

2/2 017

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0129390

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PROBLEMS CONCERNED WITH THE COMBINED TREATMENT OF CANCER OF THE RECTUM IN PRIMARY ESTABLISHED INOPERABILITY AND IN OPERABLE PATIENTS ARE DISCUSSED. ON THE BASIS OF 85 OBSERVATIONS THE AUTHORS EMPHASIZE THE PRINCIPAL DIFFERENCE OF METHODOLOGICAL APPROACHES IN THE TREATMENT OF THESE TWO GROUPS OF PATIENTS. BASING UPON AN ANALYSIS OF OPERATIVE COMPLICATIONS, CHARACTER OF THE COURSE OF THE POSTOPERATIVE PERIOD, MACRO AND MICRO MORPHOLOGICAL CHANGES OF THE PREPARATIONS REMOVED, IT IS UNDERLINED THAT CONDITIONS OF BETTER (SIMILARITY) OF OPERATIONS AND IRRADIATION IN OPERABLE RECTAL CANCER ARE ASSOCIATED WITH THE TECHNIQUE OF IRRADIATION. PREFERENCE IS GIVEN TO DAILY IRRADIATION (500 RAD) FOR A PERIOD OF FOUR DAYS AND SUBSEQUENT OPERATION ON THE 4TH-5TH DAY AFTER THE END OF IRRADIATION. FACILITY: NI ONKOLOGICHESKIY INSTITUTA IM. P. A. GERTSENA I KAFEKRA KLINICHESKOY PAKIOLOGII TSIU.

UNCLASSIFIED

SIMAKIN, G. A.

JPRS 55882
4 May 1972

UDC 621.039.554:621.311.25:621.039
STUDY OF THE BUILDUP OF PLUTONIUM ISOTOPES IN THE FUEL OF THE
VVER-1 REACTOR OF THE NOVOSIBIRSKIY ATOMIC POWER STATION

Larfeld by V. Ya. Gabeskiriya, V. S. Belokopytov, G. A. Miller, G. A. Simakin, N. I. Buznyakov, Z. I. Pakhomov, N. A. Vladimirova, and I. V. Ishlovaniya, Scientific Research Institute of Atomic Reactors and I. V. Novosibirskiy Laboratory Isotopov plutoniya v toplive Reaktorov Nelekess, signed to press January 1970, 16 pp]

Introduction

The isotopic composition of irradiated fuel in samples cut from fuel elements of the VVER-1 reactor of the Novosibirskiy Atomic Power Station was investigated in order to determine experimentally the isotopic composition of irradiated fuel in a reactor of the VVER type within the framework of this study work:

- (a) determining the uranium and plutonium isotopic composition after irradiation of the fuel;
 - (b) determining the number of plutonium isotopes formed as a result of irradiation;
 - (c) determining the isotopic composition of the fuel as a function of the degree of burn-up.
1. Preparation of Samples
- The assembly from which the fuel element was taken was irradiated for 2.75 years and held for 1.5 years before the investigation.

USSR

UDC 621.396.669.8

MIKHAEV, V. V., SIMAKOV, B. I., TYUN'KOV, V. S.

"Resistors for Radio Interference Suppression"

Elektron. tekhnika. Nauchno-tekhn. sb. Radiokomponenty (Electronic Engineering. Scientific and Technical Collection. Radio Components), 1970, vyp. 3, pp 31-36 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4A248)

Translation: A brief study of the basic functions and operating conditions of resistors used to suppress radio interference from motor vehicle ignition systems is presented. The designs of the resistor in the spark plug and distributor networks are investigated. Inclusion of resistors in the ignition system reduces the radio interference level significantly and improves the quality of radio and television reception. Application of a microconductor in glass insulation as the resistor insures a high operating voltage of the resistor with minimum size.

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1/3 041
TITLE—LASER EXAMINES EYES —U— UNCLASSIFIED PROCESSING DATE—30OCT70
AUTHOR—SIMAKOV, YU. S
COUNTRY OF INFO—USSR
SOURCE—MOSCOW, ZNANIYE-SILA, NO 1, 1970, PP 22-24
DATE PUBLISHED—70
SUBJECT AREAS—BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS—LASER RADIATION BIOLOGIC EFFECT, EYE, FROG, EMBRYOLOGY, OPTIC LENS, CORNEA, RETINA, CATARACT, HYPNOSIS
CONTROL MARKING—NO RESTRICTIONS
DOCUMENT CLASS—UNCLASSIFIED
PROXY REEL/FRAME—3002/0258 STEP NO—UR/0004/70/000/001/0022/0024
CIRC ACCESSION NO—AP0127851
UNCLASSIFIED

2/3 041

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0127851

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN CONNECTION WITH THE FACT THAT THE EYE IS KNOWN TO EMIT WEAK COHERENT POLARIZED RADIATION, THE EFFECT OF A LASER ON THE EYE OF A FROG WAS INVESTIGATED. THE DEVELOPMENT OF THE EYE FROM THE EMBRYONIC STAGE AND VARIOUS THEORIES REGARDING THE RELATIONSHIPS AND THEORETICAL PRINCIPLES OF FUNCTION OF PARTS OF THE EYE ARE DISCUSSED BRIEFLY. THE LASER EXPERIMENT DESCRIBED HERE DIFFERS FROM THOSE PERFORMED BY OTHER RESEARCHERS IN THAT AN EFFORT WAS MADE TO DIRECT ALL THE ENERGY OF THE LASER ON THE CRYSTALLINE LENS, WHEREAS THE MAJORITY OF PAPERS HAVE BEEN DEVOTED TO THE EFFECT OF THE LASER ON THE RETINA. THE EFFECT OF THE LASER FOCUSED ON THE CRYSTALLINE LENS OF THE EYES OF 30 FROGS IS DISCUSSED. IT IS NOTED THAT 30 MINUTES AFTER LASER EXPOSURE, THE CORNEA REMAINS UNDAMAGED, THERE ARE NO APPARENT CHANGES IN THE CRYSTALLINE LENS EXCEPT FOR A SMALL CLOUDY SPOT, AND THERE WAS SOME DAMAGE TO THE RETINA. A DAY LATER CHANGES BEGAN TO TAKE PLACE IN THE CRYSTALLINE LENS. A RING CATARACT BEGAN TO FORM, BUT INSTEAD OF BEGINING AT THE POINT WHERE THE LASER BEAM PASSED THROUGH THE CRYSTALLINE LENS OR AT THE POLES, IT BEGAN FROM THE EQUATOR MOST REMOVED FROM THE PART AFFECTED BY THE LASER BEAM. IN FOUR DAYS THE CATARACT COVERED ALMOST THE ENTIRE LENS. THE QUESTIONS OF WHY THE LASER CATARACT DEVELOPS SO RAPIDLY AND WHY THE IRRADIATED PART BECOMES CLOUDY LAST ARE DISCUSSED. IN EXPLAINING THESE PHENOMENA SEVERAL NEW DISCOVERIES REGARDING THE FINE STRUCTURE OF THE EYE WERE MADE. IT IS NOTED THAT THE FREQUENCY OF THE RADIATION EMITTED BY THE EYE MAY DEPEND ON THE STRUCTURE OF THE CRYSTALLINE LENS FIBERS.

UNCLASSIFIED

373 041

CIRC ACCESSION NO--AP0127851

UNCLASSIFIED

PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--THE QUESTION OF THE POSSIBLE IMPORTANT ROLE PLAYED BY
THE CRYSTALLINE LENS FIBERS AS CONVERTERS AND AMPLIFIERS OF THIS
RADIATION IS RAISED IN CONNECTION WITH HYPNOTISM.

UNCLASSIFIED

USSR

UDC 591.32:531.5

SIMAKOV, Yu. G., AGAFONOV, V. A., VOLKOVA, O. V., ROMANOVA, Ye. A., and SHITOV, G. D., Chair of Histology and Embryology, Pediatric Faculty, Second Moscow State Medical Institute imeni N. I. Pirogov, Moscow

"Pre-Implantation Development of Mouse Embryos Under Conditions of Changed Gravitation"

Leningrad, Arkhiv Anatomii, Gistologii i Embriologii, Vol 64, No 3, Mar 73, pp 5-12

Abstract: Female mice were placed 11-13 hrs after mating into a centrifuge in which an additional gravitational force of 1 G was exerted on them in the dorso-ventral direction. Under the conditions of increased gravitation, a delayed appearance of fetuses transferred from the oviducts into the horns of the uterus was not observed. Morphological changes in the development of the fetuses began to be apparent on the 4th day of pregnancy; they comprised retarded development and disturbances in cleavage. These changes coincided with the beginning of a drop in the content of bound lipids and a rise in the content of PAS-positive substances in the endometrium. At the time of implantation, after 4 days of the action of gravitational overload, the majority of fetuses were unable to penetrate into the muscosa of the uterus, because the blastocytes had not lost their zone pellucida or had undergone

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USSR

SIMAKOV, Yu. G., et al., *Arkhiv Anatomii, Gistologii i Embriologii*, Vol 64, No 3, Mar 73, pp 5-12

abnormal cleavage with the lysis of some blastomers. There were no signs of implantation on the 6th day. On the 12-13th day of the action of the additional gravitational force, the mice were no longer pregnant, because their uterus was thinned out as in mice in a state of diestrus. Under the effect of the gravitational overload, gestation was interrupted already in the pre-implantation stage.

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Physiology

USSR

SIMAKOV, Yu., Candidate of Biological Sciences

"The Brain is Full of Secrets"

Moscow, Tekhnika Molodezhi, No 3, 1973, pp 38-39

Translation: Recently in the central lecturing bureau of the All-Soviet organization "Znaniye" the director of the Institute of Experimental Medicine of the AMN of the USSR (expansion unknown) and a member correspondent of the AN of the USSR (expansion unknown), Natal'ya Petrovna Bekhtereva spoke. At the request of the editors, Yu. Simakov, candidate in Biological Sciences, has prepared a summary of this lecture. We offer it to your attention.

Until recently, brain physiology did not have the key to the fine mechanisms involved in the function of the brain. Now neurophysiology has been enriched with new possibilities. These possibilities enable scientists to build bridges between different sciences -- psychology, biochemistry, and cybernetics.

Much has changed in scientists' ideas. Previously it was thought that the brain was divided into "principalities," and each one of these was responsible for a specific function. Today this opinion has been abandoned. Our thought organ, apparently, works as a united, coordinated system. In every act and in

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USSR

SIMAKOV, Yu., Tekhnika Molodezhi, No 3, 1973, pp 38-39

every decision many parts of the brain and a great number of cells play a part.

It is possible to pick up, amplify, and record the biological currents of the brain with the aid of electrodes, without penetrating directly into its depths. The electroencephalogram enables us to make inferences as to the origin of disturbances connected with the degeneration of nerve cells. The English neurophysiologist Gray Walter uses the electroencephalogram to determine not only the physiological condition of the brain, but even some traits of character and types of thought, that is, thoughts expressed in images or in abstractions.

But biological currents registered on an electroencephalogram merge into a general "hum." Nothing can be determined by an electroencephalogram about the small yet important centers of the brain, and especially about the function of individual neurons.

In recent years another method of neurophysiological research has become more widespread. We refer to the use of the thinnest gold electrodes to penetrate into the deepest centers of the brain. It is true that these electrodes are never inserted into a person's brain for experimental purposes only. They are used only for diagnosis of an ailment and for its treatment. All experiments are done on animals.

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SIMAKOV, Yu., Tekhnika Molodezhi, No 3, 1973, pp 38-39

The thinnest gold threads allow us to obtain information from various brain centers and even from cells. They can also exert an influence on sick sections. Besides this, electrical stimulation by a weak current is possible through the same electrode.

We already have maps of the exact distribution of the basic brain centers. Nonetheless, with each new case, a very careful study is made of the topography of the neurons and nuclei of the brain. After all, each person is endowed with his own individual features.

Zones have been found in the brain which, when stimulated, cause the subject to have certain positive or negative emotions. Luckily for the researcher, the correlation of corresponding zones turned out to be in a ratio of 4:1. Centers of pleasure and of rage have been found. Stimulating them, it is possible to control the behavior of animals. Not without reason did Professor Delgado demonstrate the power of this method. He stopped an infuriated bull by means of radio signals.

Emotion is a very ancient and complex apparatus, inherited by an individual from his ancestors. Sometimes it represses intellectual activities, and sometimes it serves as a great mobilizer of creative activity. On the basis of new facts regarding the expression of emotion by the brain, neurophysiologists are finding paths of treatment of emotional illnesses.

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USSR

SIMAKOV, Yu., Tekhnika Molodezhi, No 3, 1973, pp 38-39

As has already been said, the brain functions as a single multicellular mechanism. The possibility of a simultaneous engagement of many cells imparts to it two quite important characteristics -- flexibility and reliability. The question arises: what happens in such a united system if an error slips in or if a collision occurs?

One of the approaches to an answer to this question is the interesting investigation of a young co-worker of our institute, V. Rechin. The sick patient, with inserted electrodes, was asked to perform some sort of easy task. For example, he might be asked to remember and repeat a set of numbers or words. It was unexpectedly learned that during an incorrect response a certain group of cells became active. The electrode imbedded in these cells carried the precise information of their condition.

The cells with such unusual characteristics acquired the name of "error detectors." The way they function has not yet been fully determined. But there is a basis for the belief that the "error detector" mobilizes the brain to correct the errors without the obvious participation of the conscience. For example, South American Indians never memorize the way home in impenetrable tropical jungles. At a specific moment the hunters say that it is time to return and they find their way directly to their huts. Horses and especially

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USSR

SIMAKOV, Yu., *Tekhnika Molodezhi*, No 3, 1973, pp 38-39

cats have a highly developed sense of subconscious orientation. Possibly the basis for the "error detector" in humans is the much curtailed and changed centers inherited from animal ancestors.

We do not discount the fact that the nervous anxiety and obtrusive sensations of imperfection or incorrectness of a patient's performance are somehow connected with the activity of the group of cells discovered by V. Rechin. The results of the experiments again show the inadmissibility of taking psychopharmaceutical medication without a doctor's prescription.

Let us say that the widely used preparation "seduksen" lowers an individual's emotional level and makes him dull. It can change the function of the "error detector." The subconscious mechanism which should always be prepared to come to the aid of other cells turns out to be inactive. A person who has taken "seduksen" cannot drive a car and it is even dangerous for him to appear on streets with heavy traffic.

Sometimes it is asked: can one read a human thought? In the language of neurophysiologists this means: can one decipher the electrical activity of neuron complexes in specific thoughts? The first successful attempts at this have already been made. Neuronograms have been analyzed which have recorded electrical signals sent while the words "khor" (choir) and "sor" (litter) were

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USSR

SIMAKOV, Yu., Tekhnika Molodezhi, No 3, 1973, pp 38-39

said. These words sound alike but have completely different meanings. And the recordings of the signals are completely different. With time, perhaps, it will be possible to read thoughts by the electrical activity of the cells.

The brain is still full of secrets. It contains relationships and resources still unseen by us. And the strength of a thought can sometimes so mobilize the organism that it conquers a serious ailment. One young girl was even able to deal with a strong negative emotion thanks to an inserted electrode, and the doctors were able to conclude the necessary treatment.

Another patient was plagued by so-called phantom pains. His hand, which had been amputated after injuries, "hurt." The functioning of the entire brain had to be reorganized. Electrodes were inserted into the pulvinar. Stimulating currents were sent through these electrodes. And the hand long gone began to "disappear" now even in thought. It is important sometimes to conquer not only the illness, but even its memory.

Each step forward in the knowledge of the brain is exclusively necessary for the clinic, for broadening the spectrum of curable nervous and mental diseases.

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USSR

SIMAKOV, Yu., Tekhnika Molodezhi, No 3, 1973, pp 38-39

CAPTIONS

P. 39 bottom left:

As early as the Middle Ages, physicians armed with primitive instruments, attempted to penetrate into the brain and influence it (old etching).

P. 39 top center:

A dolphin was given "seduksen" to relieve his fear of the opening in the pool through which he would have to swim. But the animal began to lose its orientation. Its head began to spin. When the dolphin swam to the surface, he swayed from side to side.

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USSR

UDC 591.484:578.088.5

SIMAKOV, Yu. G., POLUEKTOVA, L. M., and POPOV, V. V., Moscow State University
Imeni M. V. Lomonosov

"The Effect of Laser Radiation on the Lipid Content of the Frog Crystalline Lens"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Biologicheskaya, No 4, 1970,
pp 609-610

Abstract: Exposure of frog eyes to a focused laser beam (10,600 Å, 0.12 to 0.18 j) produced lamellar cataracts in one-third of the eyes within 48 hours. By the 7th day half of the irradiated eyes had total cataracts. On the third day the cinnamon-brown cortex had acquired a bluish hue, indicating increased lipid content in the affected lens. By the 11th day the cataract-type changes ceased, but the lipids continued to be redistributed, accumulating mostly in vacuoles in affected areas of the lens. By this time the color of the cortex and nucleus was a uniform grayish-blue cataracts did not develop in the eyes of frogs irradiated with 0.04 j, and the lipid content increased only in the areas primarily affected (posterior pole and equator of the lens).

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1/2 017
 UNCLASSIFIED
 TITLE--LEAD IN THE DEVELOPING CRYSTALLINE LENS OF THE FROG -U- PROCESSING DATE--13NOV70
 AUTHOR--(02)--SIMAKOV, YU.G., PUPOV, V.V.
 COUNTRY OF INFO--USSR
 SOURCE--BIOL. NAUKI 1970, (2), 25-9
 DATE PUBLISHED-----70
 SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
 TOPIC TAGS--EMBRYOLOGY, FROG, EYE, LEAD COMPOUND
 CONTROL MARKING--NO RESTRICTIONS
 DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAME--3003/0927
 CIRC ACCESSION NO--AP0129992
 STEP NO--UR/0325/70/000/002/0025/0029
 UNCLASSIFIED

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2/2 017

CIRC ACCESSION NO--A0129992
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE---13NOV70

OF FROG EMBRYOS. THE ACCUMULATION BEGINS AT THE STAGE 30 AND LASTS THROUGH THE FOLLOWING 14 STAGES. MOST PB OCCURS IN THE CRYST. LENS CORE; IN THE OUTER LAYER IT WAS PRESENT IN GRANULAR FORM. PB IS SUPPOSED TO PLAY AN INHIBITOR ROLE IN SOME ENZYMIC PROCESSES AND TO HAVE AN INFLUENCE ON THE DEVELOPMENT OF THE EYE CATARACT. FACILITY:
MSK. GOS. UNIV. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

USSR

S
SIMAKOV, Yu., Candidate of Biological Sciences

"Laser Examines Eyes"

Moscow, Znaniye -- Sila, No 1, 1970, pp 22-24

Abstract: In connection with the fact that the eye is known to emit weak coherent polarized radiation, the effect of a laser on the eye of a frog was investigated. The development of the eye from the embryonic stage and various theories regarding the relationships and theoretical principles of function of parts of the eye are discussed briefly. The laser experiment described here differs from those performed by other researchers in that an effort was made to direct all the energy of the laser on the crystalline lens, whereas the majority of papers have been devoted to the effect of the laser on the retina.

The effect of the laser focused on the crystalline lens of the eyes of 30 frogs is discussed. It is noted that 30 minutes after laser exposure, the cornea remains undamaged, there are no apparent changes in the crystalline lens except for a small cloudy spot, and there was some damage to the retina. A day later changes began to take place in the crystalline lens. A ring cataract began to form, but instead of beginning at the point where the laser

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- SSSR

SIMAKOV, Yu., Znaniye -- Sila, No 1, 1970, pp 22-24

beam passed through the crystalline lens or at the poles, it began from the equator most removed from the part affected by the laser beam. In four days the cataract covered almost the entire lens. The questions of why the laser cataract develops so rapidly and why the irradiated part becomes cloudy last are discussed. In explaining these phenomena several new discoveries regarding the fine structure of the eye were made. It is noted that the frequency of the radiation emitted by the eye may depend on the structure of the crystalline lens fibers. The question of the possible important role played by the crystalline lens fibers as converters and amplifiers of this radiation is raised in connection with hypnotism.

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1/2 025
UNCLASSIFIED
TITLE--ORGANIZATION AND VOLUME OF WORK IN PHYSIOTHERAPY WARDS OF URBAN
THERAPEUTIC INSTITUTIONS -U-
AUTHOR--SINAKOVA, A.A.
PROCESSING DATE--13NOV70
COUNTRY OF INFO--USSR
SOURCE--MOSCOW, SOVETSKOYE ZDRAVOOKHRANENIYE, RUSSIAN, NO 1, 1970,
SUBMITTED 31 JULY 1969, PP 21-26.
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--PHYSIOTHERAPY, THERAPEUTICS, HEALTH SERVICE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3005/0994
STEP NO--UR/0753/69/000/001/0021/0026
CIRC ACCESSION NO--AP0133069
UNCLASSIFIED

2/2 025

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0133069
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE ORGANIZATION OF THE
PHYSIOTHERAPY SERVICE IN THE PUBLIC HEALTH SERVICE IS DETERMINED FOR THE
MOST PART BY DECREES OF THE MINISTRY OF HEALTH USSR NO. 817 DATED 1
NOVEMBER 1949, ENTITLED "MEASURES FOR IMPROVING PHYSIOTHERAPEUTIC
ASSISTANCE TO THE POPULATION", NO. 463, DATED 2 OCTOBER 1954, ENTITLED
"MEASURES FOR IMPROVING AND FURTHER DEVELOPING PHYSIOTHERAPEUTIC
ASSISTANCE TO THE POPULATION:", NO. 200, DATED 6 MAY 1961, ENTITLED
"CHANGES IN THE COEFFICIENTS OF PHYSIOTHERAPEUTIC PROCEDURES PERFORMED
BY INTERMEDIATE MEDICAL PERSONNEL OF PHYSIOTHERAPY WARDS (UNITS) IN
THERAPEUTIC-PROPHYLACTIC INSTITUTIONS" AND NO. 100, DATED 8 FEBRUARY
1968, ENTITLED "MEASURES FOR IMPROVING AND FURTHER DEVELOPING
PHYSIOTHERAPEUTIC ASSISTANCE TO THE POPULATION". FACILITY: ALL
UNION SCIENTIFIC RESEARCH INSTITUTE OF SOCIAL HYGIENE AND ORGANIZATION
OF PUBLIC HEALTH SERVICES IMENI N. A. SEMASHKO, MOSCOW.

UNCLASSIFIED

СИМОНОВА, Г. П.

INFORMATION SYSTEMS

Information Systems

SOI JPRS 50949
19 May 1978

PROBLEMS OF THE ECONOMIC CLASSIFICATION SYSTEM
Article by G.P. Simonova, Graduate of Economic Sciences, Scientific Research Institute of the Statistical Committee Administration of the USSR, Moscow, Alexander I. Kuchakov, Moscow, No 3, 1975, pp 24-26

The creation of a general state automated information following and processing system for accounting, planning and control of the national economy

Information services play an important role among these subviewers.

One of the basic elements of information services in the economic classification system, it is created in order that each economic layer has direct to certain economic distribution which will permit formulation of the economic

Various types of classifications and nomenclatures are finding application in accounting, statistics, planning and other elements of administration.

Their main deficiency is disuniformity and lack of coordination. The following classifications were constructed in the majority of cases separately for each problem. The possibilities of obtaining a large amount of data to comparison and relative barometric of the classifications need.

At this time, it has become possible to supplement the classifications with new attributes, deepen the degree of division, and include new items. However, along with this, new requirements have begun to be imposed on the classification and coordination of the classifications and nomenclatures.

A unified coding system for economic data, on the basis of the latter, organization, processing, storage, retrieval and transmission of information must be built.

The development of a unified economic classification and nomenclature system can be carried out completely only as a result of prolonged work by large collectives. Essentially, this work must be done systematically, however, at the present time for efficient organization of these operations it is

USSR

SIMANCHUK, B. P. and DAVYDENKO, G. O.

UDC 621.372.832.8

"Development of a Series of Ferrite Super-High Frequency Units Based on Nonsymmetric Strip Line"

Tr. Mosk. in-ta radiotekhn., elektron. i avtomatiki (Works of the Moscow Institute of Radio Engineering, Electronics and Automation), 1972, vyp.55, pp 184-188 (from RZh-Radiotekhnika, No 11, Nov 72, Abstract No 11 B152)

Translation: A series of units (Y-circulators, 4 and 5 arm circulators) is described based on a bridge type, strip circulator operating in the preresonance region. The bases for the calculations are given. The parameters are also given. Original article: one illustrations, one table, and three bibliographic entries. N.S.

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USSR

1

KRUPNIKOV, K. K., KUROPATENKO, V. F., SAPOZHNIKOV, A. T., SIMANOV, B. N., and SIMONENKO, V. A.

"Calculation of Explosions in Media With Polymorphic Phase Transitions"

Moscow, Doklady Akademii Nauk SSSR, Vol 202, No 2, 1972, pp 300-301

Abstract: The problem of describing the polymorphic phase transitions which occur during strong explosions in dense media can be completely solved in the simplest approximation of thermodynamic equilibrium. The authors limit themselves to the consideration of a strong explosion in a medium having only two modifications. The equation of state of each phase is taken in the form

$$\begin{aligned}
P &= P_x(\rho) + P_T, & E &= E_x(\rho) + E_T, \\
P_x &= \frac{\rho_0 c_0^2}{n} (\delta^n - 1), \\
P_T &= \Gamma c_v \rho T,
\end{aligned}
\tag{1}$$

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USSR

KRUPNIKOV, K. K., et al., Doklady Akademii Nauk SSSR, Vol 202, No 2, 1972, PP 300-301

$$E_x = \frac{c_0^2}{n} \left[\frac{\delta^{n-1} - n}{n-1} + \frac{1}{b} \right] + E_0,$$

$$E_T = c_V T,$$

where $\delta = \rho/\rho_0$, $c_V = \text{const}$, $E_0 = \text{const}$, $\Gamma = \text{const}$. The constants entering into the equation of state are obtained either from theoretical models or from experiments. The boundaries of the phase stability regions are determined from the equality of chemical potentials. The pressure and internal energy in each phase in the continuous flow regions are found from the system of equations

$$dE + P dV = 0,$$

$$P = P_x(\rho) + \Gamma \rho (E - E_x).$$

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USSR

KRUPNIKOV, K. K., et al., Doklady Akademii Nauk SSSR, Vol 202, No 2, 1972, pp 300-301

which after V integration along the isotherm, which is also an isobar here, takes the form

$$E - E_0 = [T dP(T) / dT - P(T)](V - V_0)$$

On the boundaries of the phase mixture region isentropes and shock adiabats experience a sharp bend, which in a number of cases results in the appearance of rarefaction shock waves and the bifurcation of compression shock waves. All these peculiarities were considered in the RAND / Calculation of Adiabatic Nonstationary Motions / program for the computer-aided calculation of an explosion in a medium resembling quartz with the transition to stishovite:

$$\rho_{01} / \rho_{02} = 0,605, \quad c_{01} / c_{02} = 0,443, \quad c_{v1} / c_{v2} = 1, \\ n_1 = 4, \quad n_2 = 2,7, \quad \Gamma_1 = \Gamma_2 = 0,55.$$

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USSR

KRUPNIKOV, K. K., et al., Doklady Akademii Nauk SSSR, Vol 202, No 2, 1972, pp
300-301

Both phases were considered liquid (without shear stresses), and in the center
was a gas bubble with high pressure, the expansion of which simulated a point
explosion.

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USSR

UDC: 629.12.011.7

ARKHANGORODSKIY, A. G., ROZENDENT, B. Ya., SIMANOVICH, A. I., Kaliningrad
Technical Institute of the Fishing Industry and Fisheries

"Side for a Boat Hull"

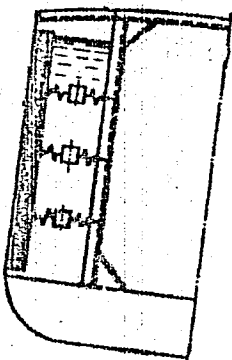
Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obratzsy, Tovarnyye Znaki,
No 13, May 72, Author's Certificate No 335146, Division B, filed 20 Apr 68,
published 11 Apr 72, pp 61-62

Translation: This Author's Certificate introduces: 1. A side for a boat hull which contains outer hull plates enclosing a space with elastic baffles which is partially filled with liquid. As a distinguishing feature of the patent, the impact resistance of the siding is improved by arranging the elastic barriers horizontally and making them with bypass channels joining sections of the liquid-filled space which are separated by the baffles, and by using sandwich type hull plating with an elastic filler. 2. A modification of this design distinguished by the fact that each bypass channel is made with a chamber which has apertures on the ends. This chamber accommodates a floating piston with a central open aperture, the upper part of the floating piston being tapered and coupled to the upper end of the chamber.

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USSR

ARKHANGORODSKIY, A. G. et al., USSR Author's Certificate No 335146



USSR

UDC 621.47

MARKMAN, M. A., MARYCHEVA, G. P., and SIMANOVSKIY, L. I., All-Union Order of Labor Red Banner Scientific Institute of Current Sources

"Measurement of the Quality of Thermoelements and Batteries by Harman's Method"
Tashkent, Geliotekhnika, No 6, 1970, pp 13-17

Abstract: The application of the method proposed by T. C. Harman for measuring the quality Z of thermoelectric materials to thermocells and battery is discussed. It is shown that the error resulting from direct application of this method to thermocells and batteries may be eliminated by equalization of the temperature gradient between the p-arm and the n-arm of the thermocell. 2 figures, 1 table, 5 bibliographic entries.

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USSR

UDC 612.273+612.018

ЕЙМАНОВСКИЙ, Л. Н., КРАСНОВСКАЯ, И. А., ПРОЗОРОВСКАЯ, М. П., and
ТАВРОВСКАЯ, Т. В., Laboratory for the Study of the Resistance of the Organism,
Laboratory of Endocrinology, and Laboratory of the Development of Adaptive-
Trophic Functions of the Nervous System, Institute of Evolutionary Physiology
and Biochemistry imeni I. N. Sechenov, Academy of Sciences USSR, Leningrad

"Changes in the Neuroendocrine System in White Rats During Adaptation to
Hypoxia"

Leningrad, Fiziologicheskii Zhurnal SSSR imeni I. M. Sechenov, Vol 59, No 5,
1973, pp 828-836

Abstract: Tests were performed on rats exposed (in a barochamber) to a
simulated altitude of 2,000 to 7,600 m for up to 3 months. Groups of animals
were sacrificed at intervals and tissue samples collected for analysis. Mor-
phological changes concerning cytoplasm, nuclei, and vascularization proceeded
in two phases, giving rise to corresponding functional alterations. In the
initial days of hypoxia, a certain activation of the hypothalamic-neurohypo-
physeal system (HNHS), adenohypophysis, and the thyroid gland was observed.
From the 14-20th day on, synthesis of HNHS hormones was reduced, though these
hormones were readily released from the neurohypophysis into blood. Similarly,

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USSR

SIMANOVSKIY, L. N., et al., Fiziologicheskii Zhurnal SSSR imeni I. M. Sechenov,
Vol 59, No 5, 1973, pp 828-836

from the 30th to the 90th day, production of the TSH in the adenohypophysis and the activity of the thyroid gland progressively decreased. On the other hand, concentration of catecholamines and insulin in blood plasma and utilization of these hormones in tissues were increased throughout the duration of the hypoxia. The concluding paragraph states that the observed changes are significant and will be discussed in a separate article.

2/2

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USSR

UDC 616-008.922.1.04-092.9-003.96-07:616.831-008.92-074

SIMANOVSKIY, L. N., OZIRSKAYA, Ye. V., and REZNIK, L. V., Institute of Evolutionary Physiology and Biochemistry imeni I. M. Sechenov, Academy of Sciences USSR, Leningrad

"Metabolic Changes in the Rat Brain During Adaptation to Hypoxia"

Moscow, Voprosy Meditsinskoy Khimii, Vol 19, No 2, Mar/Apr 73, pp 156-162

Abstract: The investigation was conducted on white rats kept in a barochamber at a pO_2 equivalent at 2,000-7,600 m altitude for 3-90 days. In cortical and medullary mitochondria, oxidation, phosphorylation, and the P/O ratio decreased on the 3d-10th days and returned to normal on the 30th day. On the 60th and 90th days, oxidation and phosphorylation increased, but the P/O ratio was somewhat reduced. Electron microscopy revealed no morphological changes in the mitochondria. In the hyaloplasm of cortical and medullary neurons, the rate of glycogenolysis and glycolysis increased on the 3rd to 30th days and returned to normal on the 60th day. On the 90th day, there was a second though small increase in glycogenolysis. In brain tissue homogenates, malate and isocitrate dehydrogenase activity was reduced on the 10th day and returned to normal on the 20th day. Acetylcholine esterase activity gradually but continuously decreased,

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USSR

SIMANOVSKIY, L. N., et al., Voprosy Meditsinskoy Khimii, Vol 19, No 2,
Mar/Apr 73, pp 156-162

with the fall becoming statistically significant as of the 30th day. Thus,
during adaptation to hypoxia, definite metabolic changes take place in the brain
tissue, which evidently increase the neurons' resistance to protracted hypoxia.

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USSR

UDC 612.111.017.2:612.273-2

SIMANOVSKIY, I. N., Institute of Evolutionary Physiology and Biochemistry
Imeni I. M. Sechenov, Academy of Sciences USSR, Leningrad

"Mechanisms of Adaptation to Hypoxia in Red Blood Cells"

Moscow, Voprosy Meditsinskoy Khimii, No 3, 1971, pp 227-238

Abstract: Review of the Soviet and foreign literature (154 references) on:
(a) the effect of hypoxia on erythropoiesis, (b) role of glycolysis and the
pentose phosphate cycle in maintaining erythrocyte function, and (c) changes
in metabolism and properties of erythrocytes in hypoxia. Hypoxia brings
about quantitative and qualitative changes in erythropoiesis and alters the
metabolism of the cells. Two mechanisms enable the cells to adapt to a
deficiency of oxygen. In the early stages, glycolysis is intensified in the
mature erythrocytes as a result of the activity of the glycolytic enzymes.
Prolonged exposure to hypoxia, on the other hand, stimulates bone marrow to
release large quantities of erythroblasts with high glycolytic activity.
These mechanisms enable the red blood cells to retain their physical integrity
and continue functioning during hypoxia.

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USSR

UDC 612.273.2+612.454

BORISOVA, L. YA., and SIMANOVSKIY, L. N., Institute of Evolutionary Physiology and Biochemistry imeni I. M. Sechenov, Academy of Sciences USSR

"Corticosterone Content of Some Tissues During Adaptation to Hypoxia"

Leningrad, Fiziologicheskiy Zhurnal SSSR, No 12, 1971, pp 1,817-1,820

Abstract: Hypoxia was induced in rats in a pressure chamber and the corticosterone content of the adrenals, cerebral cortex, skeletal muscles, and blood plasma was determined fluorometrically at different stages of adaptation. It was found to increase in the adrenals from days 3 to 20 but decrease in the cerebral cortex and skeletal muscles. It remained unchanged in the blood plasma. These results were consistent with those obtained by injecting the animals intraperitoneally with tritium-labeled corticosterone. The authors conjecture that in adaptation of hypoxia, the hormone leaves the blood plasma for the brain where it is rapidly metabolized. A decrease in the corticosterone level lowers the excitability of the cerebral cortex, an adaptive reaction to hypoxia.

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USSR

UDC 612.275.1.017.2:612.172.015.32

STANOVSKIY, I. N. and CHOTOYEV, Zh. A., Institute of Evolutionary
Physiology and Biochemistry imeni I. M. Sechenov, Academy of Sciences USSR,
and Kirgiz Medical Institute

"Change in the Rate of Glycolysis and Glycogenolysis in Rat Myocardium in
Different Stages of Acclimatizaon to High Altitudes"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, No 5, 1971,
pp 65-66

Abstract: In a study of carbohydrate metabolism in rats adapted to hypoxia
in the Tyan-Shan mountains (3,200 m above sea level), the rate of glycolysis
in the right and left ventricles of the heart was found to decrease on day 3
of acclimatizaon, return to normal on day 10, but increase significantly in
both ventricles on days 30 and 40. The rate of glycogenolysis increased in
the left ventricle starting on day 20 and in the right ventricle starting on
day 30. The adaptive changes in glycolytic metabolism of the myocardium man-
ifested by stimulation of glycolysis and glycogenolysis by day 20 and
especially by days 30 to 40 are consistent with the literature data that
adaptation to hypoxia generally takes 3 to 6 weeks.

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USSR

UDC 612.273-053:612.822.1.015.32-053

SIMANOVSKIY, L. N., and CHOTOYEV, Zh. A., Laboratory for the Study of the Resistance of the Organism, Institute of Evolutionary Physiology and Biochemistry imeni I. M. Sechenov, Academy of Sciences USSR, Leningrad, and Kirgiz Medical Institute, Frunze

"The Effect of Hypoxia on Glycogenolysis and Glycolysis Rates in the Rat Brain"

Leningrad, Zhurnal Evolyutsionnoy Biokhimi i Fiziologii, Vol 6, No 5, Sep/Oct 70, pp 577-579

Abstract: Glycogenolysis and glycolysis in the whole brain of young and old rats were studied at sea level and under hypoxic conditions in a low-pressure chamber or at an altitude of 3,200 m. The rate of carbohydrate metabolism increased during postnatal development. In the absence of hypoxia, the rate of accumulation of lactate from either glycogen or glucose increases with maturation of the animals. The brain of young rats consumes primarily glycogen, particularly under anaerobic conditions. This may be one of the reasons that young animals are more resistant to hypoxia than mature animals. Adaptation of mature rats to intermittent hypoxia is

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USSR

SIMANOVSKIY, L. N., and CHOTOYEV, Zh. A., Zhurnal Evolyutsionnoy Biokhimi
i Fiziologii, Vol 6, No 5, Sep/Oct 70, pp 577-579

related to an increase in glycolysis, whereas adaptation of rats to high altitudes results in an increase in glycogenolysis. The type of carbohydrate metabolism is thus similar to the metabolism characteristic of the early stages of ontogenesis.

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UNCLASSIFIED

PROCESSING DATE--20NOV70

1/2 025

TITLE--EFFECT OF ACUTE AND CHRONIC HYPOXIA ON SOME CHARACTERISTICS OF CARBOHYDRATES AND LIPIDS METABOLISM IN RATS -U-

AUTHOR--(04)-SIMANOVSKIY, L.N., PERTSEVA, M.N., ZHELUDKOVA, Z.P., MAZINA, T.I.

COUNTRY OF INFO--USSR

SOURCE--VOPROSY MEDITSINSKOY KHIMII, 1970, VOL 16, NR 1, PP 77-83

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--HYPOXIA, CARBOHYDRATE METABOLISM, LIPID METABOLISM, RAT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3005/0361

STEP NO--UR/0301/70/016/001/0077/0083

CIRC ACCESSION NO--AP0132590

UNCLASSIFIED

2/2 025

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0132590

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CHANGES IN HEXOKINASE AND PHOSPHORYLASE ACTIVITIES, GLYCOLYSIS RATE IN SKELETAL MUSCLES AND FREE FATTY ACIDS CONTENT IN THE PLASMA OF RATS SUBJECTED TO HYPOXIA, IMITATING CONDITIONS (7.600 M OF ALTITUDE DURING 1.5-5 HR) AND DURING THE TRAINING TO HYPOXIC STATE (SIMULATED ALTITUDES 2.500-7.600 M, 30 DAYS) HAVE BEEN STUDIED. IT HAS BEEN SHOWN THAT DURING THE FIRST PERIOD OF ADAPTATION TO THE PROLONGED OXYGEN STARVATION ONE MAY OBSERVE THE PICTURE SIMILAR TO THAT AT ACUTE HYPOXIA: THE LACK OF CHANGES IN HEXOKINASE AND PHOSPHORYLASE ACTIVITIES IN SKELETAL MUSCLES AND ELEVATION IN FREE FATTY ACIDS CONTENT IN BLOOD PLASMA. THE CHANGES IN CARBOHYDRATE METABOLISM WERE NOTED AT 20TH DAY OF TRAINING: THE DECREASE IN HEXOKINASE ACTIVITY AND RISE IN PHOSPHORYLASE A. CHANGES IN GLYCOLYSIS AND GLYCOGENOLYSIS RATE WAS CORRELATED WITH CHANGES IN ENZYMIC ACTIVITY. FACILITY: I. M. SECHENOV INSTITUTE OF DEVELOPMENTAL PHYSIOLOGY AND BIOCHEMISTRY USSR ACADEMY OF SCIENCES, LENINGRAD.

UNCLASSIFIED

USSR

UDC: 621.382.2

BGCHKAREVA, L. V., SIMASHKEVICH, A. V., and FERDMAN, N. A.,
V. I. Lenin Kishinev State University, Institute of Applied
Physics

"Effect of Laser Excitation on the Photoelectrical Characteristics
of ZnSe-ZnTe Heterojunctions"

Leningrad, Fizika i tekhnika poluprovodnikov, No 8, 1972, pp 1603-
1604

Abstract: Results are given of experiments conducted by the authors for studying some of the photoelectrical characteristics of ZnSe-ZnTe heterojunctions under the excitation of a ruby laser beam with an energy of 1.76 ev. Such heterojunctions, in spite of their interesting faculty of emitting visible light when a current is put through them, have not undergone much study. The specimens were formed by mosaic monocrystalline ZnSe layers sputtered in a vacuum on ZnTe crystals in the (110) plane, with an aluminum contact fastened to the ZnSe and a gold one applied to the ZnTe, and were sensitive to light in the range of 0.4 to 0.65 μ in wavelength. Curves are plotted for the the emf of the specimen in this range

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USSR

UDC: 621.382.2

BOCHKAREVA, L. V., et al, Fizika i tekhnika poluprovodnikov, No 8, 1972, pp 1603-1604

with no laser excitation as a function of the wavelength, and for the same with laser excitation, and an interpretation is given. The authors of this brief communication thank V. A. Kovarskiy for his interest in the work and his comments on the results.

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USSR

UDC 577.1:615.7/9

SARKISYAN, A. A., YEPREMYAN, G. A., and SIMAVORYAN, P. S.

"On Certain Biochemical and Morphological Changes in the Kidneys in Cases of Chromium Poisoning and the Therapeutic Efficacy of Unithiol"

Zh. eksperim. i klinich. med. (Journal of Experimental and Clinical Medicine), 1971, 11, No 5, pp 25-31 (Armenian summary) (from RZh-Biologicheskaya Khimiya, No 10, 25 May 1972, Abstract No 10F2216 by M. Shuster)

Translation: A determination was made of SH-group and ascorbic-acid (I) concentration and ATPase activity in rat kidney tissue under conditions of intoxication with varying chromium doses administered internally with the drinking water or subcutaneously. A dose ≥ 17 mg/kg was the lethal chromium dose. A significant decline was shown in ATPase activity (58% in individual experiments), in SH-groups (32.15%) and I (33.1%). The therapeutic action of unithiol is evinced in a lowering of the animals' mortality and in a normalization of the investigated biochemical indicators. With unithiol, destructive kidney lesions are less pronounced.

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USSR

UDC:536.24.02.082

SIMBIRSKIY, D. F., OLEYNIK, A. V., SKRIPKA, A. I.

"The Problem of Determination of Boundary Conditions on the Surfaces of Bodies with Variable Thermal Effects"

Samoletostr. i Tekhn. Vozd. Flota. Resp. Nezhved. Temat. Nauch.-Tekhn. Sb. [Aircraft Building and Air Force Technology, Republic Interdepartmental Thematic Scientific and Technical Collection], No 24, 1971, pp 14-22 (translated from Referativnyy Zhurnal Metrologiya i Izmeritel'naya Tekhnika, No 2, 1972, Abstract No 2.52.1016 from the resume)

Translation: A method is suggested for local values of heat fluxes and heat transfer factors, suitable for the most general cases of heat exchange of parts with the surrounding medium (unstable modes, operating blades of turbines, significant heat exchange, etc.). The method is based on the use of surface film thermocouples, yielding the values of temperatures on the surfaces of parts with high accuracy. Film thermocouples introduce no distortions to the heat exchange conditions and the temperature field of a part and are practically non-inertial measuring devices. A transition is made from first order boundary conditions (temperatures on the surface) to second and third order boundary

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USSR

UDC: 536.24.02.082

SIMBIRSKIY, D. F., OLEYNIK, A. V., SKRIPKA, A. I., Samoletostr. i Tekhn. Vozd. Flota. Resp. Nezhved. Temat. Nauch.-Tekhn. Sb. [Aircraft Building and Air Force Technology, Republic Interdepartmental Thematic Scientific and Technical Collection], No 24, 1971, pp 14-22 (translated from Referativnyy Zhurnal Metrologiya i Izmeritel'naya Tekhnika, No 2, 1972, Abstract No 2.32.1016 from the resume)

conditions by solving the reverse problem of heat conductivity. 5 figures; 6 biblio refs.

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USSR

UDC: 621.313.322-82.001.3

STANISLAVSKIY, L. YA. (Candidate of Technical Science), KALMYKOV, I. Z. (Engineer), MINARSEVICH, E. N. (Engineer), and SIBIRSKIY, N. A. (Engineer)

"A 40 Megawatt Vertical Reversible Hydroelectric Motor-Generator Set with Direct Line Starting"

Moscow, Elektrotehnika, No 3, 1970, pp 9-13

Abstract: A reversible hydroelectric generating system has been developed for the Kiev Hydrostorage Power Station, and is claimed to be unique for its type. Three units are to be installed at the Kiev station, each rated at 40 Mw in the motor mode and 33.4 Mw in the generator mode. Rotational speed is 166.7 rpm; rotor axes are vertical. The design is intended for peak load handling, hence had to be more versatile than usual hydropower generating systems; in addition to being reversible, the equipment must withstand three startups and shutdowns per day, which creates extra problems in heating of the starter windings and in bearing friction in the support thrust bearing. The bulk of the discussion concerns the solutions obtained to these problems. Design calculations are given for optimum spacing and size of the starter winding so as to insure even heating of all segments; as a result the system may be thrown on the line directly without danger of winding burnout. Because of the reversibility feature, the thrust

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USSR

STANISLAVSKIY, L. YA, et al, Elektrotehnika, No 3, 1970, pp 9-13

bearing had to be specially designed for maximum entrainment of oil in its segments. To avoid the possibility of dry starts due to heat deformation of the bearing surfaces, high-pressure oil is forced into the bearing gaps during the start and stop periods. Two structural drawings of the system are included.

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1/2 016 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--RESPONSE OF THE VENOUS SYSTEM TO IMPEDED BLOOD OUTFLOW DURING
EXTRACORPOREAL CIRCULATION -U-
AUTHOR--SIMBIRTSEV, S.A.
COUNTRY OF INFO--USSR
SOURCE--KARDIOLOGIYA 10(1): 102-109. 1970
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--BLOOD CIRCULATION, BLOOD VOLUME, MEDICAL EXPERIMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3004/0540

STEP NO--UR/0495770/010/001/0102/0109

CIRC ACCESSION NO--AP0131163

UNCLASSIFIED

272 016

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0131163

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RESPONSE OF THE VENOUS SYSTEM TO IMPEDED BLOOD OUTFLOW FROM THE ORGANISM WAS STUDIED IN 3 SERIES OF EXPERIMENTS ON 22 DOGS. THE REACTION OF THE VENOUS SYSTEM TO THE BLOOD RETENTION DIFFERED INDIVIDUALLY BOTH WITH SHORT AND LONG TERM LIMITATION OF THE BLOOD OUTFLOW. PHLEBOTOMIC AND PHLEBOPARETIC REACTIONS WERE RECORDED; THESE WERE MORE COMMON, BEING ATTENDED BY RETENTION AND LATER ON ALSO BY DEPOSITION OF A LARGE MASS OF THE BLOOD. THEN, THE VOLUME OF THE BLOOD HELD BACK IN THE ORGANISM ROSE PARALLEL WITH DURATION OF THE EFFECT PRODUCED BY THE FACTOR LIMITING THE OUTFLOW OF THE BLOOD. THE ORGANISM'S REACTION WAS NOT LIMITED TO LOCAL CHANGES WITHIN EFFLUXION AREAS OF THE VENA CAVA FROM WHICH THE BLOOD OUTFLOW WAS IMPEDED, BUT INVOLVED THE ENTIRE VENOUS SYSTEM. FACILITY: S. M. KIROV MIL.-MED. ACADE., LENINGRAD, USSR.

UNCLASSIFIED

SIMCHERA, V.

Ero

INTERNATIONAL ECONOMIC RELATIONS

Handwritten scribble

CENAL COUNTRIES' NEW FIVE-YEAR PLANS REVIEWED

Article by V. Simchera, candidate of the economic sciences: "The Economies of the CENAL Countries in the New Five-Year Plan Period" Moscow, Vestnik Statistiki, Russian, No 12, 1971, pp 30-38

The year 1970 was for a majority of the socialist countries a year of the successful completion of their regular five-year plans. It was in Bulgaria; of the Fourth Five-Year Plan in the USSR; of the Fifth, Romania, Czechoslovakia, and Albania; and of the Third in Hungary, Poland, the GDR, summarizing the results of 1970 and the Five-Year Plan period, and worker parties of the other CENAL countries outlined plans for the next 5-year period.

The 14th CPSU Congress (March-April 1971) adopted the Directives on the Ninth Five-Year Plan for the development of the USSR National Economy in the 1971-1975 period, the 10th KCP Congress (April 1971) People's Republic of Bulgaria during the Socio-Economic Development of the Plan for the Development of the GDR National Economy in the 1971-1975 period, the 15th NRP Congress (June 1971) the Directives on the Five-Year Plan for the Development of the RFR National Economy in the 1971-1975 period, and the 14th MVCh Congress (May-June 1971) the Directive on the Five-Year Plan for the Development of the GDR National Economy in the 1971-1975 period. The Fourth Five-Year Plan for the development of the Hungarian national economy was approved at the 10th VSRP Congress held in November 1970. The 10th RKP Congress had even earlier (in November 1969) adopted the Directive on the Five-Year Plan for the development of the economy in the 1971-1975 period, which was subsequently consolidated at an April 1971 session of the CC RKP. The 10th Plenum of the CC RKP (June 1971) discussed the basic principles of the Five-Year Plan for the development of the Polish national economy in the 1971-1975 period.

Handwritten notes:
1971-1975
1971-1975

USSR

UDC: 621.396.6-181.5(088.8)

BARASH, Yu. V., BOGDANOV, S. S., SHESTAK, V. V., BELOPOL'SKIY, M. I.,
SIMDYANOV, G. I.

"A Device for Combining Microelements"

USSR Author's Certificate No 259612, filed 30 Aug 68, published 3 Jun 70
(from RZh-Radiotekhnika, No 5, May 71, Abstract No 5V190 P)

Translation: This Author's Certificate introduces a device for combining microcomponents such as the microminiature elements of radio electronic circuits. The device is made in the form of a specimen stage which can be moved in two mutually perpendicular directions and is mounted on a rotating base connected to a mechanism for holding and adjusting the position of one of the elements to be combined. In order to increase the resolving power of the device, the adjustment mechanism is made in the form of a column which rotates about a vertical axis. This adjustment mechanism and the specimen table are subjected to the action of micro-adjustment units, each of which is made in the form of a plate which changes its linear dimensions as a result of thermal expansion.

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- 90 -

USSR

UDC 539.14 + 539.143

SIMENOG, I. V., and FILIPPOV, G. F., Institute of Theoretical Physics,
Academy of Sciences Ukrainian SSR, Kiev

"Local Self-Consistent Field in Nuclei With a Large Number of Nucleons"

Kiev, Ukrainskiy Fizicheskiy Zhurnal, Vol 15, No 8, Aug 70, pp 1305-
1309

Abstract: Equations are obtained for the local self-consistent field in a system with a large number of particles. For an atom the resultant equations change to the Thomas-Fermi model. The article discusses the application of these equations to nuclei. Conditions are found whereby the self-consistent field takes the form of a square well. Binding energy and the density of heavy nuclei are calculated in the case of exchange forces which provide saturation. An evaluation is made for the stability boundary of nuclei having an excess of nucleons of one kind.

1/2 016 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--MOVEMENT OF INSOLUBLE INCLUSIONS IN AN IONIC CRYSTAL IN THE VACANCY
BREAKDOWN BAND -U-
AUTHOR--(02)-GEGUZIN, YA.YE., SIMENOV, S.S.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970, 12(3), 911-12

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--IONIC CRYSTAL, POTASSIUM BROMIDE, CHROMIUM OXIDE, METAL
INCLUSION, NICKEL OXIDE, IRON OXIDE, COPPER OXIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1996/1796

STEP NO--UR/0181/70/012/003/0911/0912

CIRC ACCESSION NO--AP0118764

UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0118764

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RESULTS ARE GIVEN OF EXPTS. IN WHICH THE EXPECTED MOTION OF INSOL. INCLUSIONS IN AN IONIC CRYSTAL WAS OBSD. ON THE SURFACE OF A NATURAL CLEAVAGE OF KBR, A ALYER OF FINELY DISPERSED CR OXIDE POWDER (5-10 MU) WAS DEPOSITED. ON THIS A LOOSE LAYER OF KBR WAS POWDERED, 50-100 MU THICK. POWDERING WAS CARRIED OUT AT 300DEGREES. THIS LAYER WAS A SOURCE OF VACANCIES MOVING IN THE ELEC. FIELD. ANNEALING WAS DONE AT 630DEGREES IN A FIELD OF 100 V-CM. THE FIELD WAS APPLIED IN SUCH A WAY THAT COMPLEXES OF VACANCIES AND INCLUSIONS MOVED FROM THE LAYER INTO THE CRYSTAL. ANNEALING WAS PERIODICALLY DISCONTINUED, AND A SPOT ON THE CRYSTAL WAS PHOTOGRAPHED. A CHARACTERISTIC STRUCTURE OF THE REGION OF VACANCY BREAKDOWN ON WHICH DISPLACE PARTICLES OF CR SUB2 O SUB3 WERE VISIBLE IS GIVEN. BY EXAMG. A LARGE NO. OF SUCH REGIONS, THE FOLLOWING PECULIARITIES OF THE PROCESS WERE ESTABLISHED. INITIALLY, THE PARTICLES MOVE WITH A VELOCITY OF SIMILAR TO 10 PRIME NEGATIVES CM-SEC, WHICH DECREASES CONSIDERABLY WITH THE TIME OF ISOTHERMAL ANNEALING. THE GREATER THE VELOCITY OF MOTION OF AN INCLUSION THE MORE THICKLY DISTRIBUTED ARE THE REGIONS OF THE VACANCY BREAKDOWN. ANALOGOUS CONCLUSIONS WERE BOTAINED WHEN THE MOVING PARTICLES WERE OXIDES OF NI, FE, AND CU. THE DESCRIBED PHENOMENA OF THE ACCELERATED DIFFUSION MOTION OF INCLUSIONS IN DEFECT REGIONS ARE PRESENT NOT ONLY IN IONIC CRYSTALS BUT ALSO IN A METALLIC DISPERSIONALLY STRENGTHENED SYSTEM. FACILITY: KHAR'KOV. GDS. UNIV. IM. GOR'KOGO, KHARKOV, USSR.

UNCLASSIFIED

15

UDC 621.396.6--181.5 (689.6)

USSR

BARANOV, A.I., BATSIAURI, V.D., VSEKHOYNIKOV, I.I., GAVRILOV, R.A., GALYAMIN, V.P., GONJATSOV, M.S., ZAMIKHOVSKIY, M.B., ZALIPSKIY, A.I., ELOTIN, V.A., KAZATSKER, L.I., LAGUTAIN, G.V., LARIONOV, YU. S., PRACHAZHENSKIY, S.P., KALKIN, D.L., RAMENSKIY, I.V., SEMENOVA, I.S., TIKHOMIROV, B.G., FISHEL', I.SH., SHUBERT, M.M.

"Device For Deposition Of Multilayer Coverings In A Vacuum"

USSR Author's Certificate No 279291, filed 16 June 66, published 30 Nov 70 (from RZh--Radiotekhnika, No 9, Sep 1971, Abstract No 9V272P)

Translation: A device proposed for deposition of multilayer coverings in a vacuum is fulfilled in the form of a number of successively mounted independent operating chambers supplied with evaporators, heaters, and an exhaust system. The device contains a mechanism for transporting substrates, a mechanism for loading and unloading, and a drive mechanism. With the object of increasing the reliability of the device and improving the quality and reproducibility of the coverings deposited, outside of the area of the arrangement of operating chambers and parallel to it a supplementary vacuum chamber is installed, which serves for the deposition in it of the transporting mechanism, and which communicates with each of the operating chambers by means of vacuum-overlapping transfer windows located on the side wall

USSR

BARANOV, A. I., et al., USSR Author's Certificate No 279291, filed 16 June 68, published 30 Nov 70 (from RZh--Radiotekhnika, No 9, Sep 1971, Abstract No 9V272P)

of the supplementary chamber at places for connection to it of the operating chambers. Each of the operating chambers or a group of them is provided with an individual system of high-vacuum pumping.

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1/2 019 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--THE STRUCTURE OF PSYCHOLOGICAL PROCESSES IN RELATION TO CEREBRAL
ORGANIZATION -U-
AUTHOR--(03)-LURIA, A.R., SIMERNITSKAYA, E.G., TUBYLEVICH, B.
COUNTRY OF INFO--USSR
SOURCE--NEUROPSYCHOLOGIA 8(1): 13-19, 1970
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, BEHAVIORAL AND SOCIAL SCIENCES
TOPIC TAGS--CEREBRUM, EXPERIMENTAL PSYCHOLOGY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605016/B05 STEP NO--UK/0000/70/008/001/0013/0019
CIRC ACCESSION NO--AP0140653
UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0140653

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EVERY ATTEMPT TO ANALYZE THE CEREBRAL ORGANIZATION OF A PSYCHOLOGICAL PROCESS HAS TO TAKE IN ACCOUNT NOT ONLY ITS STABLE STRUCTURE BUT THE CHANGE OF THIS STRUCTURE DURING THE ONTOGENETIC AND FUNCTIONAL DEVELOPMENT. THIS PRESUMPTION IS ILLUSTRATED BY AN ANALYSIS OF THE DISTURBANCES OF WRITING IN 2 CASES OF LEFT PARIETO OCCIPITAL LESIONS WHERE COPYING WAS SLOW WRITING BASED ON OPTICO SPATIAL ANALYSIS OF LETTERS WAS IMPOSSIBLE BUT QUICK WRITING BASED ON AUTOMATIZED WRITING SKILL REMAINED INTACT. FACILITY: MOSCOW UNIV., DEP. NEUROPSYCHOL., MOSCOW, USSR.

UNCLASSIFIED

1/2 012 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--ASSIMILATION PRODUCTS OF CO SUB2 AND SOME ORGANIC COMPOUNDS BY
CHLOROPSEUDOMONAS -U-
AUTHOR--(C4)--TROTSENKO, YU.A., SIMISKER, YA.A., KONDRATYEVA, YE.N., DOMAN,
N.G.
COUNTRY OF INFO--LSSR S
SOURCE--IZVESTIYA AKADEMII NAUK SSSR, SERIYA BIOLOGICHESKAYA, 1970, NR 3,
PP. 415-422
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PSEUDOMONAS, PHOTOSYNTHESIS, CARBON ISOTOPE, CHEMICAL
LABELLING, CARBON DIOXIDE, BICARBONATE, AMINO ACID

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/0493

STEP NO--UR/0216/70/000/003/0415/0422

CIRC ACCESSION NO--AP0126243

UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0126243

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

ABSTRACT. DURING SHORT TIME (10-30 SEC.)

FIXATION OF C PRIME14 BICARBONATE BY THE GREEN PHOTOSYNTHETIC BACTERIA, CHLOROPSEUDOMONAS UNDER AUTOTROPHIC CONDITIONS AND IN THE PRESENCE OF SULFIDE AS WELL AS FORMATE OR PROPANOL THE FIRST TO BE DETECTED ARE LABELLED SUCINATE, GLUTAMATE ASPARTATE AND THEN FUMARATE, AND SERINE GLYCINE. MOST OF C PRIME14 IS PRESENT IN GLUTAMATE. THE LABEL APPEARS IN PHOSPHATE ESTERS NOT EARLIER THAN UPON 5 MINUTES LONG EXPOSURE OF THE CELLS WITH C PRIME14 BICARBONATE. PROPANOL MAINLY PLAYS THE ROLE OF THE ELECTRON DONOR AND BECOMES OXIDIZED FORMING PROPIONIC ACID.

INSIGNIFICANT C PRIME14 INCORPORATION FROM PROPANOL INTO THE CELLS EVIDENTLY OCCURS THROUGH THE FORMATION FROM PROPIONATE OF SUCCINATE AND THEN GLUTAMATE AS THE LABEL APPEARS THE FIRST PLACE IN THESE COMPOUNDS.

UTILIZATION BY CHLOROPSEUDOMONAS OF C PRIME14 FORMIATE SHOWS THAT AFTER 10-30 SECONDS THE FIRST TO BECOME LABELLED ARE SERINE GLYCIN AND GLUTAMATE AND THEN ASPARTATE AND OTHER PRODUCTS. C PRIME14 FIXATION BY THE CELLS FROM FORMATE AND C PRIME14 O SUB2 IN PRESENCE FORMATE IS CONSIDERABLE SUPPRESSED BY HYPOFOSFATE (5 TIMES 10 PRIME NEGATIVE 3 M), INHIBITOR OF FORMATE DEHYDROGENASE. SULFIDE ADDITION DOES NOT REDUCE THE INHIBITING ACTION OF HYPOFOSFATE ON THE FIXATION BY THE BACTERIA OF C PRIME14 FROM FORMIATE. THESE DATA SUGGEST THAT INCORPORATION IN THE CELLS OF FORMATE CARBON BASICALLY TAKES PLACE AFTER IT BECOMES OXIDIZED TO CARBON DIOXIDE.

FACILITY: M. V. LOMONOSOV STATE UNIVERSITY, MSCCH AND A. N. BAUCH INSTITUTE OF BIOCHEMISTRY, ACADEMY OF SCIENCES, USSR.

UNCLASSIFIED

USSR

UDC 615.285.7.099.036.11

SIMKIN, A. Z., and MIRONOV, YE. P., Central Rayon Hospital, Serpukhov

"Acute Poisoning With Chlorophos"

Moscow, Klinicheskaya Meditsina, Vol 49, No 4, Apr 71, pp 133-134

Abstract: Patients 25-52 yrs old who had been poisoned with chlorophos during crop spraying as a result of inadequate safety precautions were studied. The outcome was favorable in every instance. After the initial period of acute intoxication accompanied by violent symptoms (headaches, asthenia, digestive disturbances, disturbances of cardiac activity and coma in two instances), a short period of relative clinical well-being followed. Disturbances of the nervous system became evident 7-10 days later. Treatment of the patients with atropine was effective. In view of the increased resistance to atropine in poisoning with organophosphorus compounds, S. N. Golikov and V. I. Rosengart recommend administration of this drug to adults in an initial dose of 2 mg in light intoxication and of 4-6 mg in medium and acute intoxications, followed by 2 mg doses every hour until the symptoms of excitation of cholinergic systems disappear. Development of the dry of mucosa on administration of atropine in chlorophos intoxication should not be regarded as a contraindication to further treatment with this drug; atropine was administered until steady

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USSR

SIMKIN, A. Z., and MIRONOV, YE. P., Klinicheskaya Meditsina, Vol 49, No 4,
Apr 71, pp 133-134

widening of the pupils developed in periods free of spasms and the symptoms
of intoxication decreased in severity.

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USSR

UDC 612.825.5

SIMKIN, G. N., Soil Biology Faculty, Moscow State University

"Main Trends in the Evolution of Location Systems in Bats"

Moscow, Uspekhi Sovremennoy Biologii, Vol 71, No 1, 1971,
pp 123-136

Abstract: A worldwide study was performed to investigate the evolutionary paths of the location systems in bats. The data collected and the analyses performed indicate that as a precursor to their location systems, bats develop a pelorus with direction-finding abilities which, in the early evolutionary stages, predominate over discriminatory abilities. During the subsequent development and formation of specialized radar systems, the discriminatory abilities grow stronger due to a general rise in the frequency range of signals and a gradual loss of interfering overtone. Secondary deviations from this basic evolutionary path are observed even among higher species and consist of a fall in the frequency range, loss of the radar
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SIMKIN, G. N., Uspekhi Sovremennoy Biologii, Vol 71, No 1, 1971,
pp 123-136

signals' discriminatory power, and complication of the signals with supplementary overtones. The various questions raised can be answered only if the bats are trained to cooperate in special experiments in which the investigator can study their ability to recognize complex radar images.

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USSR

UDC 598.2:591.582.2

SIMKIN, G. N., Moscow State University

"Principles of Acoustic Transformation in Avian Calls and Songs"

Moscow, Zoologicheskii Zhurnal, Vol 52, No 8, 73, pp 1261-1263

Abstract: Studies on avian calls and songs recorded in the Spring of 1970 and 1971 showed that when the rate of reproduction was altered to modify frequency and timbre, similarities became apparent among taxonomically closely related groups such as thrushes Turbidae (Turdus, Erithacus, Phoenicurus, Cyanosylvia, Luscinia) and warblers Sylviidae (Phylloscopus, Locustella, Acrocephalus, Sylvia). On the basis of such investigations it is possible to establish evolutionary and ecological relationships among the different avian forms.

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Biophysics

UDC: 599.42:591.4

USSR

SIMKIN, G.N., Chair of Vertebrate Zoology

"Echolocation, Procedures in Discrimination and Direction Finding of Vespertilionidae Bats"

Moscow, Vestnik Moskovskogo Universiteta, No 1, Jan/Feb 70, pp 111-113

Translation: Analysis of evolutionary and adaptive changes in the location systems of 22 types of bats (Vespertilionidae) from the USSR shows how multi-directional such changes are. High-frequency (up to 160 kilohertz) emission of tube-nosed species indicates a greater differentiating capability of signal location, and the ability to locate very small objects. On the other hand, low-frequency saturation of location signals (45-38 kilohertz) and very short impulses indicate chiefly the location of very large prey and the ability to locate insects sitting on a solid body. Bat location systems of regimes show typically a sharp increase in diversity of echolocation, broad scattering of initial frequencies in the range 123-20 kilohertz, and very compact unification of the terminal impulse frequencies. This in turn indicates the high resolution capabilities of such location systems and their equal participation both in recognition of food objects in direction finding and in the general spatial orientation system. The wide range in variability of the impulse frequencies of megachiroptera (130-28 kilohertz) is evidently connected with

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SIMKIN, G.N., Vestnik Moskovskogo Universiteta, No 1, Jan/Feb 70, pp 111-113

the special strategic maneuverability of this type, the ability to locate the most diverse insects, and the apparent orientation capabilities of the location system. Initially, the location systems of bats apparently developed by way of intensification of hunting functions (small bats), followed by secondary formation of general orientation functions (common bats). This is shown by the high-frequency short-duration signals in representatives of the first group, and low-frequency long-lasting impulses in the second group. The relatively low-frequency spectrum and lack of variability in location signals of bats, as well as the clearly expressed predominance of greater length impulses in location series, indicate the lesser capabilities in discrimination of images by location and the development of general direction-finding properties of a similar echolocation system. All of this indicates that it may not be desirable to search for identical solutions in study of the principles of congruence of acoustic parameters of location signals with the type of objects being located. Even though in some cases definite tendencies (which appear to be genetically fixed) do show up (for example, the signal frequency drop in bats feeding on large night moths, and the sharp increase in frequency of small bats, which feed primarily on small moths and mosquitoes). In other cases these tendencies are not so clearly manifested. Change in the performance of location systems very often is of a static, situational type. Study of the internal structure of location signals and the characteristics of development and changes in energy levels of second- and third-order harmonic components, led us to

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SEKELI, G.N., Vestnik Moskovskogo Universiteta, No 1, Jan/Feb 70, pp 111-113

consider the possibility of specific and situational alteration of the diagram of direction of emission in vespertilionid bats. This hypothesis was tested experimentally in cooperation with Yu. P. Dobrachyev. The phenomenon was observed and directional diagram expansion during the process of development of frequency-modulated location signals was shown. For example, in megachiroptera the directional diagram expands from 15 to 90° from the beginning to the end of an impulse. On the basis of this phenomenon, a mathematical model was developed for the mechanism of discrimination of location images by vespertilionid bats. The principle was reported at the IV All Union Conference in Biocac and will be published in the proceedings. Utilization of the method of direction training of vespertilionid bats towards complex targets made it possible to elucidate still undescribed processes of direction-finding and discrimination of targets. During a free flight over several complex targets, the bats use special processes to find and recognize the target aimed at. The process of echolocation, as a rule, begins from single widely spaced impulses of quite high frequency and duration. Using this mode, the bat usually makes several "passes" over a group of targets. This location phase may be called (in accordance with D. Griffin and F. Webster) the "searching" phase, or in our terminology the "orientation" phase. In the next try the animal emits precisely organized series of impulses consisting of 25-40-70 signals. In this phase, called by American scientists the approach phase, and by us the phase of

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SIMKIN, G.N., Vestnik Moskovskogo Universiteta, No 1, Jan/F b 70, pp 111-113

"discrimination", the location signals of bats are grouped in packages separated by extended periods of silence. As the animal gets closer to the target, the impulse frequency usually drops uniformly, the length and amplitude of signals diminish progressively, and the intervals between individual impulses in a package and between individual packages become shorter. Several centimeters from the target, the location process enters the "terminal" or "final" phase. Now the impulse frequency often approaches the sound range, the grouping into packages often disappears, the intervals between impulses decrease drastically (to 5-6-8 msec) and the length of location signals often drops to a minimum (0.35-0.25 msec). This is manifested most clearly in bats of various types. After this series of impulses is emitted, occasionally the animal does not land on the target, but passes by it, making a few more circles over the target. During this period, it monitors the position of its target. During these "monitoring" flights, the animal may emit single high-frequency long impulses, as in the initial orientation phase, or continue to study the targets, emitting new series of location signals. Landing on a target selected and discovered earlier is often carried out after one of the attempts, without the repetitive "recognition" phases. When the animal moves on a solid surface and has to select one target out of two or three shapes, the location process works in a different manner. Sometimes the impulse grouping into packages does not occur, the progressive shortening of frequency, duration and amplitude

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USSR

SIMKIN, G.N., Vestnik Moskovsko Universiteta, No 1, Jan Feb 70, pp 111-113

of signals as well as of the intervals between pulses is absent. Very often the targets may be located by single widely spaced impulses. Impulse grouping into packages and regular alteration of the basic parameters of location series, as a rule, does not occur in experiments where the animal does not have to recognize precisely the image, but may limit itself to general direction finding by determining the coordinates of spatial position. This type of situation occurs during location of wire networks or ducts, when the animal works on a single target. Evidently the simplified character of the echolocation conditions in experiments carried out by D. Griffin and coworkers prevented them from recognizing the differences between the double direction-finding and the "discrimination" phases of echolocation. Thus, precise organization of the location process is necessary only under conditions when the animal is faced with several targets of complex configuration in flight, or when precise coordination of the velocity of movement with the rate of emission of location signals, distance from the target and velocity of the echo return from the target itself (and from other objects in the way of the animal) is required (echo from false targets, from substrate, large objects and fixture walls). The flight and the necessity to recognize the proper target in the presence of additional "false" figures result in this very precise development of the location process, and lead to regular and progressive changes in the parameters of location signals. The impulse grouping into packages observed

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SEMKN, G.N., Vestnik Moskovsko Universiteta, No 1, Jan/Feb 70, pp 111-113

in the vast majority of cases studied which is expressed very distinctly whenever there is a need to recognize complex targets in flight, is, in our opinion, functional. This method of location we call the method of "short sequence", by means of which the bat scans the object being located. Listening to and comparing the impulses reflected from different segments and types of targets gives complex, multi-image information. Evidently each "series" or package of impulses is a systematic link to a sequential analysis, and target discrimination is a gradual process. Together with this method, there exists a method of "verifying" impulses, emitted from time to time in the location process. Such impulses may occur at the start and towards the end of a series. They stand out by their high frequency or sharp deviation within the range of an impulse, and occasionally by extraordinary length or amplitude. We registered such signals from large and sharp-eared bats, take-nosed bats and two-colored bats. Because of their structural properties, these signals as a rule carry more information than the usual signals. A drop in the frequency, in the magnitude of deviation and length of signals towards the end of a series evidently shows that the in-flight process of target discrimination terminates and is followed by a final double direction-finding phase. During this final phase, location signals are often of such low frequency, become so short and follow each other so often that they no longer can assure recognition of a complex target. They only control the

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SIMKIN, G.N., Vestnik Moskovsko Universiteta, No 1, Jan/Feb 70, pp 111-113

spatial location of the object, and assure proper landing or accurate catch of the object by the animal. This is clearly shown by low-frequency signals already in the range of sound waves, observed in the case of the larger bats. Only a few sound waves are retained while the frequency modulation, so important for Vespertilionidae, disappears almost completely. Thus, comparative study of the echolocation of 22 types of Vespertilionida made it possible to discover new evolutionary and adaptive alterations of echolocation systems not yet described in the literature. Analysis of the main systems of direction-finding, discrimination, and selection of targets with complex configuration made it necessary to classify the situation variables of the location process and the methods of echolocation. The three basic phases of the location process must obviously be distinguished: "the orientation" phase, the "discrimination" phase, and the "direction-finding" phase. Most probably, under natural conditions, all three phases appear only in special situations, when it is necessary to analyze complex location images. In familiar surroundings, the animals may utilize only the method of single widely spaced "orientation" signals, or limit themselves to only direction-finding, determining the dimensions and spatial relationships of the objects being located, and neglecting detailed discrimination. Depending on the ecological characteristics of the species or type, both the relationship of the hunting and general orientation functions of the location system, as well as the relationship of the direction finding and "discrimination" properties may change.

1/2 040

UNCLASSIFIED

TITLE--EQUATIONS OF THE THREE DIMENSIONAL LAMINAR
OF REVOLUTION -U-

PROCESSING DATE--23OCT70
BOUNDARY LAYER ON BODIES

AUTHOR--(02)-BULAKH, B.M., SIMKIN, M.S.

S

COUNTRY OF INFO--USSR

SOURCE--PRIKLADNAIA MATEMATIKA I MAKHANIKA, VOL. 34, JAN.-FEB. 1970, P.
145-149

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--BODY REVOLUTION, LAMINAR BOUNDARY LAYER, SUPERSONIC FLOW, GAS
FLOW, BOUNDARY LAYER EQUATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--1988/1447

STEP NO--UR/0040/70/000/034/0145/0149

CIRC ACCESSION NO--AP0106203

UNCLASSIFIED

2/2 040

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0106203

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DERIVATION OF UNIFORMLY ACCURATE EQUATIONS FOR THE THREE DIMENSIONAL LAMINAR BOUNDARY LAYER ON A BODY OF REVOLUTION PLACED AT AN ANGLE OF ATTACK IN A SUPERSONIC GAS FLOW. THE MOST SIGNIFICANT RESULT IS THAT THE PARAMETERS OF GAS FLOW IN THE BOUNDARY LAYER (NEAR THE REGION OF A SHARP BEND IN THE GENERATRIX) CAN BE DETERMINED INDEPENDENTLY IN EACH MERIDIONAL PLANE PASSING THROUGH THE BODY'S AXIS OF SYMMETRY IF THE RADIUS OF CURVATURE OF THE GENERATRIX IS OF THE SAME ORDER OF MAGNITUDES AS THE BOUNDARY LAYER THICKNESS.

UNCLASSIFIED

USSR

UDC 535.8:666.189.2

DOVGIY, YA. O., BILYY, YA. M., BRILINSKIY, M. I., GNYP, R. G., DMYTRUK, V. I.,
SIMKIN, YU. YE.

"Effect of Fiberglass on the Contrast-Frequency Characteristics of Optical Systems"

Leningrad, Optika i Spektroskopiya, Vol XXXIV, No 4, 1973, pp 789-791

Abstract: The quality of the image formed by an optical system is determined by its contrast-frequency characteristic or the contrast transmission function $T(N)$. If during transformation of the optical signals their relative intensity (contrast) does not change it is possible to write the equation [F. Perren, Usp. Fiz. Nauk, No 78, 307, 1962]:

$$T_{\text{sys.}}(N) = \prod_{i=1}^n T_i(N)$$

($T_i(N)$ is the contrast-frequency characteristic of the i -th element of the system, N is the spatial frequency). A study was made to determine how fiberglass affects the contrast-frequency characteristic of the system. The fiberglass introduces a contrast distortion and violates the above relation. The degree of the distortions depends on the relations of the fiberglass apertures and the other system elements. The conditions most acceptable for measuring the contrast-frequency characteristics of the fiberglass are as follows:

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--USSR

DOVGIY, YA. O., et al., Optika i Spektroskopiya Vol XXXIV, No 4, 1973, pp 789-791

illumination by a collimated beam of uniform cross section using any receiving objective or diffuse illumination jointly with a narrow-aperture objective ($A_{ob} < A_{\text{fiberglass}}$).

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USSR

UDC 665.189.212:535.818.7

Dmitryuk

DOVGIY, YA.G., BILYY, YA.M., ERILINSKIY, M.I., GAYP, R.G., ~~BRUNSK~~, V.P.,
SIMKIN, YU.YE., STEFANSKIY, I.V. [L'viv State University imeni Ivan Franko]

"Frequency-Contrast Characteristics And Noise Of Fiber Optic Cathodoluminescence Screens"

Tekhnika kino i televizioniya, No 4, Apr 1972, pp 54-55

Abstract: Measurements were made of the frequency-contrast characteristics (FCO) and noise of fiber optic cathodoluminescence screens during their excitation by a static electron beam. The measurements were made by methods developed for measuring the FCO and noise of cathodoluminescence screens with a glass substrate. The principal scheme of the device used for measuring FCO is described and a comparison is made of FCO measured by the micrometric method and with electron excitation. The additive contribution of the glass fiber substrate to the noise characteristics of the screen is shown. 3 ill. 4 ref.

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Acc. Nr:

AAD 039149

Abstracting Service:
CHEMICAL ABST.

3/70

Ref. Code:
UR 0482

S

58646t Crystallizable sealing glass. Kotelevskaya, V. A.;
Dolgosheya, T. F.; Simkin, Yu. E. U.S.S.R. 252,508 (Cl. C
03c), 22 Sep 1969, App. No. 1967-0115; From *Okrytiya, Izobret.,
Prom. Obratzy, Tovarnye Znaki* 1969, 46(29), 79. To lower the
crystn. temp. of crystallizable sealing glass, the latter contains:
PbO 69.5-71.0, B₂O₃ 11.0-12.5, ZnO 8.0-9.5, Al₂O₃ 6.5-8.0, and
SiO₂ 2.0-2.5 wt. %.

MSCL

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REEL/FAME
19740371

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USSR

UDC: 532

BULAVIN, L. A., GSTANEVICH, YU. M., SIMKINA, A. P.

"Density of Ethane Near the Critical Liquid-Vapor Point. Movement of Meniscus Near Critical Point"

Plotnost' Etana Vblizi Kriticheskoy Tochki Zhidkost'-par. Dvizheniye Meniska Vblizi Kriticheskoy Tochki [English Version Above] (Joint Institute for Nuclear Research, Laboratory of Neutron Physics, Preprint No. R14-4830), Dubna, 1969, 11 pp., (Translated from Referativnyy Zhurnal Fizika, No. 8, 1970, Abstract No 8YE107, from the resume).

Translation: When a two-phase liquid-vapor system was studied near the critical point using a neutron beam, a displacement of the meniscus due to the gravitational effect in a vessel of finite height was noted. Analysis of the data produced allows determination of the expansion coefficients $-(\partial P/\partial V)_T$ by powers of $v = V - V_c$ and $t = T - T_c$.

PHYSICS

Fluid Dynamics

USSR

UDC: 532

BULAVIN, L. A., OSTANEVICH, YU. M., SIMKINA, A. P., STRELKOV, A. V.

"Study of the Density of Ethane Near the Liquid-Vapor Critical Point"

Issledovaniye Plotnosti Etana Vblizi Kriticheskoy Tochki Zhidkost'-Par
[English Version Above], (Joint Institute for Nuclear Research, Laboratory of Neutron Physics, Preprint No. R14-4829), Dubna, 1969, 22 pp.,
(Translated from Referativnyy Zhurnal Fizika, No. 8, 1970, Abstract #8YE108, from the resume).

Translation: An investigation of the distribution of the density of ethane by height at temperatures near the critical point is performed. The results of the experiment are compared with the expansion of $(\partial P/\partial V)_T$ according to Landau and Davis-Rice. The first five coefficients of the Landau expansion and the first two coefficients of the Davis-Rice expansion are determined. The limits of applicability of these descriptions are indicated.

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1/2 031 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--CHANGES OF THE EXTERNAL RESPIRATION FUNCTION UNDER THE EFFECT OF
BARBAMYL AND NOXYRON IN PATIENTS WITH ATHEROSCLEROSIS -U-
AUTHOR--SIMOCHKINA, Z.A.
COUNTRY OF INFO--USSR
SOURCE--VRACHEBNOYE DELO, 1970, NR 3, PP 70-72
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--RESPIRATION, ATHEROSCLEROSIS, HEART DISEASE, ANESTHESIA
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1986/0972 STEP NO--UR/0475/70/000/003/0070/0072
CIRC ACCESSION NO--AP0102911
UNCLASSIFIED

2/2 031

CIRC ACCESSION NO--AP0102911

UNCLASSIFIED

PROCESSING DATE--11SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT WAS STUDIED OF BARBAMYL ON THE FUNCTION OF EXTERNAL RESPIRATION IN 26 PATIENTS WITH ATHEROSCLEROTIC CORONAROCARDIOSCLEROSIS. IN 21 PATIENTS BARBAMYL CAUSED A DECREASE OF PULMONARY VENTILATION WITH DISORDERS OF THE GASEOUS BLOOD CONTENT. A DETERIORATION OF BRONCHIAL PATENCY WAS OBSERVED IN MANY PATIENTS. OF 25 RECEIVING NOXYRON 13 ATHEROSCLEROTIC PATIENTS SHOWED AN IMPROVEMENT OF EXTERNAL RESPIRATION INDICES. IT IS CONCLUDED THAT BARBAMYL IS UNDESIRABLE IN PATIENTS WITH ATHEROSCLEROSIS ACCOMPANIED BY SIGNS OF RESPIRATORY INSUFFICIENCY AND PREFERENCE SHOULD BE GIVEN IN THESE CASES TO NOXYRON.

UNCLASSIFIED

Alkaloids

USSR

UDC 615.322:547.944.3].074

SIMON, I. S., PLETNEVA, T. A., GUBINA, T. N., and SHOSTENKO, YU. V., Khar'kov Scientific Research Institute of Pharmaceutical Chemistry

"Methods for Controlling the Production of Atropine Sulfate. III. Determination of the Total Tropane Alkaloids in Scopolia Roots and Intermediates of the Production of Hyoscyamine by the Method of Nonaqueous Titration"

Moscow, Khimiko-Farmatsevticheskiy Zhurnal, Vol 4, No 9, Sep 70, pp 58-60

Abstract: The production of commercial hyoscyamine from the roots of Caucasian Scopolia requires stage-by-stage control and determination of the yields in the extraction, sorption and desorption stages. Since the sum total of the alkaloids are absorbed from the aqueous extract during sorption, and the desorption process likewise ends with elution of the total alkaloids

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USSR

SIMON, I. S., et al., *Khimiko-Farmatsevticheskiy Zhurnal*, Vol 4, No 9, Sep 70, pp 58-60

from the cation exchanger, such control can be based on a determination of the total alkaloids without the isolation of hyoscyamine and atropine. The authors suggest the following scheme for the analysis of acid aqueous extracts from *Sopolia* roots: 1) extraction of alkaloids from an alkalized aqueous solution with ether; 2) drying of the ether solution; 3) distilling off of the ether under vacuum; 4) dissolution of the residue in chloroform; 5) drying of the chloroform solution; 6) titration of the chloroform alkaloid solution with 0.1 N. perchloric acid solution. A solution of pure hyoscyamine in an 0.25 percent sulfuric acid solution was analyzed to estimate the accuracy of this scheme. The analysis results, interpreted by the method of mathematical statistics, indicate a rather high accuracy for the scheme.

In an analysis of the extracts obtained from *Sopolia* roots and the filtrates after sorption, stable, indivisible emulsions occur in the conversion of the sum total of the alkaloids from the alkalized aqueous phase to an organic solvent. Pre-precipitation of the extracts and filtrates from the ballast substances was therefore necessary. The authors used ethyl alcohol,

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SIMON, I. S., et al., *Khimiko-Farmatsevticheskiy Zhurnal*, Vol 4, No 9, Sep 70, pp 58-60

added to the extract in a 4:1 ratio, for this purpose. Since the analysis scheme now also included precipitation of the ballast substances, it was necessary to check the effect on the quantitative results. A series of experiments was performed, using additions of an alcoholic solution of pure hyoscyamine directly to the extract, which was preliminarily analyzed by the method of nonaqueous titration. Although the agreement between parallel determinations was satisfactory, the introduction of the ballast substance precipitation stage reduced the accuracy of the analysis due to the appearance of slight but systematic losses. The scheme used for analysis of the extract is also used for quantitative determination of the total alkaloids in the eluate, but without pre-precipitation of ballast substances.

Satisfactory agreement is found between the analysis results obtained by the authors' method and those obtained by the GOST [All-Union State Standard] method, while root analysis time under the authors' scheme is half that of the GOST method.

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1/2 009

UNCLASSIFIED

PROCESSING DATE--20NOV70

TITLE--ATROPINE SULFATE -U-

AUTHOR--(04)-SHOSTENKO, YU.V., SEMEN, I.S., GUBINA, T.N., PLETNEVA, T.A.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 229, 530

REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRATSY, TOVARNYE ZNAKI 1970,

DATE PUBLISHED--CIAPK70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, CHEMISTRY

TOPIC TAGS--ATROPINE, CHEMICAL PURIFICATION, DRUG INDUSTRY, CHEMICAL PATENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--J003/1007

STEP NO--UR/0482/10/000/000/0000/0000

CIRC ACCESSION NO--A00130112

UNCLASSIFIED

2/2 009 UNCLASSIFIED PROCESSING DATE--2010V7C
CIRC ACCESSION NO--AAC130112
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ATROPINE SULFATE (I) WAS OBTAINED
FROM TECH. HYOSCYAMINE BY RACEMIZATION IN ISO BUCH AND TREATING THE
RESULTING ATROPINE BASE WITH TARTARIC ACID. FACILITY: KHARKOV
SCIENTIFIC-RESEARCH CHEMICAL-PHARMACEUTICAL INSTITUTE.

UNCLASSIFIED

USSR

UDC: 621.317.77

SUP'YAN, V. Ya., KHILIN, N. S., TASHCHENKO, S. P., SIMON, S. Kh.

"A High Precision Digital Phase Meter for the 5-1000 MHz Frequency Band"

Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. T. 2 (Reports of the All-Union Scientific and Technical Conference on Radio Engineering Measurements. Vol. 2), Novosibirsk, 1970, pp110-112 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12A331)

Translation: In developing a phase meter, the authors utilize the principle of increasing the multiplicity of frequency conversion. The fundamental instrument range of 5-140 MHz is extended to 1000 MHz by means of an attachment consisting of a vacuum-tube frequency converter. Thanks to the use of a single conversion stage, the accuracy of measuring phase displacements in the 0-360° range is no worse than $\pm 0.2^\circ$ for equal levels of the input signals from 0.4 mV to 0.4 V. With a change in the level of the input signals by 60 DB, the dynamic amplitude-phase error is no greater than $\pm 4^\circ$, with a corresponding figure of $\pm 2\%$ for changes by 40 DB. In the expanded range on a frequency of 500 MHz and on the first intermediate frequency of 50 MHz, the drift in readings is no more than $\pm 1\%$ per hour. It was possible to reduce amplitude-phase errors by using limiter-amplifiers on the intermediate frequency with small dynamic errors. Some data are given on these limiter amplifiers. E. L.

1/1

USSR

UDC 539.4:624

SHAPIRO, G. A., SIMON, Yu. A., ASHKINADZE, N. G., GORLOVA, E. S.,
PARUSHKIN, A. K.

"Experimental Study of Earthquake Resistance of Residential Buildings of
Sawn Limestone on Southern Shore of Crimean Using Vibration Machines"

Proyektir. i Str-vo Zdaniy v Seysmich. R-nakh. USSR i MoldSSR [Planning and
Construction of Buildings in Earthquake Regions of UkSSR and MoldSSR --
Collection of Works], Kishinev, Timpul Press, 1972, pp 117-131, (Translated
from Referativnyy Zhurnal, Mekhanika, No 11, 1972, Abstract No 11 V911).

Translation: Vibration tests and certain additional studies have shown that
large-block construction of large (two-row) sections can cope successfully
with dynamic loads, which, in combination with reinforced concrete walls
in stairwells, assures earthquake resistance of the buildings tested with
a double reserve for level eight loadings.

1/1

- 50 -

1/2 021 UNCLASSIFIED PROCESSING DATE--11DEC70
TITLE--NOMOGRAMS FOR DETERMINING CORRECTIONS FOR ZENITH ATTRACTION -U-
AUTHOR--SIMONENKA, A.N. S
COUNTRY OF INFO--USSR
SOURCE--ASTRONOMICHESKII VESTNIK, VOL. 4, APR.-JUNE 1970, P. 112-114
DATE PUBLISHED-----70
SUBJECT AREAS--ASTRONOMY, ASTROPHYSICS, EARTH SCIENCES AND OCEANOGRAPHY
TOPIC TAGS--NOMOGRAPH, EARTH GRAVITY, METEOR RADIANT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605013/C10 STEP NO--UR/0454/70/004/000/0112/0114
CIRC ACCESSION NO--AP0140381
UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AP0140381

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. APPLICATION OF PENTKOVSKII'S METHOD (1953) TO THE CONSTRUCTION OF TWO NOMOGRAMS FOR CALCULATING THE GRAVITATIONAL ACTION OF THE EARTH ON METEOR TRAJECTORIES. ONE NOMOGRAM CAN BE USED TO DETERMINE THE GEOCENTRIC VELOCITY OF A METEOR WITH CORRECTION FOR ZENITH ATTRACTION FROM THE OBSERVED VELOCITY BEYOND THE ATMOSPHERE. THE OTHER NOMOGRAM YIELDS CORRECTIONS FOR THE ZENITH ATTRACTION OF A METEOR RADIANT. FACILITY: AKADEMIIA NAUK SSSR, KOMITET PO METEORITAM, MOSCOW, USSR.

UNCLASSIFIED

1/2 005

UNCLASSIFIED

PROCESSING DATE--13NOV70

TITLE--FIRST INDUSTRIAL TEST OF THE CEMENTING OF A WELL BY ADDING
PETROLEUM TO THE CEMENT SLURRY -U-
AUTHOR--(05)-MAKHMUDOV, M.N., ZHURAVLEV, G.I., SHVARTS, YA.A., SIMONENKOV,
I.D., TAVANETS, A.I.
COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., NEFT GAZ 1970, 13(3), 19-24

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--CEMENT, -PETROLEUM EXTRACTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3005/1212

STEP NO--UR/0152/70/013/003/0019/0024

CIRC ACCESSION NO--AT0133209

UNCLASSIFIED

2/2 005

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AT0133209

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

ABSTRACT. CEMENT SLURRY MIXED WITH
1.5PERCENT PETROLEUM AND 0.35PERCENT TARTARIC ACID BASED ON DRY CEMENT
GAVE SUFFICIENTLY STRONG STONE. THE PUMPABILITY OF THE CEMENT SLURRY
WAS THUS IMPROVED AND GREATER SPEED OF ITS ASCENDING FLOW PROVIDED.

FACILITY: AZERB. INST. NEFTI KHIM. IM. AZIZBEKOVA, BAKU, USSR.

UNCLASSIFIED

1/3 016

UNCLASSIFIED

PROCESSING DATE--20NOV70

TITLE--USE OF THE ANALYTICAL GEOMAGNETIC FIELD IN A STUDY OF MAGNETIC ANOMALIES -U-

AUTHOR--(04)--BENKOVA, N.P., GORSHKOVA, T.A., SIMONENKO, T.N., TYURMINA, L.O.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, GEOMAGNETIZM I AERONOMIYA, VOL X, NO 3, 1970, PP 505-512

DATE PUBLISHED-----70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--MAGNETIC ANOMALY, GEOMAGNETIC FIELD, MAP

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/0504

STEP NO--UR/0203/70/010/003/0505/0512

CIRC ACCESSION NO--AP0132709

UNCLASSIFIED

2/3 016

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0132709

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ANALYTICAL REPRESENTATION OF THE GEOMAGNETIC FIELD IS CLOSELY RELATED TO THE PROBLEMS INVOLVED IN MAGNETIC CARTOGRAPHY. IT CAN BE USED BOTH FOR REPRESENTING THE MAIN MAGNETIC ANOMALIES. THE PROBLEM OF THE NORMAL FIELD IN GENERAL AND THE NORMAL FIELD REPRESENTED BY SPHERICAL HARMONIC SERIES HAS BEEN DEVELOPED IN DETAIL BY BULLARD. THIS ARTICLE IS A FURTHER DEVELOPMENT OF SOME OF HIS CONCLUSIONS, WITH WHICH THE AUTHORS ARE IN GENERAL FULLY IN AGREEMENT. AS THE OBSERVED FIELD THE AUTHORS USED THE RESULTS OF SURVEYS OF THE MODULUS OF TOTAL STRENGTH T , FREED FROM THE EFFECT OF LOCAL ANOMALIES. THE ONLY SURVEYS EMPLOYED WERE THOSE MADE WITH PROTON MAGNETOMETERS DURING THE LAST 5-10 YEARS. ALL THE EXPERIMENTAL DATA FELL INTO TWO CATEGORIES: 1) MEASUREMENTS OF T ALONG MOST GROUND, OCEAN AND AEROMAGNETIC PROFILES, REDUCED TO 1965 AND THE EARTH'S SURFACE. CONTINUOUS T MEASUREMENTS ALONG THE PROFILES WERE FIRST SUBJECTED TO MOVING AVERAGING WITH A BASE OF 400 KM AND A 5 KM INTERVAL; 2) MAPS OF NORMAL FIELDS OF EXTENSIVE REGIONS COMPILED BY DIFFERENT METHODS USING SURVEY DATA FOR THESE REGIONS. THE ACCURACY OF T VALUES IS ESTIMATED FOR DIFFERENT REGIONS FROM 15 TO 50 GAMMA. FIG. 1 IN THE TEXT SHOWS THE GEOGRAPHICAL DISTRIBUTION OF PROFILES AND THE AREAS COVERED BY REGIONAL MAPS. FIGS. 2 AND 3 SHOW DELTA T CURVES, THE DIFFERENCES BETWEEN OBSERVED AND ANALYTICAL T VALUES. IT IS SHOWN THAT ANALYTICAL EXPRESSION OF THE FIELD REPRESENTED BY THE SUM OF NINE HARMONICS CAN BE USED AS THE NORMAL FIELD.

UNCLASSIFIED

3/3 016

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0132709

ABSTRACT/EXTRACT--FIG. 5 IN THE TEXT IS THE AUTHORS' FINAL WORLD TO MAP
(THE MAXIMUM DELTA T VALUES USUALLY FALL TO THE SOUTH OF 40DEGREES,
THAT IS, WHERE THE GREATEST GAPS IN MAGNETIC SURVEYING EXIST).
FACILITY: INSTITUTE OF TERRESTRIAL MAGNETISM, IONOSPHERE AND RADIO WAVE
PROPAGATION.

UNCLASSIFIED

1/2 026

UNCLASSIFIED

PROCESSING DATE--02JCT70

TITLE--ADHESION AND INTERNAL STRESSES IN POLYMERS -U-

AUTHOR--(05)-VINOGRADOVA, L.M., ZHERDEV, YU.V., KOROLEV, A.YA.,
SIMONENKOVA, R.V., ARTAMONOVA, R.V.

COUNTRY OF INFO--USSR

SOURCE--VYSOKOMOL. SOEDIN. SER. A 1970, 12(2), 348-54

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, CHEMISTRY

TOPIC TAGS--ADHESION, INTERNAL STRESS, EPOXY RESIN, STAINLESS STEEL,
ADHESIVE STRENGTH/(U)ED5 EPOXY RESIN, (U)EDGI RESIN MODIFIER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--1989/0254

STEP NO--UR/0459/70/012/002/0348/0354

CIRC ACCESSION NO--AP0106910

UNCLASSIFIED