR VARIOUS DIAPHRAGM RADII IN QUITE DIFFERENT MANNERS. IT IS CONCLUDED THAT N GALAXIES ARE NEIGHTE DISTANT SYG NOR QSS AT SMALL DISTANCES AND THEREFORE RELATIVELY WEAK, BUT ARE THE REPRESENTATIVES OF A DIFFERENT METAGALACTIC POPULATION. ARGUMENTS ABOUT THE EXISTENTS OF STARS IN N GALAXIES AS WELL AS A CENTRAL SOURCE OF NONSTELLAR NATURE ARE DISCUSSED.

USSR ACAD. SCI., MOSCOW. FACILITY:

UNCLASSIFIED

UDC 911.3.616.831-002(571.5)

USSR

KOMDRATENKO, N. A.

"On the Problem of the Epidemiological Characteristics of the Tarbagatayskiy Focus of Tickborne Encephalitis"

V sb. Tezisy dokl. Nauchno-Prakt. konferentsii vrachey Zabayk. zh.-d.  
(Thesis Reports of the Scientific and Practical Conference of Physicians  
of the Transbaikal Railroad, 1970, Part 2) Ch. 2, Chita, 1970, pp 181-188  
(from RZh-36. Meditsinskaya Geografiya)

Translation: A short description is given of the nature and zoological and parasitological characteristics of the tickborne encephalitis focus in the environs of the settlement of Tabagatay, Petrovsk-Zabaykal'skiy rayon. Census questioning provided the frequency and cause of human contact with ticks.

1/1

USSR

UDC 517.949.9

KOMECH, A. I., Moscow

"Elliptical Boundary Value Problems on Manifolds With Piecewise-Smooth Boundary"

Moscow, Matematicheskiy Sbornik, Vol 92(134), No 1(9), Sep 73, pp 89-134

Abstract: Boundary value problems are considered on a compact  $n$ -dimensional manifold  $\mathcal{M}$  with piecewise-smooth boundary:

$$\begin{aligned} Au_0(x) + Ku_2(x) &= f_0(x), & x \in \mathcal{M}_0, \\ Bu_0(x) + Lu_2(x) &= f_1(x), & x \in \mathcal{M}_1, \\ Tu_0(x) + Ju_2(x) &= f_2(x), & x \in \mathcal{M}_2. \end{aligned} \quad (1)$$

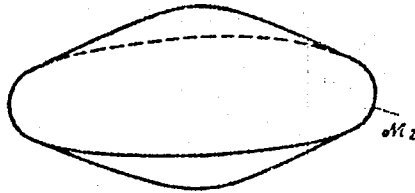
Here  $\mathcal{M}_0$  is the interior of  $\mathcal{M}$ ,  $\mathcal{M}_1$  is the smooth part of the boundary, and  $\mathcal{M}_2$  is an edge of codimensionality two. It is assumed that  $\mathcal{M}_2$  is a smooth  $(n-2)$ -dimensional manifold, and tangent spaces to  $\mathcal{M}_1$  at points of  $\mathcal{M}_2$  intersect transversally. An example of a permissible manifold  $\mathcal{M}$  is shown in the figure. In (1),  $A$  denotes a differential operator of second order with smooth coefficients on  $\mathcal{M}$ ;  $B$  denotes a differential operator of arbi-

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USSR

KOMECH, A. I., *Matematicheskiy Sbornik*, Vol 92(134), No 1(9), Sep 73, pp 89-134

trary order whose coefficients are smooth on  $\mathcal{M}_1$  but may have discontinuities of the first kind on  $\mathcal{M}_2$ .  $K$  and  $L$  are operators of the potential type,  $T$  is a boundary operator of codimensionality two, and  $J$  is a pseudodifferential operator on the edge. All functions entering into (1) are members of Sobolev spaces.



It is assumed that  $A$  is an elliptical operator and that the pair  $(A, B)$  satisfies the classical Shapiro-Lopatinskiy condition on smooth sections of the boundary up to the edge with approach from each side. The author thanks M. I. Vishik for formulating the problem and for constructive criticism, and also A. I. Shnirel'man for useful discussion,

2/2

- 4 -

USSR

UDC: 681.3

SOKOLENKO, V., KOMEL'KOV, P. V.

"Organization of Technical Servicing and Statistical Analysis of the Reliability of a Computer"

V sb. Elektronno-vychisl. tekhn. i programmir. (Computer Technology and Programming--collection of works), vyp. 3, Moscow, "Statistika", 1970, pp 63-70 (from RZh-Kibernetika, No 7, Jul 71, Abstract No TV681)

Translation: The paper deals with the problems of work organization in a Computer Center, and preventative maintenance on computers; basic criteria are given which characterize computer reliability; basic forms of technical and accounting documentation are presented for computer use, and an algorithm is realized for processing and analyzing statistical data on computer failures. Authors' abstract.

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USSR

UDC 669.046.5

SHIRER, G. B., ~~KOMEL'KOV, V. K.~~, VOINOV, S. G., SHALIMOV, A. G., PEGOV, V. G.,  
MOLCHANOVA, A. A., TSIBUL'NIKOV, A. I., and MOKHIR, Ye. D.

"Refining of Ball Bearing Electrical and Martin Steels by Synthetic Lime-Alumina Slag with High Silica Content"

Moscow, V sb. "Sovremennyye problemy kachestva stali" (MISI S). (Collection of Works. Modern Problems of Steel Quality) (Moscow Institute of Steel and Alloys), Izd-vo "Metallurgiya," No 61, 1970, pp 247-249

Translation of Abstract: Results are presented of the refining of ShKh15 steel melted in 100-ton electric furnaces using synthetic slag with high silica content in a ladle. With respect to sulfur content and the level of contamination by sulfide impurities, the obtained steel is similar to metal refined with conventional synthetic slag containing not more than 3% of silica, although the former is more contaminated with oxide and globular impurities. Data are presented on production testing of the described slag at a Martin plant, at which the quality of the 12KhMF and 20 K steels for pipes was found to be similar to a steel refined with the usual synthetic slag. The production cost of the slag with high silica content is given (it is approximately 30 rubles/ton cheaper than the ordinary slag). 3 tables.

1/1

USSR

UDC: 621,3:621.039,667

BOOK

DASHUK, P. N., ZAYENTS, S. L., KOMEL'KOV, V. S. (general editor), KUCHIN-SKIY, G. S., NIKOLAYEVSKAYA, N. N., SHKUROPAT, P. I., SHNEYEFSON, G. A.

TEKHNIKA BOL'SHIKH IMPUL'SNYKH TOKOV I MAGNITNYKH POLEY (Technology of High-Current Pulses and Strong Magnetic Fields), Moscow, "Atomizdat", 1970, 472 pp, illus, biblio, 2465 copies printed

The book describes circuits, methods of calculation, characteristics and design of high-power capacitor banks and their principal elements: capacitors, dischargers of various types (vacuum, high-pressure, solid-dielectric), insulation of connectors (busbars, cables), and pulse transformers. Methods are presented for calculation of magnetic fields and inductances in solenoids and conductors. The singularities of operation of the structural elements are considered as well as the behavior of metals in superconducting fields.

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POLEY, Moscow, "Atomizdat", 1970

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USSR

DASHUK, P. N. et al., *TEKHNIKA BOL'SHIKH IMPUL'SNYKH TOKOV I MAGNITNYKH POLEY*, Moscow, "Atomizdat", 1970

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CSO: 1860-W

- END -

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USSR

KOMENDANTOV, G. L., Central Institute for the Advanced Training of Physicians

Problema Uskoreniy v Aviatsinnoy Meditsine mosti Cast. III: Izmeneniya Funktsiy Nervnoy Sistemy pri Peregruzkakh: Neveso - (The Problem of Accelerations in Aviation Medicine Part III: Changes in the Functions of the Nervous System During Overloads and Weightlessness), Moscow, 1971

Translation: Table of Contents:	
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The function of balance under normal conditions	5
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USSR

KOMENDANTOV, G. L., Problema Uskoreniy v Aviatsinnoy Meditsine mosti cast.  
III: Izmeneniya Funktsiy Nernoy Sistemy pri Peregruzkakh; Neveso, Moscow, 1971

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1/2 016  
TITLE--CARBENE CHEMISTRY -U-

UNCLASSIFIED

PROCESSING DATE--27NOV70

AUTHOR--(05)-DANILKINA, L.P., KOMENDANTOV, M.I., KOSTIKOV, R.R.,  
MANDELSHTAM, T.V., RAZIN, V.V.

COUNTRY OF INFO--USSR

SOURCE--VESTN. LENINGRAD. UNIV., FIZ., KHIM. 1970, (1), 123-43

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHEMICAL BONDING, MOLECULAR STRUCTURE, CHEMICAL REACTION  
MECHANISM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
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2/2 016

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PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0138709

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A REVIEW OF THE STRUCTURE,  
REACTIVITY, AND REACTION MECHANISMS OF CARBENES WITH COMPS. CONTG.  
MULTIPLE BONDS, WITH SPECIAL REF. TO THE WORK OF I. A. DYAKONOV WITH 160  
REFS.

UNCLASSIFIED

1/2 014 UNCLASSIFIED PROCESSING DATE--09OCT70  
TITLE--ACTION OF DIVERSE ANALGESICS ON THE PAIN SENSITIVITY OF INFLAMED  
TISSUE -U-  
AUTHOR--(02)-KOMENDANTOVA, M.V., SHUMILINA, Z.I.  
COUNTRY OF INFO--USSR  
SOURCE--FARMAKOL. TOKSIKOL. (MOSCOW) 1970, 33(2), 163-5  
DATE PUBLISHED-----70  
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PROXY REEL/FRAME--1994/1169 STEP NO--UR/0340/70/033/002/0163/0165  
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PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0115188

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. NONNARCOTIC ANALGESICS SHOWED INCREASING ABILITY TO ALLEVIATE PAIN IN INFLAMED TISSUE OF RATS IN THE FOLLOWING ORDER: ACETYLSALICYLIC ACID, AMINOPYRINE, PHENACETIN, AND BUTAZOLIDINE. THE PAIN ALLEVIATING EFFECT DID NOT CORRELATE WITH THE ANTIINFLAMMATORY ACTION OF THESE COMPOS. AND, WHEN MEASURED ON INFLAMED TISSUE, QUANT. EXCEEDED THAT OF NARCOTIC ANALGESICS IN COMPARABLE DOSES GIVING THE SAME DEGREE OF ANALGESIA ON INTACT TISSUE. THE MODEL DESCRIBED SEEMS TO SHOW THE MAX. ACTIVITY OF THE NONNARCOTIC ANALGESICS AND PROVIDES A QUANT. COMPARATIVE METHOD FOR MEASURING PAIN ALLEVIATING ACTION. FACILITY: MOSK. MED. STOMATOL. INST MOSCOW, USSR.

UNCLASSIFIED

USSR

KOMENDANTOVA, M. V., et al., Farmakologiya i Toksikolog ya, Vol 35, No 1, Jan/  
Feb 72, pp 55-60

could be opposite to that produced by a single administration and that varied depending on the dose of the drugs. In experiments on the animals with inflammation, either drug produced a shift in the permeability to  $^{131}\text{I}$ -albumin opposite to that produced by the inflammation - i.e., the drugs corrected the disturbances in the permeability of the hematoencephalic barrier that were due to the inflammation.

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- 36 -

USSR

UDC 669.71.472

DERKACH, A. S., DMITRIYEV, A. A., KOROBV, M. A., KOMERS, YE. G., KULAKOV, A. I.,  
TSYPLAKOV, A. M.

"Improving the Design of Aluminum Electrolyzers"

Tr. Vses. n.-i. i proektn. in-ta alumin., magn. i elektrodn. prom-sti  
(Works of the All-Union Scientific Research and Planning and Design Institute  
of Aluminum, Magnesium and Electrode Industry), 1970, No 71, pp 29-36 (from  
RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G165)

Translation: A description of improvements of electrolyzers of various types is presented. In the last 10-15 years, electrolyzers with a side current lead-in have been modified significantly. Work has been started on creating powerful models for a current strength of 130 kiloamps. Since the first series of electrolyzers with top lead-in were put into operation, significant changes have been introduced into their structural design. These changes have promoted improvement of the technical and economic indexes. Operations have developed with respect to selecting the optimal parameters of powerful electrolyzers with roasted anodes. Electrolyzers of the given type for a current strength of 130 kiloamps are being tested successfully. For further improvement

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USSR

DERKACH, A. S., et al., Tr. Vses. n.-i. proyekt. in-ta alyumin., magn. i elektrodn. prom-sti, 1970, No 71, pp 29-36

of the design of electrolyzers of all three types, new ideas are needed based on theoretical research and the search for new, more efficient structural designs of the basic assemblies and baths, and creation of effective means of mechanization.

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USSR

UDC 669.71.472

KOMERS, YE. G., KALUZHSKIY, N. A.

"Selecting the Optimal Geometric Parameters of Electrolyzers with Preroasted Anodes"

Tr. Vses. n.-i. i proyekt. in-ta alyumin., magn. i elektrodn. prom-sti  
(Works of the All-Union Scientific Research and Planning and Design Institute of Aluminum, Magnesium and Electrode Industry), 1970, No 71, pp 85-93 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G164)

Translation: In order to select the optimal width of the area occupied by the anodes for a powerful electrolyzer with roasted anodes, the effect of varying the given parameter on the cost of aluminum electrolysis was investigated. The technical-economic indexes of five versions of the electrolysis series made up of electrolyzers with an anode width of 225, 250, 275, 300, and 325 cm but with an identical total base area of the anode (19,500 cm<sup>2</sup>) corresponding to a current strength of ~150 kiloamps were calculated for this purpose. The electrode spacing, the current efficiency, and the distance from A to the walls of the shaft were assumed identical, and the current strength was calculated from the thermal balance equation taking into account the heat losses and heating voltage. Comparison of cost and reduced expenditures of  
1/2

USSR

KOMERS, YE. G., KALUZHSKIY, N. A., Tr. Vses. n.-i. i proyekt. in-ta alyumin.,  
magn. i elektrod. prom-sti, 1970, No 71, pp 85-93

these versions demonstrated that the effect of the anode width on the efficiency of the electrolyzer is less than was assumed earlier and that the optimal anode width depends significantly on the cost of electric power. In the case of more expensive electric power, preference must be given to the electrolyzer with large anode width. However, in the price range for electric power delivered to the aluminum plants probably a significant increase in efficiency of powerful electrolyzers with roasted anodes cannot be expected on increasing the anode width above 275 cm unless a noticeable increase in current efficiency takes place on widening the anode. There are 3 tables.

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UDC 591.445

USSR

PALLADIN, A. V. and KOMETIANI, P. A. (Editors)  
Pyataya Vsesoyuznaya Konferentsiya po Neyrokhimii Nervnoy  
Sistemy (Fifth All-Union Conference on the Neurochemistry of the  
Nervous System), Held in Tbilisi in September 1968, Tbilisi,  
"Metsniyereba," 1970, pp 11-21

BERITASHVILI, I. S., Institute of Physiology, Academy of Sciences  
Georgian SSR, Tbilisi

"The Neuronal and Biochemical Organization of the Nervous Sub-  
strate of the Memory in the Cerebral Cortex"

Abstract: A substantiated schema concerning the participation  
of different structural ensembles in the cellular system of the  
cerebral cortex in memory manifestations is given. Utilizing  
the investigations of memory with relation to food objects as  
an example, data with regard to the significance of stimuli  
(visual, taste, audio, and others) in the creation of images,  
their preservation, and their reproduction in the central ner-  
vous system were obtained.

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USSR

PALLADIN, A. V. and KOMETIANI, P. A. (Editors)  
Pyataya Vsesoyuznaya Konferentsiya po Neyrokhimii: Nervnoy  
Sistemy, "Metsniyereba," 1970., pp 11-21

BERITASHVILI, I. S., "The Neuronal and Biochemical Organization  
of the Nervous Substrate of the Memory in the Cerebral Cortex"

The significance of the reverberation of stimuli in the neuronal circles in the case of short-range memory and those changes in the chemistry of the nervous cells which must form the basis for long-term memory is explained.

The possibility of reproducing the image of food location is based on molecular and submolecular changes in the associated pyramidal cells, their synaptic terminals, and post-synaptic membranes. These changes are conditioned by the action of mediators and electrical impulses.

The basis of the molecular mechanism of memory is the synthesis of an active protein induced by sensory impulses. This process is linked with the function of the genetic mechanism, that is, the triad: DNA -- RNA -- protein. Simultaneously, a nonspecific active protein is synthesized. The nature of the

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USSR

PALLADIN, A. V. and KOMETIANI, P. A. (Editors)  
Pyataya Vsesoyuznaya Konferentsiya po Neyrokhimii Nervnoy  
Sistemy, "Metsniyereba," 1970, pp 11-21

BERITASHVILI, I. S., "The Neuronal and Biochemical Organization  
of the Nervous Substrate of the Memory in the Cerebral Cortex"

active protein's action is determined by the area of its  
action, that is, the condition of the postsynaptic section. The  
condition of the postsynaptic section is determined by the action  
of the mediator.

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USSR

UDC 577.15

PALLADIN, A. V. and KOMETIANI, P. A. (Editors)  
Pyataya Vsesoyuznaya Konferentsiya po Neyrokhimii Nervnoy  
Sistemy, "Metsniyereba," 1970, pp 11-21

SEVERIN, S. Ye., Chair of Animal Biochemistry, Moscow State  
University, Moscow

"Molecular Foundations of Regulation of Enzymatic Processes,"  
pp 22-38

**Abstract:** The different and highly diverse ways and mechanisms of regulating enzymatic activity are examined. They are linked with the distribution of enzymes, coenzymes, substrates, and inhibitors in the different cellular organelles and the possibility of interaction, due to the different influences exerted on the membranes and their permeability. With contact between all of the participants in catalysis factors modifying the conformation of enzymes regulate the rate of enzymatic processes. These factors may evoke the association of enzymes into aggregates or their dissociation into subunits, change the

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USSR

PALLADIN, A. V. and KOMETIANI, P. A. (Editors)  
Pyataya Vsesoyuznaya Konferentsiya po Neyrokhimii Nervnoy  
Sistemy, "Metsniyereba," 1970, pp 11-21

SEVERIN, S. Ye., "Molecular Foundations of Regulation of  
Enzymatic Processes," pp 22-38

structure of their active center or the configuration of their  
allosteric sectors; they may hasten or suppress the synthesis  
of coenzymes, and thereby affect enzymatic activity. Natural  
compounds, intermediate products of metabolism, mediators and  
metabolites, and artificially synthesized compounds close in  
structure to coenzymes or imitating substrate structures may  
have a pronounced effect on the rate and direction of enzymatic  
processes.

The effect of highly diverse factors which are often hard  
to distinguish, together determine the activity of individual  
enzymes as well as complex combinations of enzymes. This method  
creates conditions for the orderly and regulated course of  
metabolic reactions comprising the chemical foundation for vital  
processes.

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USSR

UDC 612.822.1+612.8.015

PALLADIN, A. V. and KOMETIANI, P. A. (Editors)  
Pyataya Vsesoyuznaya Konferentsiya po Neyrokhimii Nervnoy  
Sistemy, "Metsniyereba," 1970, pp 11-21

KOGAN, A. B., Chair of Physiology, Rostov University, Rostovna  
Donu

"Neurochemical Organization of Excitation and Inhibition Pro-  
cesses," pp 39-51

Translation: The neurochemical organization of excitation and inhibition processes at systemic and cellular levels under conditions of set and continuously controlled functional condition of the nervous elements was investigated with using a complex method combining electrophysiological, biochemical, and histochemical criteria. Systemic processes of conditioned excitation and conditioned inhibition are accompanied by the activation of plastic (direct indexes of the dynamics of ribonucleotides) and energetic (indirect indexes of ammonia formation) components of metabolism. In this case inhibition is found to be more active  
6/33

USSR

PALLADIN, A. V. and KOMETIANI, P. A. (Editors)  
Pyataya Vsesoyuznaya Konferentsiya po Neyrokhimii Nervnoy  
Sistemy, "Metsniyereba," 1970, pp 11-21

KOGAN, A. B., "Neurochemical Organization of Excitation and  
Inhibition Processes," pp 39-51

in its metabolic manifestation than is excitation. This relationship between excitation and inhibition was confirmed also in the metabolism of an isolated nerve cell according to the histochemical indexes of the reaction of ribonucleotides and cytochromoxidase obtained in the micropolarographic determination of oxygen pressure. The differences between the exciting and inhibiting organization of the metabolism of a nerve cell were manifested, first of all, in the redistribution of metabolic gradients along the axondendrite axis. Thus, according to the histochemical determination of ribonucleotides and certain enzymes and also the measurement of concentrations of phosphorus, sulfur, calcium, and other elements with an electronic probe, their maximum redistribution from the dendrite to the axon zone

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USSR

PALLADIN, A. V. and KOMETIANI, P. A. (Editors)  
Pyataya Vsesoyuznaya Konferentsiya po Neyrokhimii Nervnoy  
Sistemy, "Metsniyereba," 1970, pp II-2I.

KOGAN, A. B., "Neurochemical Organization of Excitation and  
Inhibition Processes," pp 39-51

of the cell during excitation and reverse distribution during inhibition have been established. A deeper analysis of the subcellular structural-metabolic processes indicated that an excited or inhibited condition of the nerve cell is characterized by different forms of reorganization of metabolic processes in the microstructures of the neuroplasm, for instance, by different configuration of the mosaic of foci of enzymatic activity or by other levels of order in the microstructural elements of the cytoplasmatic system.

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USSR

UDC 577.12

PALLADIN, A. V. and KOMETIANI, P. A. (Editors)  
Pyataya Vsesoyuznaya Konferentsiya po Neyrokhimii Nervnoy  
Sistemy, "Netsniyereba," 1970, pp 11-21

KAFIANI, K. A., Institute of Molecular Biology, Academy of  
Sciences USSR, Moscow

"Macromolecular Syntheses and the Memory Mechanism," pp 52-70

Abstract: A point of view rejecting the possibility of coding  
experience information in specific molecular structures is  
evolving: the specifics of memory inherent in the nervous sys-  
tem are regarded not as a characteristic of molecular mechanisms  
of the nerve cell, but as special features of the histological  
and cytological organization of the brain. The schema of forma-  
tion of a plastic memory trace by means of activating the syn-  
thesis of normal functional neuron proteins by intensified  
excitation of the neurons in accordance with the feedback  
mechanism is examined. This connection is realized by activating  
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USSR

PALLADIN, A. V. and KOMETIANI, P. A. (Editors)  
Pyataya Vsesoyuznaya Konferentsiya po Neyrokhimii Nervnoy  
Sistemy, "Metsniyereba," 1970, pp 11-21

KAFIANI, K. A., "Macromolecular Syntheses and the Memory  
Mechanism," pp 52-70

the synthesis of ribonucleic acid and proteins by means of changing the ionic composition of the intracellular medium under functional conditions of the nerve cell. A special role is played by the activating effect of ammonia ions accumulating in the tissue as a result of the increase of ammonia products under the influence of an increased functional load. Because of the lability of ribonucleic acid and proteins, the preservation of the pathway for considerable periods of time requires their resynthesis, necessitating the repeated excitation of the corresponding nerve networks. A model of the mechanism of coding the surface of neurons by formation on them of a mosaic of synapses with different morphofunctional criteria related to each of the functional loads applied has been proposed.

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USSR

PALLADIN, A. V. and KOMETIANI, P. A. (Editors)  
Pyataya Vsesoyuznaya Konferentsiya po Neyrokhimii Nervnoy  
Sistemy, "Metsniyereba," 1970, pp 11-21

KOMETIANI, P. A., KLEYN, Ye. E., GOTSIRIDZE, Ye. G. and  
ALEKSIDZE, N. G., Department of Biochemistry, Institute of  
Physiology, Academy of Sciences Georgian SSR, Tbilisi

"Brain Proteins Sensitive to Memory Inhibitors, and Proteins  
Containing Metabolically Active Nitrogen," pp 87-102

Abstract: On the basis of the premise that inhibitors of  
protein synthesis simultaneously exert a negative effect on  
learning and memory, it became necessary to determine the rela-  
tionship of memory disturbance with inhibited resynthesis of  
proteins. The experimental animals were intracranially in-  
jected with 8-azaguanine, puromycin, actinomycin-D, and chlor-  
amphenicol. After maximum inhibition of synthesis was attained,  
the animals were decapitated, the brain excised, and the  
proteins separated by two-dimensional fractionation

11/33

USSR

PALLADIN, A. V. and KOMETIANI, P. A. (Editors)  
Pyataya Vsesoyuznaya Konferentsiya po Neyrokhimii Nervnoy  
Sistemy, "Metsniyereba," 1970, pp 11-21

KOMETIANI, P. A. et al., "Brain Proteins Sensitive to Memory  
Inhibitors, and Proteins Containing Metabolically Active  
Nitrogen," pp 87-102

(chromatography on a column of Sephadex, and electrophoresis on starch gel). It was found that one of the terminal fractions of the cathode proteins was inhibited first. The greater sensitivity of cathode proteins to synthesis inhibitors is apparently explained by their more rapid restoration, and possibly has no direct connection with memory manifestations. As a consequence of the incubation of brain tissue homogenate and the tiring of animals (rats) by electric excitation, the distribution of separate protein fractions changed. Experimental data indicate that the reason for the probable changes should be sought not only in shifts in the rate of synthesis, but also in the dimensional changes of protein molecules and the degree of their amidation. Data on the fractionation of

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USSR

PALLADIN, A. V. and KOMETIANI, P. A. (Editors)  
Pyataya Vsesoyuznaya Konferentsiya po Neyrokhimii Nervnoy  
Sistemy, "Metsniyereba," 1970, pp 11-21

KOMETIANIA, P. A. et al., "Brain Proteins Sensitive to Memory  
Inhibitors, and Proteins Containing Metabolically Active  
Nitrogen," pp 87-102

isolated neuronal and neuroglial cell proteins are cited; differences in protein composition are also indicated. A study of the composition of neuronal proteins obtained from various areas (nuclei) of the brain permits the conclusion that neurons differ from each other by the distribution and composition of their proteins. In another series of experiments, study of the participation of the amide nitrogen of proteins in ammonia formation and in amino acid metabolism was undertaken. It was established that the amine nitrogen of amino acids is utilized in the amidation of proteins. It was established also that the protein fraction soluble in acidified organic solvents is highly active in amide nitrogen metabolism,

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USSR

UDC 576.311; 611.018; 612.015

PALLADIN, A. V. and KOMETIANI, P. A. (Editors)  
Pyataya Vsesoyuznaya Konferentsiya po Neyrokhimii Nervnoy  
Sistemy, "Metsniyereba," 1970, pp 11-21

BRODSKIY, V. Ya., Institute of Developmental Biology, Academy of  
Sciences USSR, Moscow

"Possible Mechanisms of Regeneration of Neuronal Protoplasm,"  
pp 114-128

Abstract: Possible methods of restoring the structure and activity of a nerve cell in ontogenesis, linked with the functional adaptations of protein synthesis, are discussed in a review of the literature and the author's own cytochemical data. The basic data confirm: 1. intensified disintegration of proteins during prolonged excitation of cells; 2. the dependence of the intensity of protein synthesis on excitation; 3. the presence of a rhythm in the quantitative changes of proteins (ganglionic retina cells, for instance); 4. development of rhythm in ontogenesis, and the possibility of changing its parameters.  
14/33

USSR

PALLADIN, A. V. and KOMETIANI, P. A. (Editors)  
Pyataya Vsesoyuznaya Konferentsiya po Neyrokhemii Nervnoy  
Sistemy, "Metsniyereba," 1970, pp 11-21

BRODSKIY, V. Ya., "Possible Mechanisms of Regeneration of  
Neuronal Protoplasm," pp 114-128

in an experiment; 5. the connection between the rhythm of the  
quantitative protein changes and specific neuron activity;  
6. the effect of cellular activity on the postnatal development  
of cells. It is assumed, as a result, that the intensive forma-  
tion of new proteins in the different nerve cells is primarily  
due to resynthesis of their protoplasm and restoration of cellu-  
lar activity. The correlation of this process with the develop-  
ment and specific activity of the neuron contributes to the  
prolongation of its vital functions.

15/33

USSR

UDC 577.12

PALLADIN, A. V. and KOMETIANI, P. A.. (Editors)  
Pyataya Vsesoyuznaya Konferentsiya po Neyrokhimii Nervnoy  
Sistemy, "Metsniyereba," 1970, pp 111-21

PEVZNER, L. Z., Laboratory of Functional Neurochemistry, Insti-  
tute of Physiology, Academy of Sciences USSR, Leningrad

"Quantitative Changes of Nucleic Acids and Proteins in Neurons  
and Glia Induced by Shifts in the Functional Condition of the  
Central Nervous System," pp 129-146

Abstract: The quantitative content of RNA and protein in neurons  
and the surrounding glial cell-satellites of different sections  
of the nervous system under different functional conditions of  
the nervous system was determined with the use of ultraviolet  
and visual cytospectrophotometry. It was found that when sharp  
shifts occur in the functional condition of the nervous system,  
RNA and protein metabolism in the glial cell satellites may  
undergo marked shifts directed in the same manner as changes in  
the metabolism of nerve cells. When the shifts in the condition  
16/33



USSR

PALLADIN, A. V. and KOMETIANI, P. A.. (Editors)  
Pyataya Vsesoyuznaya Konferentsiya po Neyrokhimii. Nervnoy  
Sistemy, "Metsniyereba," 1970, pp 11-21

PEVZNER, L. Z., "Quantitative Changes of Nucleic Acids and  
Proteins in Neurons and Glia Induced by Shifts in the Functional  
Condition of the Central Nervous System," pp 129-146

of the nervous system are less pronounced, the glial metabolism is characterized by greater stability than that of the neuron metabolism. The termination of the influence by the factor w which induces the metabolic shifts in the neurons and glia is accompanied by restoration of the RNA and protein levels to normal, first in the glia and then in the neurons. With the restoration of metabolism in the glia and neurons to its normal level, remote and delayed shifts in the metabolism of the glial cells may develop. It was concluded that these shifts reflect the dominating participation of the glia in the mechanism of cellular adaptation. As a whole, there is no doubt that the neuroglia play a leading role in the homeostatic mechanisms of nervous tissue.

17/33

USSR

UDC. 612.8.015

PALLADIN, A. V. and KOMETIANI, P. A. (Editors)  
Pyataya Vsesoyuznaya Konferentsiya po Neyrokhimii: Nervnoy  
Sistemy, "Metsniyereba," 1970, pp 11-21

GAYEVSKAYA, M. S., NOSOVA, Ye. A. and SLEZ, L. M., Institute of  
Medical and Biological Problems, Ministry of Health USSR, Moscow

"Nitrogen and Energy Metabolism in the Brain Under the Influence  
of Reduced Vital Activity of the Organism," pp 194-208

Abstract: Chilling of rats to a temperature of 20-18°C on a  
background of depressed thermoregulation by a lytic mixture  
caused an increase in the brain tissue content of glucose and  
creatine phosphate, and some increase in the quantity of urea.  
At the same time, the brain content of lactic and pyruvic acids  
(nonoxidized products of metabolism) decreased. The linking of  
oxidation and phosphorylation processes increased in the brain  
tissue of the chilled animals. The prolongation of the hypo-  
biotic state to a period of 24 hours on a background of a total  
retardation of metabolic processes in brain tissue was  
18/33

USSR

PALLADIN, A. V. and KONETIANI, P. A. (Editors)  
Pyataya Vsesoyuznaya Konferentsiya po Neyrokhimii Nervnoy  
Sistemy, "Metsniyereba," 1970, pp 11-21

GAYEVSKAYA, M. S., et al., "Nitrogen and Energy Metabolism in  
the Brain Under the Influence of Reduced Vital Activity of the  
Organism," pp 194-208

accompanied by restoration to normal content of a number of  
components of nitrogen and carbohydrate metabolism on the one  
hand, and the development of symptoms of metabolic discoordina-  
tion, manifested by the accumulation of lactic acid, inorganic  
phosphorus, and a considerable quantity of urea. During the  
warming period following prolonged hypobiosis, no essential  
disturbances of carbohydrate-phosphorus and nitrogen metabolism  
were noted; an exception was the elevated concentration of urea  
in the brain tissue. A temporary metabolic disturbance mani-  
fested by the excessive accumulation of glutamine and glycogen  
in the brain tissue characterized the posthypothermal period.  
Changes in the structure of brain tissues characterized by a  
19/33

USSR

PALLADIN, A. V. and KOMETIANI, P. A. (Editors)  
Pyataya Vsesoyuznaya Konferentsiya po Neyrokhimii Nervnoy  
Sistemy, "Metsniyereba," 1970, pp 11-21

GAYEVSKAYA, M. S., et al., "Nitrogen and Energy Metabolism in  
the Brain Under the Influence of Reduced Vital Activity of the  
Organism," pp 194-208

decrease in the degree of their amidation and a sharp decrease  
in the quantity of urea continued for a period of two subse-  
quent weeks.

The data obtained permit the conclusion that the  
metabolic shifts taking place in homothermal animals in a state  
of artificial hypobiosis for a period of 24 hours are of an  
adaptive character.

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USSR

UDC 577.12+577.3

PALLADIN, A. V. and KOMETIANI, P. A. (Editors)  
Pyataya Vsesoyuznaya Konferentsiya po Neyrokhimii Nervnoy  
Sistemy, "Metsniyereba," 1970, pp 11-21

CHERKASOVA, L. S., Institute of Physiology, Academy of Sciences  
Belorussian SSR, Minsk

"Nitrogen and Carbohydrate Metabolism in the Brain Under the  
Influence of Relatively Small Doses of Ionizing Radiation,"  
pp 232-246

Abstract: Shifts in the carbohydrate and nitrogen metabolism  
in brain tissue have been disclosed. These shifts point to the  
important role which a nonspecific component plays in the devel-  
opment of the central nervous system's reaction to x-ray and  
neutron irradiation administered in a relatively small dose  
(along with specific manifestations of the effect of irradia-  
tion on biological structures and biopolymers of the organism).  
The component in this case is the hypothalamus-hypophysis-  
adrenal system, which determines the further course of develop-  
ment of the pathological process, adaptation, and compensation  
of the induced injuries.

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Sistemy, "Metsniyereba," 1970, pp 11-21

CHETVERIKOV, D. A., GASTEVA, S. V., DVORKIN, V. Ya.,  
SHMELEV, A. A., and BOBKOV, V. A., Institute of Physiology imeni  
Pavlov, Academy of Sciences USSR, Leningrad

"Phospholipid Metabolism in Different parts of the Central  
Nervous System in Hypoxia," pp 274-284

Abstract: The content and intensity of metabolism of phosphate groups of individual phospholipid fractions in the cortex of the cerebral hemispheres, cerebellum, mesencephalon, medulla oblongata, and spinal cord of rats were studied during acute hypoxia. Hypoxia was induced by placing the animals in a pressure chamber with a pressure of 180 mm Hg for a period of two hours. It was found that despite the well-known morphological and physiological data on the sensitivity of the various parts of the central nervous system to oxygen insufficiency, the extent of metabolic depression in each of the studied

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CHETVERIKOV, D. A., et al., "Phospholipid Metabolism in Different Parts of the Central Nervous System in Hypoxia," pp 274-284

phospholipid fractions during acute hypoxia was approximately the same in all sections of the central nervous system. It is assumed that such uniformity in the quantitative expression of reaction to hypoxia by phospholipids localized in different parts of the central nervous system may be due to the uniformity in the extent of temperature drop in the different parts of the central nervous system during hypoxia. Earlier the authors indicated that the metabolic depression of phospholipids in the brain tissue of rats during oxygen insufficiency is due to hypoxic hypothermia, which develops in rats during a stay in a pressure chamber with reduced barometric pressure.

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Pyataya Vsesoyuznaya Konferentsiya po Neyrokhimii Nervnoy  
Sistemy, "Metsniyereba," 1970, pp 11-21

ROZENGART, V. N., First Medical Institute imeni Pavlov,  
Leningrad

"Some Characteristics of the Structure of the Active Surface of  
Cholinesterase," pp 332-344

Abstract: The sensitivity of cholinesterase of equine blood serum and acetylcholinesterase of bovine erythrocytes to a homologous series of organophosphorus inhibitors, derivatives of O-alkyl-methylthiophosphonates was studied. The thialkyl radical inhibitor was either ethylmercaptoethyl, its methylsulfo-methylate, a normal butyl, or normal hexyl. The organophosphorus inhibitor in each of the series studied may be regarded as practically identical with respect to the strength of the phosphorylating reagents (equation of  $rK$  values corresponds to that of thiophosphonic acids), while their different anticholinesterase

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CHETVERIKOV, D. A., et al., "Phospholipid Metabolism in Differ-  
ent Parts of the Central Nervous System in Hypoxia," pp 274-284

effectiveness is the result of the difference in the degree of conformity of their alkyl radicals with the hydrophobic section in the area of the esterase center of the catalytic surface of cholinesterase and acetylcholinesterase. There are two hydrophobic sections separated by a hydrophilic group in the case of cholinesterase. Their total expanse corresponds to that of the radical C<sub>7</sub>. There is only one hydrophobic section complementary to the isohexyl radical in the case of acetylcholinesterase.

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Pyataya Vsesoyuznaya Konferentsiya po Neyrokhimii Nervnoy  
Sistemy, "Metsniyereba," 1970, pp 11-21

TURPAYEV, T. M. and MANUKHIN, B. N., Institute of Developmental  
Biology, Academy of Sciences USSR, Moscow

"The Identity of Cholino- and Adrenoreceptor Proteins," pp 345-354

Abstract: Experimental confirmation of the earlier assumptions with regard to the identity of cholino- and adrenoreceptor proteins are cited in the article. Topics studied were the interaction between adreno- and cholinoreceptors and the effect of factors denaturing the protein molecule on the activity of the cholino- and adrenoreceptors. The kinetic method was used to evaluate the functional condition of the cholino- and adrenoreceptors. Experiments on the ventricle of a frog showed that acetylcholine and adrenalin have a depressing effect on the receptors of the antagonistic system. At the same time it was found that the inhibiting action of acetylcholine on the

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TURPAYEV, T. M. and MANUKHIN, B. N., "The Identity of Cholino-  
and Adrenoreceptor Proteins," pp 345-354

adrenoreceptors is higher than its activating effect on the cholinoreceptors. In the temperature range of 3 to 30°C the value of K, which characterizes the relationship between the specific receptors and acetylcholine and adrenalin undergo an identical change. In the course of brief heating of the ventricle to a temperature of 40°C a reversible inactivation of the cholino- and adrenoreceptors takes place. The subsequent restoration of the receptors' activity to the initial level occurs simultaneously. A short-period treatment of the ventricle with a 15% solution of urea also induces a reversible inactivation of both receptors; the rate at which their activity is restored after the urea is washed off is identical.

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TURPAYEV, T. M. and MANUKHIN, B. N., "The Identity of Cholino-  
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It was concluded that the cholino- and adrenoreceptors  
are a single protein molecule with two active centers: one  
which interacts with acetylcholine, and the other with  
catecholamine. These active centers are reciprocally linked  
apparently at the level of single receptor protein -- the excita-  
tion of one causes the inhibition of the other.

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Sistemy, "Metsniyereba," 1970, pp 11-21

GORKIN, V. Z., AKOPYAN, Zh. I., VEREVKINA, I. V., MOSKVITINA,  
T. A., and STESINA, L. N., Laboratory of Amines and Other  
Nitrogenous Bases, Institute of Biological and Medical Chemistry,  
Academy of Medical Sciences USSR, Moscow

"Enzymatic Mechanisms of Deamination of Biogenic Amines,"  
pp 382-392

Abstract: When hepatic mitochondria are treated in the presence of serotonin with oxidized oleic acid, changes in the substrate specificity and sensitivity to the inhibiting action of mitochondrial monoaminooxidase (MAO) are noted. These changes were first called "transformation" of MAO into an enzyme resembling diaminooxidase. The indicated process, according to data cited in this report, is partially reversible. It is based, apparently, on the oxidation of the thiol groups situated  
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outside of the active MAO center to disulfides. The mitochondria  
treated with oxidized oleic acid acquire the ability to deaminate  
a whole series of nitrogenous compounds (including along with  
amines and omega-amino-acids also adenosine-5'-monophosphate  
and urea).

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Sistemy, "Metsniyereba," 1970, pp 11-21

GLEBOV, R. N., Scientific Research Institute of Physics Problems,  
Moscow

"Biochemical Aspects of Synaptic Membrane Function," pp 452-463

Abstract: Literature data concerning the biochemical composition of the different subunits of the nerve terminals (synaptosomes), and the structure and function of pre- and postsynaptic membranes are discussed in the article. Ion-mediator regulation in the synaptosomes and the effect of mediators on the biosynthesis of ribonucleic acid in the synaptic membranes were selected for the initial stages of study of the synaptic membrane function. By measuring electroconductivity, it was established that acetylcholine evokes a reversal in binding by synaptosomes from the brain of rats in a number of  $\text{Na}^+$ ,  $\text{K}^+$ ,  $\text{Ca}^{++}$ , and  $\text{Mg}^{++}$

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GLEBOV, R. N., "Biochemical Aspects of Synaptic Membrane  
Function," pp 452-463

ions as compared with controls (absence of acetylcholine).  
Synaptosomes in the presence of acetylcholine increase the  
binding of  $\text{Na}^+$  and  $\text{Mg}^{+2}$  ions and reduce binding of  $\text{K}^+$  and  $\text{Ca}^{++}$   
ions. It was found also that acetylcholinesterase activity  
of the synaptosomes depends on the concentration of  $\text{Na}^+$  and  
 $\text{K}^+$  ions as well as on the concentration of acetylcholine. At  
a low concentration of acetylcholine ( $10^{-5}\text{M}$ ) the activating  
effect of the ions is as follows:  $\text{K}^+ > \text{Na}^+$ . At a high concen-  
tration of acetylcholine ( $10^{-2}\text{M}$ ) the order is reversed.  
Ribonucleic acid biosynthesis in the synaptosomes was studied  
in vitro with the inclusion of  $\text{C}^{14}$  -- orotic acid. It was  
found that acetylcholine has a stimulating effect (100% activa-  
tion) on the inclusion of the tracer only in the synaptosomes  
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(but not in the mitochondria). This effect of acetylcholine is highly specific: choline chloride, sodium acetate, butyryl choline bromide had no stimulating effect. Co-factors of the effect of acetylcholine were ions  $K^+ > Na^+$  (0.1 M), adenosine triphosphate, and a crude cholinoreceptor fraction isolated from the brain of rats by the modified Turpayev method. Adrenalin stimulated the inclusion of orotic acid only into the fraction of pure mitochondria. These facts indicate the usefulness of the hypothesis concerning the autonomous synthesis of protein in the nucleic acids of the nerve terminals.  
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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RAT CEREBRAL CORTEX PROTEINS UNDERWENT DECREASED AMIDATION WHEN THE ANIMALS WERE FATIGUED, AND INCREASED AMIDATION WHEN THEY WERE GIVEN NEMBUTAL. INCUBATION OF BRAIN SLICES WITH GLUCOSE INCREASED AMIDATION AND DECREASED FREE AMINO ACIDS, ESP. ASPARATE. THE GREATEST AMT. OF AMIDATION TOOK PLACE IN PROTEINS SOL. IN ACIDIFIED ORG. SOLVENTS, AND SOME NH SUB3 UPTAKE ALSO OCCURRED IN UNKNOWN NONPROTEINACEOUS COMPOS. NH SUB3 IN LIVING TISSUE PROBABLY ARISES FROM OXIDATIVE DEAMINATION OF GLUTAMATE, CAUSED BY INCREASED LEVELS OF ATP. THE NH SUB3 IS THEN TAKEN UP DURING AMIDATION OF PROTEINS. FACILITY: DEP. BIOCHEM., INST. PHYSIOL., TBILISI, USSR.

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38838d Interrelation between electron transfer and transport ATPase system of microsomes. Kometiani, Zurab P.; Shamkulashvili, G. G. (Inst. Physiol., Tbilisi, USSR). *Biophysika* 1969, 14(5), 846-51 (Russ). The role of the electron transport chain in the mechanism of Na<sup>+</sup> and K<sup>+</sup> active transport was discussed. Preincubation of the enzyme (microsomal fraction of rat brain) with NADH<sub>2</sub> decreased the activity of Na<sup>+</sup>-K<sup>+</sup>-activated ATPase (I) and had no effect on Mg<sup>2+</sup>-activated ATPase (II). In the presence of NADH<sub>2</sub>, I showed increased affinity to K<sup>+</sup> and decreased affinity to Na<sup>+</sup>, which resulted in a decrease of activity of I. Under the conditions when only II was active, the activity of NADH<sub>2</sub>-cytochrome c reductase was maximal; when I was active, the activity of NADH<sub>2</sub>-cytochrome c reductase sharply decreased.  
M. Ticha-Karlova

*gm*

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