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 TITLE--PROPERTIES OF COBALT HYDROXIDE PRECIPITATED BY CHLORINE -U-
 AUTHOR--(02)--MANTULIN, N.G., RYABKO, G.T.
 COUNTRY OF INFO--USSR M
 SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(4), 725-31
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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE OXIDN. OF CO PRIME2 POSITIVE SOLNS. BY CL IN THE PRESENCE OF A NEUTRALIZING AGENT SUCH AS NAOH, NA SUB2 CO SUB3, OR NA SUB3 SO SUB4, DIFFERS FROM THAT BY HYPOCHLORITE IN THAT THE PROCESS IS LOCALIZED AT CONTACT POINTS OF THE NEUTRALIZING AGENT WHERE THE OXIDANT CONC. IS A MIN. THUS, THE CL OXIDN. GIVES LESS COLLOIDAL CO(OH) SUB3 BUT IS MORE SENSITIVE TO THE COMPN. OF THE NEUTRALIZING AGENT AND TO THE TEMP. WITH INCREASING TEMP. OF THE SOLN., THE COLLOIDAL PROPERTIES OF THE PPT. DECREASE AND WITH INCREASING SIZE OF THE NEUTRALIZING AGENT, LARGER COLLOIDAL PPTS. ARE FORMED. THE OPTIMUM CONDITIONS FOR CO(OH) SUB3 PPTS. WITH SATISFACTORY SINTERABILITY WERE DETD.

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KASPEROVICH, A. N., MAITUSH, G. M., PROKOPREVA

ISS. 421, 244

"Operation of Synchronized Voltage-Frequency Converters"

Novosibirsk, Avtometriya, No 5, 1971, pp 79-85

Abstract: The operation of a synchronized voltage-frequency converter is analyzed, and experimental data concerning its operation is given. It contains a passive RC integrator amplifier which acts as a comparator amplifier, and its sensitivity is determined by the amplifier drift, one of the causes of which is heating in the circuit's input transistor stages. A block diagram of the converter is given and its operation explained. The basic causes of the appearance of nonlinear phenomena of the "dead zone" type are discussed. Since no reservations concerning the type of power supply for the circuit were made in the assumptions on which the analysis was based, the results of the latter are in general valid for synchronized circuits of this type. Results of experiments with the device, achieved in a testing period of 0.1 s, indicate that the synchronized circuit has excellent metrological characteristics.

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 TITLE--MIXED ADSORPTION CATALYSTS FOR HYDROGENATION. XVI. RHODIUM PLATINUM
 AND RHODIUM PALLADIUM CATALYSTS ON SILICA GEL -U-
 AUTHOR--(03)-ALCHUDZHAN, A.A., YEDIGARYAN, N.Z., MANTIKYAN, M.A.
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M

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--RHODIUM ALLOY, PLATINUM ALLOY, PALLADIUM ALLOY, CATALYST, HYDROGENATION, ADSORPTION, SILICA GEL

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PROCESSING DATE--23 OCT 7

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THIS WORK INVESTIGATED THE EFFECT OF PT AND PD ON THE CATALYTIC ACTIVITY OF RH ADSORBED ON A SIO SUB2 CARRIER. THE MIXED CATALYSTS CONTAINED 0.5 WT. PERCENT OF RH ON SIO SUB2 AND VARIOUS AMTS. OF PT AND PD. IN ADDN. TO THESE RH PT-SIO SUB2 AND RH PD-SIO SUB2 CATALYSTS, SINGLE CATALYSTS RH-SIO SUB2, PT-SIO SUB2 AND PD-SIO SUB2 WERE ALSO USED FOR COMPARISON. CATALYTIC ACTIVITY WAS MEASURED FOR HYDROGENATION OF BENZENE AT 90DEGREES, WITH VOL. RATIO H SUB2:C SUB6 H SUB6 EQUALS 4:1, AND RATE OF H SUB2 GAS STREAM SUPPLY 1.5 AND 2.5 L.-HR. THE ACTIVITY WAS EXPRESSED IN PERCENT CONVERSION OF BENZENE INTO CYCLOHEXANE. EXPTL. RESULTS SHOWED THAT RH-PT-SIO SUB2 CATALYSTS EXHIBIT GREATER ACTIVITY THAN THE RH-SIO SUB2 CATALYSTS, AND THAT THE ACTIVITY INCREASES PROPORTIONALLY TO THE INCREASE OF THE CONTENT OF PT. THE ACTIVITY OF CONCURRENTLY DEPOSITED RH PT-SIO SUB2 CATALYST IS CONSIDERABLY LARGER THAN THE ADDITIVE ACTIVITIES OF RH-SIO SUB2 AND PT-SIO SUB2 CATALYSTS CONTG. THE SAME AMTS. OF RH AND PT. WHE PD WAS INTRODUCED INTO THE RH-SIO SUB2 CATALYST, THERE WAS SOME NOT VER PRONOUNCED BUT UNMISTAKABLE REDN. IN THE CATALYTIC ACTIVITY. THIS CONTRASTING BEHAVIOR IS ASCRIBED TO DIFFERENT ELECTRONIC INTERACTIONS BETWEEN RH AND PT, AND RH AND PD, SINCE ELECTRONIC STRUCTURES OF PT AND PD ARE DIFFERENT. IT IS, HOWEVER, QUITE POSSIBLE THAT THE CARRIER SIO SUB2 IS LARGELY RESPONSIBLE FOR THE EFFECT. FACILITY: EREVAN. POLITEKH. INST. IM. MARKSA, EREVAN, USSR.

UNCLASSIFIED

USSR

UDC 620.193.4 2

MULYAKAYEV, I. K., DUBININ, G. N., DALISOV, V. B., POLUBOYARTSEVA, L. A.,
MANTOROVA, T. M., and REYFER, A. A., Moscow Aviation Institute imeni
Sergo Ordzhonikidze

"Corrosion Resistance of Diffusion Chrome Plated Steel in Certain Mediums"

Moscow, Zashchita Metallov, Vol 9, No 1, Jan-Feb 73, pp 66-70

Abstract: A study was made of the corrosion behavior of chrome plated steels in a series of industrial aggressive media. Specimens of carbon steels (brands 35 and 45) and of OKh21K5T austenitic-ferritic class steel were chromated according to a technology developed by the Chair of Aviation Science of Metals of Moscow Aviation Institute; their diffusion layer was x-ray-analyzed and its thickness and microhardness measured. Corrosion resistance curves of brand 45 steel before and after diffusion chrome plating at 1100° for 10 hrs show that diffusion chromating protects brand 45 steel against corrosion in a 15% solution of tartaric acid and in a 3% solution of table salt, but does not reliably protect it in a concentrated freon solution widely used in refrigerating plants at operating conditions of 300° and 60 at. Results of corrosion tests under industrial conditions of up to two years duration of brand 35 steel and OKh21K5T steel, chromated and not chromated, are shown. The corrosion rate of brand 35 steel subjected to the action of an aggressive
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USSR

MULYAKAYEV, L. M., et al., Zashchita Metallov, Vol 9, No 1, Jan-Feb 73,
pp 66-70

medium for up to 672 hrs with a diffusion coating is ten times lower than without a coating and approximately equal to the corrosion rate of OKh21N5T stainless steel in this medium. The use of a chromated diffusion coating to increase the corrosion resistance of OKh21N5T proved to be of little effect. Two figures, two tables, five bibliographic references.

2/2

- 14 -

USSR

UDC 576.895.771.095.38:576.895.132.5

FEDDER, M. L., SUPRYAGA, V. G., YAKUBOVICH, V. Ya., and MARINKIN, A. G.,
Division of Epidemiology and Prophylaxis of Malaria in "the USSR and of the
Nosogeography of Parasitic Tropical Diseases in Foreign Countries, Institute
of Medical Parasitology and of Tropical Medicine imeni Ye. I. Martynovskiy,
Ministry of Health USSR, Moscow

"Susceptibility to *Wuchereria bancrofti* Cobbold of *Culex pipiens molestus*
Forsk. Mosquitoes Occurring in Moscow"

Moscow, Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, Vol 41, No 5,
Sep-Oct 72, pp 599-601

Abstract: *Culex pipiens molestus* Forsk. mosquitoes from the City of Moscow
were successfully infected with *Wuchereria bancrofti* Cobbold microfilaria by
feeding them through a biological membrane (a freshly removed skin of a white
mouse) with venous blood of wuchereriosis patients (one a native of East Africa
and another of Vietnam) mixed with a physiological saline solution and stored
at a temperature $\leq 5^{\circ}$. The *W. bancrofti* larvae reached the invasion stage 16-
17 days after infection of the female mosquitoes, which were kept at $23-26^{\circ}$
and a relative humidity of 60-75%.

1/1

- 8 -

USSR

UDC 576.895.771:616.988.25-036.2(571.63)

FEDDER, M. L., REZNIK, YE. P., DANILEVSKIY, M. L., MANTUKHOV, A. G., and TROTSKAYA, D. F., Institute of Medicinal Parasitology and Tropical Medicine imeni Ye. I. Nartsinovskiy, USSR Ministry of Public Health, Moscow; Institute of Epidemiology and Microbiology, Vladivostok

"Data of the Epidemiological Evaluation of Natural Populations of Aedes togol Theobald in the Soviet Primorye"

Moscow, Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, Vol 40, No 3, May/June 71, pp 301-307

Abstract: A. togol mosquitoes are carriers of Japanese encephalitis in a number of Southeast-Asian countries and also in the Primorskiy region of the Far Eastern USSR. Data on the duration of the gonotrophic cycle of A. togol in the Khasan region were collected in July-August 1969 at a number of points of the region; the cycle was found to last seven to eight days. Females, which grew for two or more gonotrophic cycles, were most dangerous, respect to Japanese encephalitis and wuchereriosis, that is 14-15 day-old females for encephalitis and 21-24 day-old females for wuchereriosis. The age composition of natural populations was determined from autopsy of 2,123 females. A total of 11.5% of attacking encephalitis-carrying mosquitoes were females, while 1/2

USSR

FEDDER, M. L., Meditsinskaya Parazitologiya i Parazitarnyye Bolesni, Vol 40,
No 3, May/Jun 71, pp 301-307

only 2.9% of the wuchereriosis-carrying attacking mosquitoes were female. At peak activity, there were 9.8 females per hour attacking one person among the encephalitis-carrying mosquitoes, while only 3.3 females per hour attacked one person among the wuchereriosis-carrying mosquitoes.

2/2

- 48 -

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ABSTRACT/EXTRACT--(U) GF-0- ABSTRACT. THE OXIDN. OF CO PRIME2 POSITIVE SOLNS. BY CL IN THE PRESENCE OF A NEUTRALIZING AGENT SUCH AS NAOH, NA SUB2 CO SUB3, OR NA SUB3 SO SUB4, DIFFERS FROM THAT BY HYPOCHLORITE IN THAT THE PROCESS IS LOCALIZED AT CONTACT POINTS OF THE NEUTRALIZING AGENT WHERE THE OXIDANT CONC. IS A MIN. THUS, THE CL OXIDN. GIVES LESS COLLOIDAL CO(OH) SUB3 BUT IS MORE SENSITIVE TO THE CONPR. OF THE NEUTRALIZING AGENT AND TO THE TEMP. WITH INCREASING TEMP. OF THE SOLN., THE COLLOIDAL PROPERTIES OF THE PPT. DECREASE AND WITH INCREASING SIZE OF THE NEUTRALIZING AGENT, LARGER COLLOIDAL PPTS. ARE FORMED. THE OPTIMUM CONDITIONS FOR CO(OH) SUB3 PPTS. WITH SATISFACTORY SINTERABILITY WERE DETD.

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USSR

UDC: 621.314

KASPEROVICH, A. N., MANTUSH, O. M., PROKOPENKO, V. I.

"Operation of Synchronized 'Voltage-Frequency' Converters"

Novosibirsk, Avtometriya, No 5, 1971, pp 79-85

Abstract: The operation of a synchronized voltage-frequency converter is analyzed, and experimental data concerning its operation is given. It contains a passive RC integrator amplifier which acts as a comparator amplifier, and its sensitivity is determined by the amplifier drift, one of the causes of which is heating in the circuit's input transistor stages. A block diagram of the converter is given and its operation explained. The basic causes of the appearance of nonlinear phenomena of the "dead zone" type are discussed. Since no reservations concerning the type of power supply for the circuit were made in the assumptions on which the analysis was based, the results of the latter are in general valid for synchronized circuits of this type. Results of experiments with the device, achieved in a testing period of 0.1 s, indicate that the synchronized circuit has excellent metrological characteristics.

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USSR

UDC: 621.317.733

KAZAKOV, S. M., MANTUSH, T. N., SUMITEL'NOV, V. N., Novosibirsk

"Designing High-Speed Phase-Sensitive Frequency-Range Detectors"

Novosibirsk, Avtometriya, No 3, 1970, pp 48-53

Abstract: The article deals with the problem of stabilizing the transfer constant of integrating phase-sensitive detectors for a continuous frequency range by proper selection of the integration time. The possibility of improving the metrological characteristics of the integrating detectors themselves is briefly discussed. The authors describe their own circuit for a phase-sensitive detector with integration by a whole number of half-periods. A block diagram of the device is given. The detector operates satisfactorily in a frequency range from a few dozen Hz to 100 kHz. The error in indication of a 90° shift varies from a few tenths of a degree to a few degrees at the end of the scale, which is acceptable even for high precision digital bridges. The authors thank candidate of technical sciences K. M. Sobolevskiy for his consideration and for his assistance in preparing this article.

1/1

- 105 -

USSR

BEKHTEREVA, N. P., Director, Institute of Experimental Medicine, Corresponding Member, Academy of Sciences, USSR, PRIBRAM, K., Stanford University, WALTER, G., Burden Neurological Institute, Bristol, and MANUCHAROVA, Ye.

"On the Eve of Discovery"

Moscow, Nedelya, No 29, 17-23 Jul 72, p 8

Abstract: The human brain is a product of its environment. It is preeminently social. The frontal lobes of the brain, where planning and decision-making functions are performed, are well-developed in humans, but poorly developed in animals. Experiments on animals' higher mental activities and on herd animals may be more analogous to human brain functions. Two questions are presented: How has the complexity of the human brain, largely unexercised, been maintained for centuries? Will the brain continue to be able to cope with the increasing loads required of it? That the brain exercises many unneeded systems when it confronts the unknown is one hypothesis for the preservation of its complexity.

The brain has many codes, comparable to the various IBM machine languages. These codes may be different for each individual. Sensory perceptions and motor functions may operate on the principle of a hologram. An electrical signal, generated by input such as an overheard word, sets up a biochemical

1/2

- 59 -

USSR

BEKHTEREVA, N. P., et al., Nedelya, No 29, 17-23 Jul 72, p 8

reaction in the brain. This signal is specific for each word. A signal can be transmitted to the brain which generates a specific mental image. This signal will be the brain's code for the word described by the generated mental image.

2/2

USSR

KANUCHAROVA, YE.

"A Distinct Personality: Natal'ya Bechterova

Moscow, Nedelya, Russian, 14-20 Jan 74, pp 18-19

Abstract: In Leningrad this surname is as popular as that of Paton in Kiev or Curie in Paris. Generation after generation, again and again, they become known for their scientific achievements. Thus it is with multi stage rockets reaching for outer space; having escaped the pull of gravity the first stage transfers its driving force to the second stage which gains further momentum and imparts it to the third stage, which proceeds at an accelerated pace toward its scientific goal.

Natal'ya Petrovna represents the third generation of a talented family. The outstanding Psychoneurological Institute in Leningrad is named after her grandfather Academician Vladimir Nikhaylovich Bechterev. And so is the street on which the Institute is located.

Documents which represent his life are carefully preserved at the Bechterev Museum. And even today legends abound in the city about this great physician. They deal with his hypnotic powers which affected even the paralyzed subjects who would rise and walk (these were cases of malignant and old hysterias), the accuracy of his diagnoses on first meeting the patients, and

1/15

USSR

MANUCHAROVA, YE., Nedelya, Russian, 14-20 Jan 74, pp 18-19

with the relief of suffers on first talking with him.

But the power of the healer, the ability to create new methods and new therapeutic drugs (Bechterev drops, Bechterev tablets) were only the results of his primary attributes: he was a genius in brain research. He was a neurologist, anatomist, psychiatrist, and pedagogue. He founded new Institutes in Russia: the Brain Institute and the Psychoneurological Institute. He headed the Military Medical Academy. He opened the first psychology laboratory in Russia. He also founded the first neurosurgical clinic in the world. He wrote over 700 scientific papers. Today his major works form the foundation of physiology and psychology; at that time they were an excursion into the unknown.

His colleagues used to say with exasperation and respect "Only God and Bechterev truly know the anatomy of the brain."

Nevertheless, anatomy alone was not his goal. It was a means for an objective understanding of personality. The human being with his happiness, health, and spiritual comfort represented the genuine concerns of Bechterev. "To understand Man! What a great achievement!" Bechterev used to say. He saw this as the task of the new Psychoneurological Institute. He wrote:

2/5

USSR

MANUCHAROVA, YE., Nedelya, Russian, 14-20 Jan 74, pp 18-19

"All of our higher schools follow to a large extent utilitarian or professional objectives. They train jurists, mathematicians, naturalists, physicians, architects, railroad engineers, and so on. But all of this overlooks the fact that the first object that must be considered is the human being and that in addition to professionals the state and society need individuals who understand the nature of man, what are the laws that govern his psychic development and how the latter may be best protected from abnormal development; one must be concerned with the optimum utilization of human school age for educational purposes, how to protect the complex personality of an individual from intellectual stagnation and adverse attitudes, prevention of degeneration of the population, and the means which should be employed to assure the self-reliance of people and prevent the development of passivity which can be so damaging to the community."

Bechterev's texts present a danger to the journalist since they are so well written that there is a tendency not to interrupt them with one's own analysis and merely to turn page after page.

"It need hardly be pointed out that the notion of fear is extremely damaging to an infant's health... The helpless child is by his very nature fearful and constrained. It is necessary to use all available means to impart to him a sense of courage and even boldness, and to indicate only in case of

3/15

USSR

MANUCHAROVA, YE., Nedelya, Russian, 14-20 Jan 74, pp 18-19

need that care should be exercised. It is also imperative that self-reliance in the child be encouraged... to organize those activities in which the child has some independence and in which he can express his knowledge and creativity."

Historians have little knowledge on his background. However, one fact stands out; his mother was not an ordinary person. Finding herself alone without a husband in a provincial town (which Vystka was at that time) with three children on her hands, she saw to it that the most promising one received an education. He learned to read from a politically exiled Pole who was staying in their home. At the age of sixteen Vladimir alone made his way to Petersburg and, as was his great ambition, entered the Military Surgical Academy.

It seems that his childhood left a significant imprint on him. Once he entered the field of science he began a detailed study of the development of man from his earliest age, and wrote much on the factors which develop and affect a child's personality and will. He applied his convictions to his children.

And the results were excellent. Pyotr Vladimirovich elected his own life's work. He did not become a physician or a biologist. He was an expert on the internal combustion engine. He was interested in applying new techniques

4/15

- 56 -

USSR"

MANUCHAROVA, YE., Nedelya, Russian, 14-20 Jan 74, 18-19 pp

to the national economy. To that end he wrote his books, On the Construction of a Diesel Engine and General Application of Tractors. He also published specialized studies on theoretical mechanics. His engineering technology in general. National defense was his chosen field of work -- on both offensive and defensive tasks.

As in the case of his father, Pyotr Vladimirovich also evidenced the unique combination of practical talents and theoretical thoughts, and just as acutely was alert to what is new. He was an inventor -- in the classical Russian understanding of this word. He did not resemble his father closely and exceeded him in height. But there was the same powerful head of hair. The same dark eyes (now gray, now blue). The hands which could do anything. Love of work for the sake of work. No fear of life or the secrets of nature.

The Bochterev genes, it appears, were dominant. The grandchildren followed in grandfather's footsteps, particularly a girl whom Pyotr Vladimirovich loved more than the others. He was pleased by her resemblance to himself and her grandfather: the same eyes, hair, curiosity, and vitality. He was not disappointed that technology did not interest her. There was fatherly talk, music (Natasha sang beautifully, just like her father did), books, and self study (mathematics and chemistry). Since her early childhood she never lacked time for dolls, other activities, and school.

5/15

USSR

MANUCHAROVA, YE. Nedelya, Russian, 14-20 Jan 74, pp 18-19

Her father recognized that she had a clear cut view of her goals and that she was not afraid of manual work or poverty. She herself regarded herself as a kitten; should she fall she'll rise again, softly, on all fours.

The true strength of her character became apparent when true misfortune befell her. They lost their father and Natasha with her brother and sister found themselves in an orphanage. At that time she was attending the sixth class.

From the first months of World War II she worked in a hospital. During the time of the blockade, when the bombardment was its worst, she studied nursing courses and the first course at the Medical Institute. She did not become a mathematician or a chemist as she intended in her childhood. The war turned her life around and made her a physician. Initially she felt that this was just temporary.

She went through her internship at an accelerated pace but was not attracted to this type of work; what gained her interest were experiments with animals. She was attracted to a study of the brain, the central nervous system, and to help man in this manner.

6/15

- 57 -

USSR

MANUCHAROVA, YE., Nedolya, Russian, 14-20 Jan 74, pp 18-19

Her goals were coming closer to the goals of her grandfather. However, the technical means and methods at her disposal were entirely different. Natal'ya Petrovna works with deep, fine electrodes which enable her to pinpoint regions related to a given disease. Stimulating or inhibiting these cells electrically she may eradicate the case of a disease such as hyperkinesia (involuntary tremors of the extremities), or epilepsy. By recording biopotentials from a brain (impulse activity of neurons and neuron assemblies) she can determine which cells or regions of the brain are responsible for a given function. That is to say, she is involved in studying brain structure at the fine and not the gross level.

If all of her works were cited the list would indeed be impressive. Furthermore, it should be mentioned that in the majority of cases completely new results were obtained, unorthodox methods and approaches were utilized, and new answers were obtained to old questions. (Had old approaches been relied on, extraordinary amount of energy and time would have been required and the results would have been equivocal).

The physiology of brain has been enriched by several signal contributions of Bechtereva for which she has received worldwide recognition. The best known authorities in brain research (Delgado, Fraibram, Walter) visit the

7/15

USSR

MANUCHAROVA, Nedelya, Russian, 14-20 Jan 74, pp 18-19

Institute to see for themselves the results which represent the forefront in this branch of science.

It is appropriate to mention some of her accomplishments. Let us consider her work on memory. In her case it is a well-controlled study of the intracerebral apparatus concerned with optimizing memory. Studies were also conducted on improving memory and on forgetfulness. As has been demonstrated at this Institute of Experimental Medicine both are necessary for a cure in a given situation. When a person is unable to free himself of a certain experience (forget it) he cannot always be cured. In that case the disease state becomes a constant pathologic state" -- a conception introduced by Bechtareva. Having adapted to a diseased state, "remembering it," the functions of the systems in the organisms are rectified with difficulty even when the underlying cause has been corrected or eliminated.

Cells have been identified in the cerebral apparatus responsible for optimizing memory which specialize in emitting distress signals when errors occur in the brain. They compare instantly our every action with the ideal behaviour stored in memory. If they detect differences between actual action and what should occur under ideal circumstances, they effect intracerebral

8/15

USSR

MANUCHAROVA, YE., Nedelya, Russian, 14-20 Jan 74, pp 18-19

corrections by issuing orders for general cell mobilization. This apparatus has been termed "error detector." This terminology has entered the world scientific literature.

The Americans have reported it in this fashion: "Extremely important data have come from the USSR. Doctor Natal'ya Bechtorev (as the Academy of Sciences has reported) has detected by means of fine gold electrodes in the brain a detector which corrects errors and has localized this mechanism. If a patient is requested to memorize a number of words and then to repeat them and he errs, then a certain region evidence electrical activity -- the region of the detector. This applies even to cases in which the patient does not possess an adequate comprehension of his error and cannot correct it. Dechtereva herself is not certain as to how this region functions, but it apparently mobilizes the brain to correct an error. This mechanism is intimately related to a feeling of orientation and is related to a sense of direction." In 1973 this communication was reported widely in foreign newspapers and magazines. At the last international symposium which I attended foreign guests frequently spoke of the advancements made in the world of science following presentations by the staff of the Institute of Experimental Medicine. Whenever you learn of a bold scientific discovery you are always afraid that the

9/15

USSR

MANUCHAROVA, YE., Nedelya, Russian, 14-20 Jan 74, pp 18-19

priority of ideas may be forgotten and lost to our country. It is always a cause for happiness when the discoveries of our scientists are widely echoed.

Discovery of the "detector" is of tremendous practical significance. Human activities do not always proceed under its control. Sometimes regulation is not required when new activities are based on comparison with imprinted characteristics. However, creativity would be impossible without correction of errors by the detector, at least partially. But this is a rare case. Frequently things turn out differently and with more profound consequences. Tranquilizers (calming tablets) inhibit the error detectors and memory in the brain. Disease may alter the error detectors in such a manner that they have an opposite effect, i.e., serve as source of errors. Studies at the Institute of Experimental Medicine indicate that it may be possible to direct memory. It seems within the realm of possibility of stimulating the detectors directly and thereby affecting long term and short term memory. It may also be possible in this way to influence information transfer from immediate memory to distant memory.

It is of interest to note how far the young Bechtareva has advanced from her great grandfather. It is no less interesting to note how close he was to modern science. In reading his books one gets a better understanding
10/15

USSR

MANUCHAROVA, YE., Nedelya, Russian, 14-20 Jan 74, pp 18-19

of the expression of Natal'ya Petrovna that we must look back to those who led us forward.

Vladimir Mikhaylovich Bechterev expressed ideas which in his century could not be understood. He stated that consciousness exists where memory is and that this forms the basis for a personality. In this Bechterev saw first and basic expressions of consciousness.

At that time this was merely the rumination of a genius. Today we have accurate data on this matter. The young Bechterev and her collaborators have demonstrated this and the manner in which a personality is formed, and in which collections of neurons memory mechanisms work. Her methods have made it possible to determine which collections of cells are important and electrically more active when the brain is involved in what we call memory; the course of new information can be traced, enforced, and a response can be obtained which is indicative of consciousness.

Let us quote Vladimir Mikhayloivch once more. This is from his 1907-1912 book Objective Personality Studies.

"Verbal symbols give a special alleviation of nervous and psychic activities, since they make it possible for us to generalize external stimuli, which are accompanied by subjective signs, by a simple sign -- the word. It
11/5

USSR

MANUCHAROVA, YE., Nedelya, Russian, 14-20 Jan 74, pp 18-19

has both objective and subjective properties and may be regarded as an algebraic sign which makes it easier to manipulate the fundamental arithmetical signs which represent perception and their corresponding reflexes.

Since we must admit that the subjective is inseparable from the physiochemical processes occurring in our brains, then we see that it represents, so to say, two sides of one and the same process. Consequently, the relationships between the subjective symbols correspond to the relationships of the physiochemical processes in the brain." Thus, Bechterev concluded that in addition to the customary study of the patient's words, one must consider the corresponding objective changes in the nervous system and the underlying changes in reflexes.

However, it is an axiom of science that to express an idea a bit too early can be as dangerous as expressing it a bit too late. The words of Bechterev appeared to his contemporaries not only to be senseless, but even damaging. It appeared to them that he was taking something that was spiritual and psychic with fine ramifications and attempting to apply gross mechanistic processes to it. This ingenious idea was forgotten for a long time.

12/15

USSR

MANUCHAROV, YE., Nedelya, Russian, 14-20 Jan 74, pp 18-19

In the ear of the scientific and technical revolution everything began to change. Electrodes -- which are a product of the scientific revolution -- have brought for Natal'ta Petrovna a genuine materialistic victory and, simultaneously, this was a victory for the predictions of Vladimir Mikhailovich. He was not a mere mechanistically oriented person. Science at that time simply did not have at its disposal these fine and powerful instruments.

The name of the young Bechtereva is recognized the world over in connection with the solution of the "psychic code."

This is what it is. Each word has its specific electrical activity in the brain. This activity is highly specific. Whenever a person pronounces a word (or thinks it), waves appear which are characteristic of this word. Another word or thought elicits a different wave recording. The latter is also specific. Furthermore, fine analysis of the electrical waves by means of electrical leads from the brain yields definite forms of activities for various sounds (phonemes -- portions of words).

Biocurrents have shown how and where this acoustic code in the brain is transformed into a different secondary code; a directing code which assures a proper verbal response. This means that Bechtereva was correct in his essential assumptions that instead of words we may study "changes in the nervous substance."

13/15

USSR

MANUCHAROVA, YE., Nedelya, Russian, 14-20 Jan 74, pp 18-19

I asked Natal'ya Petrovna if a miracle happened and as an adult and an acknowledged scientist she saw her grandfather, what kind of questions she would put to him.

Her response was that she would ask him about something that cannot be found in any book. Including his books. The question would pertain to the nature of diagnosis. About his extraordinary sense about the brain and about adisease. A physician either possesses this quality or he does not (as for instance an engineer either has a feeling for his work or he does not). Diagnosis is a talent enhanced by experience. But a talent is always more wide-ranging than the work in any one profession. Bechterev had written that "generalization does not take place until enough practical experience has been accumulated." At the different stages of a physician's life such correlations demand different amounts of experimental data. When he begins his practice generalizations are based on the maximum of proven data that he has available, and this is as it should be. Later he may base his diagnosis on the basis of a minimum of information, but this is possible only for the talented individuals. Those were the types of diagnosis that Bechterev made and which looked like miracles.

14/15

USSR

MANUCHAROVA, YE., Nedelya, Russian, 14-20 Jan 74, pp 18-19

And what do you think he would ask you?

He might ask what "words in the brain" means. This would have interested him more than anything else. We succeeded in bringing together the subjective and the objective. Now one can clearly see how incorrect were the positions of some scientists even relatively recently. We had been warned that even should we find only one bioelectric and physicochemical process in different heads, then various psychic processes would correspond to this one material process. However, such was not the case. We can expect that in the near future we will be able to see (in the material processes of the brain, in the electrical code) how phrases look. We can already appreciate how the brain correlates various concepts.

There is no end to research. Following the discovery of the word code, research is now being conducted to uncover generalized thought code. This, naturally, will lead to the fact that an answer to this question will itself become a question later on.

15/15

USSR

MANUCHAROVA, YE.

"How the Brain Thinks"

Moscow, Nedelya, No 12, 13-19 Mar 72, pp 6-7

Abstract: A popular account is presented of some aspects of neurophysiological research in the Soviet Union and its practical applications in understanding and treating the mentally ill. The main tool is the encephalograph which records the electrical activity of the brain through implanted electrodes. Electrodes are also used to stimulate certain cells and thus aid in the recovery from such morbid conditions as phantom pain in the extremities. It is evident from the brief review of some of the research under way at the Institute of Experimental Medicine, Institute of Psychiatry, and other centers, that the first major steps in deciphering the psychic code have already been taken. Continued computer-assisted study of the brain rhythms will eventually reveal how man thinks.

1/1

UDC: 621.375.82

USSR

KAZARYAN, R. A., MANUCHARYAN, R. G., GASPARYAN, S. S.

"Calculating and Measuring the Probability of Errors in a Binary Optical Communications Channel With Polarization Modulation of Laser Emission"

Moscow, Kvant. elektronika--sbornik (Quantum Electronics--collection of works), No 1(13), "Sov. radio", 1973, pp 90-95 (from RZh-Fizika, No 8, Aug 73, abstract No 8D1170 by the authors)

Translation: The total error probability P_{er} is calculated for an optical communications channel in the case of light polarization modulation. A general expression is found for P_{er} from which an expression for P_{er} with modulation of light intensity is derived as a special case. Measurements are made of P_{er} in cases of modulation of polarization or intensity. It is shown that the threshold value which ensures a minimum overall error in polarization modulation is constant and equal to zero regardless of the intensity of the laser and background radiation, whereas with intensity modulation the optimum threshold is tracking (sic) in the general case. It is also shown that the laser emission intensity which ensures identical probability of the overall error in the case of polarization modulation is $\sqrt{2}$ times less than for intensity modulation. Bibliography of 8 titles.

1/1

- 28 -

USSR

UDC 535

VARTANYAN, E. G., VARTANYAN, E. S., KAZARYAN, R. A., MANUCHARYAN, R. G.

"Amplitude Distributions of Laser Radiation Passing Through a Turbulent Atmosphere"

Uch. zap. Yerevan. un-t. Yestestv. n. (Scientific Notes of Yerevan University. Natural Sciences), 1970, No 3(115), pp 140-142 (from RZh-Fizika, No 7, Jul 71, Abstract No 7D884)

Translation: Measurements of the energy fluctuations of laser radiation propagating through a turbulent atmosphere were measured on a track of length 25 km for diameters of the receiving objective from 30 to 50 cm and averaging times of 2, 10, 30, 60, and 120 sec. The measurements were conducted in the spring from 2000 to 2400 hrs. On the basis of the χ^2 criterion for five degrees of freedom, in the opinion of the authors, the distribution of fluctuations in the energy received agreed with a logarithmically normal and normal law. It was found that, independent of the averaging time for diameters of the receiving objective up to 15 cm, the values of the χ^2 were less for the logarithmically normal distribution law than for the normal distribution law, and for averaging over an area of the objective of the diameter above 15 cm the χ^2 was less for a normal law. A. A. Yakovlev.

1/1

- 62 -

"APPROVED FOR RELEASE: 09/01/2001

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APPROVED FOR RELEASE: 09/01/2001

CIA-RDP86-00513R002201920012-2"

USSR

PANDICHAROVA, YE.

"A Distinct Personality: Natal'ya Sechterova

Kosmos, Nedelya, Russina, 14-20 Jan 74, pp 12-19

Abstract: In Leningrad this surname is as popular as that of Einstein in Kiev or Curie in Paris. Generation after generation, again and again, they become known for their scientific achievements. Thus it is with quiet stage rockets launched for outer space; having escaped the pull of gravity the first stage

USSR

MANUCHAROVA, YE., *Nedelya*, Russian, 14-20 Jan 74, pp 18-19

"All of our higher schools follow to a large extent utilitarian or professional objectives. They train jurists, mathematicians, naturalists, physicians, architects, railroad engineers, and so on. But all of this overlooks the fact that the first object that must be considered is the human being and that in addition to professionals the state and society need individuals who understand the nature of man, what are the laws that govern his psychic development and how the latter may be best protected from abnormal development; one must be concerned with the optimum utilization of human school age for educational purposes, how to protect the complex personality of an individual from intellectual stagnation and adverse attitudes, prevention of degeneration of the population, and the means which should be employed to assure the self-reliance of people and prevent the development of passivity which can be so damaging to the community."

Bechterev's texts present a danger to the journalist since they are so well written that there is a tendency not to interrupt them with one's own analysis and merely to turn page after page.

"It need hardly be pointed out that the notion of fear is extremely damaging to an infant's health... The helpless child is by his very nature fearful and constrained. It is necessary to use all available means to impart to him a sense of courage and even boldness, and to indicate only in case of

3/15

USSR

MANUCHAROVA, YE., Nedelya, Russian, 14-20 Jan 74, pp 18-19

need that care should be exercised. It is also imperative that self-reliance in the child be encouraged... to organize those activities in which the child has some independence and in which he can express his knowledge and creativity."

Historians have little knowledge on his background. However, one fact stands out; his mother was not an ordinary person. Finding herself alone without a husband in a provincial town (which Vystka was at that time) with three children on her hands, she saw to it that the most promising one received an education. He learned to read from a politically exiled Pole who was staying in their home. At the age of sixteen Vladimir alone made his way to Petersburg and, as was his great ambition, entered the Military Surgical Academy.

It seems that his childhood left a significant imprint on him. Once he entered the field of science he began a detailed study of the development of man from his earliest age, and wrote much on the factors which develop and affect a child's personality and will. He applied his convictions to his children.

And the results were excellent. Pyotr Vladimirovich elected his own life's work. He did not become a physician or a biologist. He was an expert on the internal combustion engine. He was interested in applying new techniques

4/15

- 5 -

USSR"

MANUCHAROVA, YE., Nedelya, Russian, 14-20 Jan 74, 18-19 pp

to the national economy. To that end he wrote his books, On the Construction of a Diesel Engine and General Application of Tractors. He also published specialized studies on theoretical mechanics. His engineering technology in general. National defense was his chosen field of work -- on both offensive and defensive tasks.

As in the case of his father, Pyotr Vladimirovich also evidenced the unique combination of practical talents and theoretical thoughts, and just as acutely was alert to what is new. He was an inventor -- in the classical Russian understanding of this word. He did not resemble his father closely and exceeded him in height. But there was the same powerful head of hair. The same dark eyes (now gray,, now blue). The hands which could do anything. Love of work for the sake of work. No fear of life or the secrets of nature.

The Bechtorev genes, it appears, were dominant. The grandchildren followed in grandfather's footsteps, particularly a girl whom Pyotr Vladimirovich loved more than the others. He was pleased by her resemblance to himself and her grandfather: the same eyes, hair, curiosity, and vitality. He was not disappointed that technology did not interest her. There was fatherly talk, music (Natasha sang beautifully, just like her father did), books, and self study (mathematics and chemistry). Since her early childhood she never lacked time for dolls, other activities, and school.

5/15

USSR

MANUCHAROVA, YE. Nedelya, Russian, 14-20 Jan 74, pp 18-19

Her father recognized that she had a clear cut view of her goals and that she was not afraid of manual work or poverty. She herself regarded herself as a kitten; should she fall she'll rise again, softly, on all fours.

The true strength of her character became apparent when true misfortune befell her. They lost their father and Natasha with her brother and sister found themselves in an orphanage. At that time she was attending the sixth class.

From the first months of World War II she worked in a hospital. During the time of the blockade, when the bombardment was its worst, she studied nursing courses and the first course at the Medical Institute. She did not become a mathematician or a chemist as she intended in her childhood. The war turned her life around and made her a physician. Initially she felt that this was just temporary.

She went through her internship at an accelerated pace but was not attracted to this type of work; what gained her interest were experiments with animals. She was attracted to a study of the brain, the central nervous system, and to help man in this manner.

6/15

- 57 -

USSR

MANUCHAROVA, YE., Nedelya, Russian, 14-20 Jan 74, pp 18-19

Her goals were coming closer to the goals of her grandfather. However, the technical means and methods at her disposal were entirely different.

Natal'ya Petrovna works with deep, fine electrodes which enable her to pinpoint regions related to a given disease. Stimulating or inhibiting these cells electrically she may eradicate the cause of a disease such as hyperkinesia (involuntary tremors of the extremities), or epilepsy. By recording biopotentials from a brain (impulse activity of neurons and neuron assemblies) she can determine which cells or regions of the brain are responsible for a given function. That is to say, she is involved in studying brain structure at the fine and not the gross level.

If all of her works were cited the list would indeed be impressive. Furthermore, it should be mentioned that in the majority of cases completely new results were obtained, unorthodox methods and approaches were utilized, and new answers were obtained to old questions. (Had old approaches been relied on, extraordinary amount of energy and time would have been required and the results would have been equivocal).

The physiology of brain has been enriched by several signal contributions of Bochtereva for which she has received worldwide recognition. The best known authorities in brain research (Delgado, Przibram, Walter) visit the

7/15

USSR

MANUCHAROVA, Nedelya, Russian, 14-20 Jan 74, pp 18-19

Institute to see for themselves the results which represent the forefront in this branch of science.

It is appropriate to mention some of her accomplishments. Let us consider her work on memory. In her case it is a well-controlled study of the intracerebral apparatus concerned with optimizing memory. Studies were also conducted on improving memory and on forgetfulness. As has been demonstrated at this Institute of Experimental Medicine both are necessary for a cure in a given situation. When a person is unable to free himself or a certain experience (forget it) he cannot always be cured. In that case the disease state becomes a constant pathologic state" --- a conception introduced by Bechtereva. Having adapted to a diseased state, "remembering it," the functions of the systems in the organisms are rectified with difficulty even when the underlying cause has been corrected or eliminated.

Cells have been identified in the cerebral apparatus responsible for optimizing memory which specialize in emitting distress signals when errors occur in the brain. They compare instantly our every action with the ideal behaviour stored in memory. If they detect differences between actual action and what should occur under ideal circumstances, they affect intracerebral

8/15

USSR

MANUCHAROVA, YE., Nedelya, Russian, 14-20 Jan 74, pp 18-19

corrections by issuing orders for general cell mobilization. This apparatus has been termed "error detector." This terminology has entered the world scientific literature.

The Americans have reported it in this fashion: "Extremely important data have come from the USSR. Doctor Natal'ya Bechterev (as the Academy of Sciences has reported) has detected by means of fine gold electrodes in the brain a detector which corrects errors and has localized this mechanism. If a patient is requested to memorize a number of words and then to repeat them and he errs, then a certain region evidence electrical activity -- the region of the detector. This applies even to cases in which the patient does not possess an adequate comprehension of his error and cannot correct it. Bechtereva herself is not certain as to how this region functions, but it apparently mobilizes the brain to correct an error. This mechanism is intimately related to a feeling of orientation and is related to a sense of direction." In 1973 this communication was reported widely in foreign newspapers and magazines.

At the last international symposium which I attended foreign guests frequently spoke of the advancements made in the world of science following presentations by the staff of the Institute of Experimental Medicine. Whenever you learn of a bold scientific discovery you are always afraid that the
9/15

USSR

MANUCHAROVA, YE., Nedelya, Russian, 14-20 Jan 74, pp 18-19

priority of ideas may be forgotten and most to our country. It is always a cause for happiness when the discoveries of our scientists are widely echoed.

Discovery of the "detector" is of tremendous practical significance. Human activities do not always proceed under its control. Sometimes regulation is not required when new activities are based on comparison with imprinted characteristics. However, creativity would be impossible without correction of errors by the detector, at least partially. But this is a rare case. Frequently things turn out differently and with more profound consequences. Tranquilizers (calming tablets) inhibit the error detectors and memory in the brain. Disease may alter the error detectors in such a manner that they have an opposite effect, i.e., serve as source of errors. Studies at the Institute of Experimental Medicine indicate that it may be possible to direct memory. It seems within the realm of possibility of stimulating the detectors directly and thereby affecting long term and short term memory. It may also be possible in this way to influence information transfer from immediate memory to distant memory.

It is of interest to note how far the young Bechtereva has advanced from her great grandfather. It is no less interesting to note how close he was to modern science. In reading his books one gets a better understanding
10/15

USSR

KANUCHAROVA, YE., Nedelya, Russian, 14-20 Jan 74, pp 18-19

of the expression of Natal'ya Petrovna that we must look back to those who led us forward.

Vladimir Mikhaylovich Bechterev expressed ideas which in his century could not be understood. He stated that consciousness exists where memory is and that this forms the basis for a personality. In this Bechterev saw first and basic expressions of consciousness.

At that time this was merely the rumination of a genius. Today we have accurate data on this matter. The young Bechterev and her collaborators have demonstrated this and the manner in which a personality is formed, and in which collections of neurons memory mechanisms work. Her methods have made it possible to determine which collections of cells are important and electrically more active when the brain is involved in what we call memory; the course of new information can be traced, enforced, and a response can be obtained which is indicative of consciousness.

Let us quote Vladimir Mikhayloivch once more. This is from his 1907-1912 book Objective Personality Studies.

"Verbal symbols give a special alleviation of nervous and psychic activities, since they make it possible for us to generalize external stimuli, which are accompanied by subjective signs, by a simple sign -- the word. It
11/5

USSR

MANUCHAROVA, YE., Nedelya, Russian, 14-20 Jan 74, pp 18-19

has both objective and subjective properties and may be regarded as an algebraic sign which makes it easier to manipulate the fundamental arithmetical signs which represent perception and their corresponding reflexes.

Since we must admit that the subjective is inseparable from the physiochemical processes occurring in our brains, then we see that it represents, so to say, two sides of one and the same process. Consequently, the relationships between the subjective symbols correspond to the relationships of the physiochemical processes in the brain." Thus, Bechterev concluded that in addition to the customary study of the patient's words, one must consider the corresponding objective changes in the nervous system and the underlying changes in reflexes.

However, it is an axiom of science that to express an idea a bit too early can be as dangerous as expressing it a bit too late. The words of Bechterev appeared to his contemporaries not only to be senseless, but even damaging. It appeared to them that he was taking something that was spiritual and psychic with fine ramifications and attempting to apply gross mechanistic processes to it. This ingenious idea was forgotten for a long time.

12/15

USSR

MANUCHAROV, YE., Nedelya, Russian, 14-20 Jan 74, pp 18-19

In the ear of the scientific and technical revolution everything began to change. Electrodes -- which are a product of the scientific revolution -- have brought for Natal'ta Petrovna a genuine materialistic victory and, simultaneously, this was a victory for the predictions of Vladimir Mikhaylovich. He was not a mere mechanistically oriented person. Science at that time simply did not have at its disposal these fine and powerful instruments.

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USSR

UDC: 621.375.82

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1/1

28

USSR

UDC 535

VARTANYAN, E. G., VAPTANYAN, E. S., KAZARYAN, R. A., MANUCHARYAN, R. G.

"Amplitude Distributions of Laser Radiation Passing Through a Turbulent Atmosphere"

Uch. zap. Yerevan. un-t. Yestestv. n. (Scientific Notes of Yerevan University. Natural Sciences), 1970, No 3(115), pp 140-142 (from RZh-Fizika, No 7, Jul 71, Abstract No 7D884)

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1/1

- 62 -

1/2 015 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--CHANGES IN THE PHOTOCHEMICAL ACTIVITY OF CHLOROPLASTS AND THEIR
FRAGMENTS PRODUCED BY ENZYMIC HYDROLYSIS -U-
AUTHOR--OSTROVSKAYA, L., MANUILSKAYA, S., YAKOVENKO, G. M
COUNTRY OF INFO--USSR
SOURCE--DOKL. AKAD. NAUK SSSR 1970, 190(2), 468-71
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UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AT0101846

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ISOLATED CHLOROPLASTS AND DIGITONIN FRAGMENTS OF 12-14 DAY SEEDLINGS OF PEAS WERE EXAMD. FOR PHOTOCHEM. ACTIVITY IN REDN. OF NADP IN THE PRESENCE OF ELECTRON DONORS AND FERRICYANIDE. RESULTS OF TREATMENT WITH PAPAIN, TRYPSIN, AND GALACTOLIPASE WERE ALSO EXAMD. THE REDN. OF NADP WAS MOST SENSITIVE TO THE ACTION OF GALACTOLIPASE; TRYPSIN AFFECTED IT MUCH LESS, AND PAPAIN INSIGNIFICANTLY. AS TO FERRICYANIDE REDN., GALACTOLIPASE TREATMENT HAD ALMOST NO EFFECT, PAPAIN AND ESP. TRYPSIN REDUCED THIS ACTIVITY CONSIDERABLY. THE EXPOSURE OF THE ACTIVE CENTERS IN THE 2 PARTS OF THE PHOTOSYSTEM IS VERY DIFFERENT FOR THE 2 KINDS OF ACTIVITY CITED. EVIDENTLY THE BONDING OF LEUCINE AND GLYCINE IS UNIMPORTANT FOR THE NAD ACTIVE SYSTEM AND RELATIVELY MORE IMPORTANT FOR THE FERRICYANIDE ACTIVE SYSTEM.

UNCLASSIFIED

...penicillin, ampicillin and oxacillin in 4 and 8 per cent solutions of human and bovine blood serum albumin were higher than those in native serum. This allows to state that serum (unlike albumin) possesses additional factors which increase antibiotics fixation by serum albumin.

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41

REEL/FRAME

6

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Ref. Code: UR 0297

PRIMARY SOURCE: Antibiotiki, 1970, Vol 15, Nr 2, pp 129-132

RESIDUAL ACTIVITY OF PENICILLINS IN NATIVE SERUM AND ALBUMIN SOLUTIONS

Grigor'yeva, V. M.; Manuil'skaya, T. M.

Antibiotic Department of L. A. Tarasevich State Control Institute
for Medical Biological Preparations, Moscow

It was found that activity levels of penicillins, such as benzylpenicillin, phenoxymethylpenicillin, ampicillin and oxacillin in 4 and 8 per cent solutions of human and bovine blood serum.

USSR

UDC: 621.373:530.145.6

MANUIL'SKIY, A. D., ODULOV, S. G., SOSKIN, M. S.

"A New Method of Studying Nonuniformly Broadened Spectra of Active Laser Media"

V sb. Peredacha energii v kondensirovan. sredakh (Energy Transmission in Condensed Media--collection of works), Yerevan, 1970, pp 116-124 (from RZh--Radiotekhnika, No 5, May 71, Abstract No 5D212)

Translation: The authors studied emission of silicate and phosphate glasses activated by trivalent neodymium cation in the 1.06 μ region. The emission spectrum produced by these specimens over a wide temperature range is typical of spectrally nonhomogeneous media. The temperature dependence of homogeneous broadening of the spectrum of an individual ion is determined. It is shown that when the temperature falls, the uniform width of transitions of trivalent neodymium cations on the investigated segment of the frequency band of luminescence does not tend to zero. In the high-temperature region, the increase in uniform broadening is accelerated. It was found that the uniform width of the spectrum in these glasses is determined chiefly by interactions with lattice vibrations. A. K.

1/1

USSR

UDC 621.375.82

MANUIL'SKIY, A. D., ODULOV, S. G., SOSKIN, M. S.

"A New Method for Studying Heterogeneously Broadened Spectra of the Active Media of Lasers"

V sb. Peredacha energii v kondensirovan. sredakh (Energy Transfer in Condensed Media -- Collection of Works), Yerevan, 1970, pp 116-124 (from RZh-Fizika, No 7, Jul 71, Abstract No 7D1059)

Translation: The generation of silicate (LGS-24/2) and phosphate (KGSS-56) glasses in a cavity resonator in which many excited internal modes are closed to internal reflection from the polished surfaces of the sample is investigated. It was observed that with a lowering of temperature the total width of the spectra increases greatly. The dependence of the magnitude of homogeneous broadening of luminescence in the 1.06 μ band on temperature in both glasses was derived on the basis of temperature measurements of the width of the generation spectrum. It was observed that with a lowering of temperature the homogeneous width does not tend to zero, but in the high-temperature region the homogeneous expansion is accelerated. In phosphate glass the dependence of the homogeneous broadening on temperature is considerably weaker than in silicate glass. It is concluded that homogeneous broadening in glasses is determined basically by direct interaction with fluctuations in the matrix, and the width observed is related to broadening of the final level of the transition. The change in the rate of energy transfer between Nd^{3+} at various temperatures is discussed. V. N. Sh.

1/1

Powder Metallurgy

USSR

MANUKYAN, N. V., Editor

Poroshkovaya metallurgiya (Powder Metallurgy), Yerevan, Trudy Yerevanskogo Politekhnicheskogo Instituta, Vol 55, No 1, 1971, 214 pp

Translation of Table of Contents:

Page

ARESHYAN, G. L., and TER-MKRTCHYAN, K. A., "Preface"

3

Chapter I: Production of Powders of Metals and Alloys

MANUKYAN, N. V., and SARKISYAN, L. Ye., "Investigation of Processes of Ferritization and Kinetics of the Reduction of Complex Nickel-Iron Oxides"

9

MANUKYAN, N. V., MIKHEYEVA, I. V., and MNATSAKANYAN, S. A., "Roentgenometric Investigations Into the Production of the Complex Oxide $Fe_3O_4-Cr_2O_3$ "

19

ZURNACHYAN, M. K., and SIRAKANYAN, M. O., "Investigation of Means of Production of Single Crystals of Iron and Composite Powder Alloys"

28

MANUKYAN, N. V., ZURNACHYAN, M. K., AYVAZYAN, V. T., VARTEVANYAN, L. Ts., OSIPOVA, T. K., and MNATSAKANYAN, S. A., "Experimental Investigations Into the Production of Copper Powder From the By-Products of Chloroprene Production"

41

USSR

MANUKYAN, N. V., Editor, Poroshkovaya metallurgiya, Yerevan, Trudy Yerevanskogo Politeknicheskogo Instituta, Vol 55, No 1, 1971, 214 pp	Page
KIPARISOV, S. S., LIBENSON, G. A., TASHLYKOV, A. M., ANDREASYAN, A. A., and BOTOV, V. M., "The Gaseous Atmosphere in the Supplementary Reduction of Iron Powder Using Endogas"	56
SAMSONOV, G. V., DOROKHOVICH, V. P., and ANDREASYAN, M. G., "Investigation of the Kinetics of the Reduction of Solid Solutions Fe ₃ O ₄ -MoO ₃ Using Hydrogen"	59
MANUKYAN, N. V., GEDAKYAN, D. A., and MALKHASYAN, S. A., "The Mechanism of Reduction of Iron Oxides Using Carbon in the Presence of Catalytic Additives"	64
KLUSHIN, D. N., ATABASH'YAN, Ye. M., and LALAYEVA, K. B., "Sulfating Roasting of Copper Sulfide Concentrates in a Fluidized Bed"	81
Chapter II: The Formation of Metallic Powders	
BAL'SHIN, M. Yu., and ZARKHARYAN, N. V., "The Cross-Extrusion of Powdered and Fibrous Materials"	89

2/5

USSR

MANUKYAN, N. V., Editor, Poroshkovaya metallurgiya, Yerevan, Trudy Yerevanskogo Politeknicheskogo Instituta, Vol 55, No 1, 1971, 214 pp

	Page
ROMAN, O. V., BABAYAN, D. O., DOROSHKEVICH, Ye. A., PILIPOSYAN, B. N., and ZHDANOVICH, G. M., "Investigation of the Influence of High Velocities of Load Applications on Deformability of Porous Bodies in the Conditions of a Closed Die"	96
MANUKYAN, N. V., and SARKISYAN, Sh. E., "Investigation of the Distribution of Deformations During the Extrusion of Porous Metallic Materials"	102
BABAYAN, D. O., MAL'TSEV, A. A., and AGADZHANOV, A. M., "Measurement of Stress During High-Speed Deformation of Porous Bodies"	109
BAL'SHIN, M. Yu., and ZAKHARYAN, N. V., "New Information on Excess Pressure"	114
BABAYAN, D. O., DOROSHKEVICH, Ye. A., ZHDANOVICH, G. M., MANUKYAN, N. V., and ROMAN, O. V., "On the Question of the Dynamic Compression of Porous Bodies"	119

Chapter III: Agglomeration and the Properties of Powdered Materials and Articles

3/5

USSR

MANUKYAN, N. V., Editor, Poroshkovaya metallurgiya, Yerevan, Trudy Yerevanskogo Politeknicheskogo Instituta, Vol 55, No 1, 1971, 214 pp

	Page
MARTIROSYAN, S. V., MANUKYAN, N. V., and MARTIROSYAN, Zh. G., "Investigation of the Soundproofing Properties of Porous Metallo-ceramic Materials"	125
KAS'YAN, M. V., and ZAIMTSYAN, G. M., "The Influence of Porosity on the Workability of Metallo-ceramic Materials"	133
MANUKYAN, N. V., and MNATSAKANYAN, S. A., "Research on the Technological and Physicomechanical Properties of Iron-Chrome Powders"	138
ANDREASYAN, M. G., "Certain Properties of Ferromolybdenum Powder and Stable Properties of the Agglomerated Product"	145
ZURNACHYAN, M. K., ALAYAN, A. A., and MANUKYAN, I. G., "Investigation of the Properties of Pure Iron Powder and Iron-Copper Powder Alloy and Agglomerated Examples Based on Them"	152
KARAPETYAN, G. Kh., ARUTYUNYAN, R. A., SHAKHBAZYAN, S. V., GEKCHYAN, A. A., and ANDREASYAN, M. G., "Investigation of Metallo-ceramic Antifriction Materials Based on Solid Lubricants"	159

4/5

- 12 -

USSR

MANUKYAN, N. V., Editor, Poroshkovaya metallurgiya, Yerevan, Trudy Yerevanskogo Politehnicheskogo Instituta, Vol 55, No 1, 1971, 214 pp

	Page
MANUKYAN, N. V., KARAPETYAN, G. Kh., "The Development of Technology for the Production of Metalloplastics of Fibrous Construction"	174
DANELYAN, A. D., PETROSYAN, Kh. L., and GADZOYEVA, M. M., "Investigation of Tempering of Metalloceramic Material Using Ultrasound"	180
ALAYAN, A. A., and ZAMATORIN, M. I., "A Diagram of the Composition of the System Nb-Ga"	186
MANUKYAN, N. V., SOSYAN, M. Ye., and SARKISYAN, Sh. E., "Thermomechanical Production of Metalloceramic Carbon Steel"	192
ZAMATORIN, M. I., and ALAYAN, A. A., "Properties of Niobium-Gallium Alloys"	197
KIPARISOV, S. S., NERSISYAN, R. Sh., OLESOV, Yu. G., SAKLINSKIY, V. V., and MARDZHANYAN, R. V., "Production of Structural Metalloceramic Components Based on Titanium"	203
MANUKYAN, N. V., and SARKISYAN, L. Ye., "The Influence of Thermoprocessing on the Magnetic Properties of Metalloceramic Alloys of the Permalloy Type"	208

5/5

MANUKYAN, S. D.

RWN / 12.960 / 5.741 / 13 10
Dues 74 VIII. LASER SIMULATION AND RELATED EFFECTS
(2)

Askar'yan, G. A., and S. D. Manukyan.
Acceleration of particles by a moving laser focus, focusing front, or ultrashort laser pulse front. ZHETF, v. 62, no. 6, 1972, 2156-2160.

An analysis is given of several ways in which the high field gradient in a laser pulse can be used to accelerate electrons or ions in a controlled fashion. If the mean force exerted on a particle in an ω -cm field of amplitude E_0 [?] and frequency ω is expressed as

$$F_{\text{mean}} = \frac{d}{2\omega} V(E_0)_{\text{mean}}$$

then it can be shown that, for example, a neodymium laser generating nanosecond pulses in the 30 Gw range will produce an effective field E_0 of approximately 1 kv/cm, while a picosecond pulse of 3×10^3 Gw will yield 100 kv/cm. Gradients of this magnitude when given a controlled lateral displacement (sweep beam) or axial displacement (change in focal point or beam divergence) can in theory be used for selective particle acceleration. One method for doing this would be using corresponding portions of a focusing lens; another would be a programmed refocusing of the beam along a selected path. In the latter case it is shown that a channel with reduced nonlinear absorption can be generated for charged particle motion. In the case of low coulomb attraction between electrons and ions, electrons would essentially be accelerated as if free; at sufficiently high coulomb forces an ion acceleration component would appear. In conclusion the authors suggest that the moving-focus technique could be extended to provide macroscopic particle acceleration.

USSR

UDC: 621.375.8.535.241.13

MANUKYAN, Yu. S., DZHAGAROV, Yu. A., Tbilisi Affiliate of the All-Union Scientific Research Institute of Metrology imeni D. I. Mendeleev

"An Interference Modulator of Optical Emission"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztzy, Tovarnyye Znaki. No 10, Apr 73, Author's Certificate No 344790, Division G, H, filed 23 Mar 70, published 8 Feb 73, p 195

Translation: This Authors Certificate introduces an interference modulator of optical emission which contains a laser and a double interferometer such as a Michelson interferometer. As a distinguishing feature of the patent, in order to produce a pulse train with controllable duration and recurrence rate and to increase speed, the arms of the interferometer contain optical delay lines and phase correctors coupled by a synchronous control mechanism.

1/1

1/2 009 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--ESTIMATION OF ERRORS IN MEASURING PHOTOSYNTHESIS INTENSITY BY GAS
ANALYSIS -U-
AUTHOR--(03)-GULYAYEV, B.I., MANUILSKIY, V.D., OKANENKO, A.S.
COUNTRY OF INFO--USSR
SOURCE--FIZIOL. BIOKHM. KUL'T. 1970, 2(1), 34-40
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--PHOTOSYNTHESIS, GAS ANALYZER, CARBON DIOXIDE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605004/008 STEP NO--UR/0654/70/002/001/0034/0040
CIRC ACCESSION NO--AP0139623
UNCLASSIFIED

2/2 009

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0139623

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE USE OF THE IR GAS ANALYZER IS RECOMMENDED FOR THE MOST ACCURATE DETN. OF PHOTOSYNTHETIC INTENSITY. IF THE DIFFERENCE BETWEEN CO SUB2 CONC. IN THE PHOTOSYNTHETIC CHAMBER AND OUTSIDE IT (DELTA CO SUB2) IS AS LOW AS 5 PPM, THE ERROR IN THE DETN. OF PHOTOSYNTHETIC ACTIVITY DOES NOT EXCEED 15PERCENT. THE ERROR IS LESS THAN 5PERCENT IF DELTA CO SUB2 IS HIGHER THAN 5 PPM. FACILITY: INST. PLANT PHYSIOL., KIEV, USSR.

UNCLASSIFIED

MANUKHIN, A. V.

JPRS 55392
9 MAR 72
UDC 669.094.22:669.296

CHARACTERISTIC FEATURES OF INTERACTION OF ZIRCONIUM DIOXIDE WITH CARBON AT HIGH TEMPERATURES

(Article by Yu. A. Pavlov, A. V. Manukhin, V. F. Yelshin, Moscow Steel and Alloys Institute, Department of High Temperature Materials; Ordzhonikidze, Izvestiya Vsesoyuznogo Nauchno-Issledovatskogo Tsentra Spetsial'noy Metallurgii, Moscow, No 5, 1971, submitted 9 February 1971, pp 108-111)

In references [1, 2], a study was made of the interaction of zirconium dioxide with carbon in the temperature range of 2,000-2,600 degrees under different contact conditions between the reagents. It was established that the process of reducing ZrO_2 by carbon black with a component ratio according to equation



takes place predominantly in the kinetic region. On the other hand, the interaction of ZrO_2 with graphite with the contact arrangement of the pressed samples of graphite oxide and tablets takes place in the kinetic region only during the initial period, and after a defined isothermal delay, diffusion inhibition takes place, and the process is limited by diffusion of carbon through the layer of the carbide phase formed. The formation of the reaction product film on the graphite sample and the presence of the carbide phase on the surface walls indicates that the process of the interaction takes place on the surface of the reducing agent. This is caused by transfer of the zirconium to the reducing agent probably in the form of ZrO formed during the process of dissociation of ZrO_2 [3, 4]. Accordingly, the particle size of the reducer should play a significant role in changing the limiting stage of the interaction process.

In checking this assumption, experiments were performed with respect to studying the interaction of ZrO_2 with graphite powder the particles of which had appreciably greater size (~1 μ m) than in the experiments with a finely dispersed reducing agent [1].

1/2 033 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--REACTION OF ZIRCONIUM DIOXIDE WITH CARBON -U-
AUTHOR--(04)-PAVLOV, YU.A., MANUKHIN, A.V., MELEKHIN, V.F., YELYUTIN, V.P.
COUNTRY OF INFO--USSR M
SOURCE--IZV. VYSSH. UCHEB. ZAVED., CHERN. MET. 1970, 13(1), 5-8
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS, CHEMISTRY
TOPIC TAGS--ZIRCONIUM DIOXIDE, GRAPHITE, HIGH TEMPERATURE HEAT TREATMENT,
ZIRCONIUM CARBIDE, ACTIVATION ENERGY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--2000/1546 STEP NO--UR/0148/70/013/001/0005/0008
CIRC ACCESSION NO--A20125172
UNCLASSIFIED

2/2 033

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--A0125172

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ZRO SUB2 PELLETS, IN CONTACT WITH GRAPHITE PELLETS WERE HEATED AT 2200-600DEGREES AND THE WT. LOSS OF THE ZRO SUB2 WAS DETD. AS A FUNCTION OF TIME AT A CONST. TEMP. FOR 90 MIN. THE WT. LOSS WAS CORRECTED FOR THE LOSS OBSD. WHEN ZRO SUB2 WAS HEATED ALONE. THE CORRECTED WT. LOSS, DELTA P GRAMS, COULD BE EXPRESSED BY DELTA P EQUALS A PLUS BT PRIMECNEHALF WHERE T IS THE TIME IN MIN AND A EQUALS 0.021 (2200DEGREES) TO 0.039 (2600DEGREES) AND B EQUALS 0.09 (2200DEGREES) TO 0.019 (2600DEGREES). THE ACTIVATION ENERKGY WAS 60 KCAL-MOLE. A FILM OF ZRC WAS FORMED ON THE OXIDE SURFACE AND THE FILM THICKNESS, H (CM), CAN BE DERIVED AS A FUNCTION OF DELTA P AS WELL AS OF THE DIFFUSION CONST., D,: H EQUALS 0.262 DELTA P EQUALS (2DT) PRIMECNEHALF. D CAN THUS BE EVALUATED FROM A PLOT OF H VS. T PRIMECNEHALF. THE DIFFUSION OF C THROUGH ZRC WAS 2.5 TIMES 10 PRIME NEGATIVE6 CM PRIME2-SEC AT 2200DEGREES AND 1.3 TIMES 10 PRIME NEGATIVE5 CM PRIME2-SEC AT 2600DEGREES, WITH AN ACTIVATION ENERGY OF 60 KCAL-MOLE.

FACILITY: MOSK. INST. STALI SPLAVOV, MOSCOW, USSR.

UNCLASSIFIED

Graphite

USSR

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UDC 669.296:669.111.2:532.7:532.692

YELYUTIN, V. P., PAVLOV, YU. A., MANUKHEIN, A. V., and MELERKHIN, V. F.,
Moscow Institute of Steel and Alloys

"Interaction of Zirconium Dioxide With Carbon"

Moscow, IVUZ. Chernaya Metallurgiya, No 1, 1970, pp 5-8

Translation: The nature of the interaction of zirconium dioxide with graphite in the temperature interval 2200-2600°C, at contact arrangement of the specimens, is considered. Thermogravimetric methods are used to obtain the kinetic curves which characterize the interaction process of oxide with graphite and, separately, the processes taking place on the surface of the oxide specimen in the absence of graphite. Calculations are made of changes of the overall decrease in the mass of oxide and graphite specimens, dependent on the interaction of ZrO₂ with graphite in the contact zone, with the isothermic lag. The dependence of the thickness of the carbide layer on the time lag and the coefficients of carbon diffusion through ZrO at specific temperatures are calculated according to the diminishing mass of specimens. It appears that the interaction takes place due to oxide conversion of the gaseous phase followed by graphite deposition on zirconium monoxide. After the formation of carbide, the process of its interaction with ZrO is limited by carbon diffusion through a layer of ZrC.

1/1

UDC 612.176:612.273+616-001.12+612.178

USSR

PSHENNIKOVA, M. G., and MANUKHIN, B. N., Institute of Normal and Pathological Physiology, Academy of Medical Sciences USSR, and Institute of Developmental Biology, Academy of Sciences USSR, Moscow

"Dynamics of the Norepinephrine Concentration in the Rat Myocardium During High-Altitude Hypoxia"

Moscow, Doklady Akademii Nauk, SSSR, Vol 198, No 6, Jun 71, pp 1,474-1,477

Abstract: Rats were kept for 24 hours in a pressure chamber at a simulated altitude of 2000 m after which the pressure was gradually reduced for six days. Starting on the eighth day and until the end of the experiment on the 45th day, the animals were exposed to a simulated altitude of 7000 m (equivalent to an atmospheric pressure of 307 mm Hg). After the first 10 days of hypoxia, the norepinephrine concentration dropped to 61.9% of the baseline value in the right ventricle and to 71% in the left. During the next 35 days the concentration of the mediator gradually increased until it was 80% of the control in the right ventricle and at the control level in the left. The return to normal of the norepinephrine concentration after the initial decrease is regarded as due to (i) activation of the resynthesis of catecholamines or (ii) decrease in consumption of norepinephrine as a result of

1/2

Acc. Nr: **RA0108725**

MANUKHIN S.V.

Ref. Code: **UR 0482** 5

Abstracting Service:

Soviet Inventions Illustrated, Section I Chemical, Derwent, 3/70

242991 MACHINE FOR FIXING SEPARATING MATERIAL TO ELECTRODES of chemical cells has each welding unit in the machine fitted with an electrical cutter at the sides of which are spring-loaded catches which press the separating material (in tape form) to the edges of a longitudinal slot -in a supporting plate. The feed-in mechanism for the separation material takes the form of a shaped template for tensioning the welded butt joint of two strips of separation material. In slots of this template operate, with reciprocating motion, the shaped clamps of the transporter which transfers the electrodes and separation material to the welding unit. 15.3.68. as 1225550/24-7.
 RUVINSKII, L.G. KREININ, M.N. POLYANIN, V. Ya. et al (25.9.69) Bul. 16/5.5.69. Class 21b, Int. Cl. H 01m. }

AUTHORS: Ruvinskiy, L. G.; Kreynin, M. N.; Polyanin, V. Ya.;
Adamyan, R. G.; Manukhin, S. V.; Gurushkin, V. V.

REEL/FRAME

19900504

18 55

Vacuum Tubes

USSR

UDC 621.385.188.5.032.002

KRASNOV, A.P., MANUKHINA, G.G.

"Effect Of Technological Processes On Cathode Emission And Output Power Of Titanium-Ceramic Microwave Tubes"

Elektron.tekhnika. Nauch.-tekhn.sb. Elektron.SVCh (Electronics Technology. Scientific-Technical Collection. Microwave Electronics), 1972, Issue 4, pp 62-67 (from RZh:Elektronika i yeye prizeneniye, No 9, Sept 1972, Abstract No 9A106)

Translation: It is shown that the emission and dynamic parameters of titanium-ceramic tubes of the microwave band depend on the temperature of the regimes of evacuation and soldering of the tubes and also on the pressure of the gases at the time of sintering of the nickel powder for the cathode base. Summary.

1/1

UDC 669.295:620.193.54:669.787

USSR

MANUKHINA, T. I., OZERYANAYA, I. N., and SMIRNOV, M. V.

"Influence of Oxygen on the Corrosion of Titanium in Molten Carbonates of Alkali Metals"

Tr. In-ta elektrokhimii Ural'skiy fil. AN SSSR (Works of the Institute of Electrochemistry, Ural Branch of the Academy of Sciences USSR), 1970, vyp. 15, pp 109-113 (from RZh-Metallurgiya, No 12, Dec 70, Abstract No 12 1828 by Ya. ULANOVSKIY)

Translation: By measuring standard potentials the authors studied the interaction of Ti, obtained by the thermal decomposition of its iodide, with a molten eutectic mixture of Li, Na, and K carbonates under an atmosphere of a mixture of CO₂ and O₂ in a ratio of 9 : 1.4 : 1.7 : 3 and air above the melt at a temperature of 600°. During the first moment of the interaction, electrochemical reduction of C takes place, Ti activity drops significantly owing to the saturation of its surface with oxygen, which sharply shifts the Ti potential in the direction of positive values, and the reduction of C ceases. The introduction of O₂ into the gaseous phase promotes a shift of the Ti potential in the direction of positive values. The formation of oxide phases

1/2

USSR

MANUKHINA, T. I., et al, Tr. In-ta elektrokhemii Ural'skly fil. AN SSSR (Works of the Institute of Electrochemistry, Ural Branch of the Academy of Sciences USSR), 1970, vyp. 15, pp 109-113 (from RZh-Metallurgiya, No 12, Dec 70, Abstract No 12 I828 by Ya. ULANOVSKIY)

on the surface during the reaction prevents the corrosion of metal in the melt from proceeding further. Bibliography of 11 titles.

2/2

" 26 "

1/2 008 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--CUPOLA FUEL FROM LEAN COALS FROM THE KUZNETSK BASIN -U-
AUTHOR--(05)--RYABICHENKO, A.D., DINEL, V.M., MOSIN, S.V., LEVDIN, V.P.,
MANUKHOV, A.V.
COUNTRY OF INFO--USSR
SOURCE--LITEINDE PROIZVOD. 1970, (1) 38-9
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--COAL, SULFUR, COKE, CAST IRON
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1986/0111 STEP NO--UR/0128/70/000/001/0038/0039
CIRC ACCESSION NO--AP0102201
UNCLASSIFIED

PROCESSING DATE--02OCT70

UNCLASSIFIED

272 008

CIRC ACCESSION NO--AP0102201
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. COKE MADE BY SLOW HEATING OF THE
TITLE COAL TO 1000DEGREES WAS EVALUATED IN A CUPOLA FURNACE. IT
PRODUCED AN INCREASE IN GAS PERMEABILITY OF THE CHARGE, AND INCREASE IN
GAS PERMEABILITY OF THE CHARGE, AN INCREASE IN THE GAS TEMP., A DECREASE
IN THE CO-CO SUB2, AN IMPROVED HEAT EXCHANGE, A HIGHER METAL TEMP., AND
A LOWER S CONTENT IN THE PRODUCT.

UNCLASSIFIED

172 039 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--INVESTIGATION OF DISSIPATIVE PONDEROMOTIVE EFFECTS OF
ELECTROMAGNETIC RADIATION -U-
AUTHOR-(03)-BRAGINSKIY, V.B., MANUKIN, A.B., TIKHONOV, M.YU.
COUNTRY OF INFO--USSR
SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI, 1970, VOL 58,
NR 5, PP 1549-1552
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--ELECTROMAGNETIC RADIATION, MECHANICAL VIBRATION, ULTRAHIGH
FREQUENCY, ELECTROMAGNETIC FIELD
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3002/0011 STEP NO--UR/0056/70/G58/005/1549/1552
CIRC ACCESSION NO--AP0127661
UNCLASSIFIED

POWERFUL ELECTROMAGNETIC FIELD IN THE CAVITY (ELECTROMAGNETIC DAMPING EFFECT). THE COEFFICIENT OF ELECTROMAGNETIC DAMPING INTRODUCED INTO THE MECHANICAL OSCILLATOR AFFECTS THE MAGNITUDE AND SIGN DEPENDING ON HOW THE CAVITY IS TUNED. THE MEASURED VALUES OF THE DAMPING COEFFICIENT SATISFACTORILY AGREE WITH THE THEORETICAL ESTIMATES. FACILITY: MOSKOVSKIY GOSUDARSTVENNYY UNIVERSITET.

UNCLASSIFIED

1/2 027 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--KINETICS OF HYDROGEN AND NITROGEN ADSORPTION ON A TITANIUM FILM
STUDIED BY A MOLECULAR BEAM METHOD -U-
AUTHOR--MANUKOVA, L.A.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(3), 729-33

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ADSORPTION, HYDROGEN, NITROGEN, TITANIUM, MOLECULAR BEAM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1230

STEP NO--UK/0076/70/044/003/0729/0733

CIRC ACCESSION NO--AP0128646

UNCLASSIFIED

2/2 039 UNCLASSIFIED PROCESSING DATE--27NOV70
CIRC ACCESSION NO--AP0127881 **APPROVED FOR RELEASE: 09/01/2001** **CIA-RDP86-00513R002201920012-2**
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT, AN EXPERIMENT IS DESCRIBED IN
WHICH VARIATION OF THE MECHANICAL VIBRATION DECREMENT OF THE MOVABLE

UNCLASSIFIED

PROCESSING DATE--13NOV79

2/2 027

CIRC ACCESSION NO--AP0128646

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

ABSTRACT. ADHESION COEFFS. DESCRIBING THE ADSORPTION OF H, H SUB2, AND N SUB2 ON TI FILM WERE DETD. FOR VARIOUS SURFACE CONCNS. OF ADSORBATE AT 77-350DEGREESK. THE H ADSORPTION HAS A MIN. AT 90-110DEGREESK. BELOW THIS TEMP., THE ADHESION COEFF. INCREASES DUE TO PHYS. ADSORPTION WHILE DIFFUSION OF H, ADSORBED IN AT. FORM, INTO THE INTERIOR OF THE FILM IS RESPONSIBLE FOR THE INCREASE AT 110-350DEGREESK. THE ADHESION COEFF. OF N SUB2 DECREASED IN THE ENTIRE RANGE. THE RETENTION OF H SUB2 AND N SUB2 ADSORBED ON THE SURFACE, ESTD. FROM THE DESORPTION RATE, WAS 6-7 AND 10-140 SEC, RESP.

UNCLASSIFIED

1/2 018 UNCLASSIFIED PROCESSING DATE--11SEP.0
TITLE--CHARACTERISTICS OF HYDROGEN AND NITROGEN ADSORPTION ON MOLYBDENUM
AT LOW TEMPERATURES -U-
AUTHOR--MANUKOVA, L.A. M
COUNTRY OF INFO--USSR
SOURCE--ZH. FIZ. KHIM. 1970, 44(1) 177-82
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, MATERIALS
TOPIC TAGS--HYDROGEN, NITROGEN, MOLYBDENUM ALLOY, GAS CONTAINING METAL,
GAS ADSORPTION, METAL CONTAINING GAS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1993/0342 STEP NO--UR/0076/70/044/001/0177/0132
CIRC ACCESSION NO--AP0113268
LLLLLLLLLLLL UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--11SEP70-

2/2 018

CIRC ACCESSION NO--AP0113268

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. KINETICS OF ADSORPTION AND
 DESORPTION OF H AND N ON MO AT 77-300DEGREEK WAS INVESTIGATED BY THE
 MDL. BEAM AND ISOTOPIC (D SUB2 PLUS H SUB2 AND PRIME14 N SUB2 PLUS
 PRIME15 N SUB2) METHODS. AT 77-100DEGREEK, H IS ADSORBED BY 2
 INDEPENDENT AND SIMULTANEOUSLY OPERATING MECHANISMS, ONE OF WHICH
 INVOLVES AT. AND THE OTHER MDL. H. ABOVE 100DEGREEK, H WAS ADSORBED BY
 THE AT. MECHANISM ONLY. N WAS ADSORBED AND DESORBED BY THE ABOVE 2
 MECHANISMS SIMULTANEOUSLY AT 77-200DEGREEK, AND BY THE AT. MECHANISM AT
 HIGHER TEMPS. THE ADSORPTION COEFFS. OF H AND N STEADILY DECREASED WITH
 INCREASING CONC. OF THE GASES ON THE SURFACE OF MO. THE CONC. OF AT.
 H ON THIS SURFACE STEADILY INCREASED WITH DECREASING TEMP., WHEREAS THE
 CONC. OF AT. N REMAINED CONST.

UNCLASSIFIED

2222222222

Molecular Biology

USSR

UDC 547.963.3

GALOYAN, A. A., ZAKHARYAN, R. A., KARAPETYAN, L. A. and MANUKYAN, E. B.,
Institute of Biochemistry, Armenian SSR Academy of Sciences

"The Action of Dexamethazone (16-alpha-methyl-9-alpha-fluorprednisolone) on
the Nucleotide Composition of the Nucleolus-Chromosome RNA of the Brain"

Yerevan, Doklady Akademii Nauk Armyanskoy SSR, Vol 56, No 5, 1973, pp 308-
311

Abstract: The changes in the nucleotide composition of the nucleolus-
chromosome RNA of whole rat brains under the influence of the prednisolone
analogue dexamethazone were studied. The rats were decapitated four hours
after dexametazone introduction and the brain RNA was obtained by thermal
phenol fractionation. The phenol-water interface was used to obtain the
total nucleolus-chromosome RNA. It was observed that the coefficient of
specificity G+C/A+U was increased for the experimental animals, which is said
to indicate a sharp lowering in the quantity of DNA-like RNA. These results
are considered to show that dexamethazone inhibits DNA-like RNA synthesis,
acting on the genome level to delay the synthesis of informational RNA
responsible for the formation of a corticotropin-liberating hormone of a
polypeptide nature.

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Genetics

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UDC 576.8.095.5

BRESLER, S. Ye., LANTSOV, V. A., and MANUKYAN, I. R., Institute of High Molecular Compounds, Academy of Sciences USSR, Leningrad

"The Mechanism of Genetic Recombination During Bacterial Conjugation. III. Clonal Analysis of the Heterogeneous Progeny of Exconjugants Bearing a System of Close Genetic Markers"

Moscow, Genetika, Vol 6, No 8, Aug 70, pp 116-134

Abstract: During the conjugation of Escherichia coli Hfr and F⁺ cells, merozygotes are formed which replicate as diploids and segregate recombinants. The segregation process is completed in 8-10 generations. Two possibilities of zygote formation may be assumed: 1) tandem insertion of a DNA donor fragment into the recipient chromosome by a process similar to the Campbell mechanism; 2) parallel insertion, in which the donor fragment remains in a state of synapsis along the recipient chromosome. Specific predictions can be formulated for both schemes. In experiments on the conjugation of E. coli Hfr and F⁺ cells, five closely located genetic markers (three prophage and two bacterial) were employed. All of the groups found in the clonal analysis of 60 exconjugants were in agreement with the predictions for the tandem insertion mechanism. Since the statistical data were not extensive, the conclusions reached were qualitative. However,

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BRESLER, S. Ye., et al, Genetika, Vol 6, No 8, Aug 70, pp 116-134

calculations showed that the probability of a random fluctuation leading to the same correlation was less than 4%.

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Acc. Nr.: AN0104037

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Ref. Code: UR9047

AUTHOR-- MANUKYAN, N., CHAIRMAN, THE ARMENIAN COMMITTEE ON POWDER METALLURGY, CANDIDATE OF TECHNICAL SCIENCES

TITLE-- POWDER METALLURGY OF ARMENIA

NEWSPAPER-- KOMMUNIST, JUNE 11, 1970, P 3, COLS 1-3

ABSTRACT-- THE ARMENIAN POWDER METALLURGICAL INDUSTRY WAS LAUNCHED IN 1959 WHEN THE SKB OF SEMICONDUCTORS AND CERMETS AND A PILOT PLANT WERE FOUNDED IN YEREVAN.

TODAY, IN ADDITION TO THE SKB, THE YEREVAN POLYTECHNIC INSTITUTE /YERPI/, A SCIENTIFIC-RESEARCH MINING AND METALLURGICAL INSTITUTE /NIGMI/, AND THE ARMENIAN SCIENTIFIC-RESEARCH INSTITUTE OF MACHINE CONSTRUCTION /ARMNIIMASH/ ARE DOING RESEARCH IN THE FIELD OF POWDER METALLURGY. TO COORDINATE THIS PROGRAM, THE ARMENIAN COMMITTEE ON POWDER METALLURGY WAS ESTABLISHED EARLY IN 1963 UNDER THE BOARD OF THE SCIENTIFIC-TECHNICAL SOCIETY OF THE MACHINE CONSTRUCTION INDUSTRY OF THE ARMENIAN REPUBLIC.

REEL/FRAME

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Acc. Nr.: AN0104037

IN CONCLUSION, THE AUTHOR DIRECTS HIS CRITICISM AT THE ARMENIAN ACADEMY OF SCIENCES, THE MINISTRY OF HIGHER AND MIDDLE SPECIALIZED EDUCATION OF THE REPUBLIC, THE ADMINISTRATION OF FERROUS METALLURGY OF THE ARMENIAN REPUBLIC, AND ITS GOSPLAN FOR BEING INDIFFERENT TO THE NEEDS OF THE POWDER METALLURGICAL INDUSTRY.

REEL/FRAME

19870395

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UDC: None

ASKAR'YAN, G. A. and MANUKYAN, S. D.

"Acceleration of Particles by a Moving Laser Focus, Focusing Front, or Ultra-Short Laser Pulse"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, vol 62, No 6, 1972, pp 2156-2160

Abstract: This paper discusses the possibilities of using the high gradient of a laser light field to produce an acceleration gradient for electrons. The authors visualize the moving focus of the laser as a beam scanning transversely while its focus is varied longitudinally, with time, by a special lens. They also see the movement of the focusing front realized when various parts of the beam are focused at various points of the beam axis at different moments in time according to a definite law. The conditions for starting the particle acceleration from small initial velocities are considered, and the conditions for ultrarelativistic energy on the part of the accelerated particles are determined. It is shown also that it is possible to inject the particles into acceleration from a cloud of electrons or from a plasma generated by the action of the laser on a target. Finally, it is shown that the movement of the focus can be used for increasing the efficiency of acceleration

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UDC: None

ASKAR'YAN, G. A., et al, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, vol 62, No 6, 1972, pp 2156-2160

of macroscopic particles as well. Members of the P. N. Lebedev Physics Institute, USSR Academy of Sciences, the authors express their gratitude to Prof. M. S. Rabinovich for his comments.

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MANUKYAN, S.G.

radio

JPRS: 55786
24 April 1972

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the 021.31.3

OPTIMUM RECEPTION OF AN FM RADIO SIGNAL ON A BACKGROUND
OF WHITE NOISE AND NARROW-BAND AM JAMMING
5.11.1972
Article by Yu. K. Robinson and S. G. Manukyan, Kiev, Institute of Radio
Radioelektronika, Moscow, Vol 19, No 12, December 1971, pp 1592-1595

A synthesizer was made of an optimum radio receiving device when the useful FM radio signal with a wandering phase is received on a background of a normal narrow-band and white noise. A block diagram of an optimum receiving device is given and an investigation made of the relationship between the variation of the square of the relation error and the signal to noise ratio for different modulation indices. Data is given for an experimental investigation of a quasi-optimal receiver.

A number of radio engineering problems require the evaluation of the informational parameter $A(t)$ of the FM signal on the background of a narrow-band AM signal and white noise. An attempt is made in the following to evaluate the error of parameter $A(t)$ of an optimum receiving device the circuit of which is found on the basis of the nonlinear filtration theory developed in [1, 2, 3]. We will assume that during some interval of time $(0, T)$ there is received at the input of the receiving device an additive mixture of a useful FM signal with a random phase, AM interference with a random phase and a stationary white noise.

$$x(t) = A_m \cos(\omega_c t + \psi(t)) + z(t) + n(t) + w(t) \quad (1)$$

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UDC 621.396.669

BABANOV, Yu. N., ~~MANUKYAN, S. G.~~, LAVROV, M. A., Gor'kiy State University
imeni N. I. Lobachevskiy

"A Device for Suppressing Regular Interference in Reception of Wide-Band
Frequency-Modulated Signals"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki,
No 15, May 71, Author's Certificate No 302836, Division H, filed 4 Jul 69,
published 28 Apr 71, p 203

Translation: This Author's Certificate introduces a device for suppressing
regular interference in reception of wide-band frequency-modulated signals.
The device contains two parallel channels equipped with filters and con-
nected to a common load. As a distinguishing feature of the patent, the
device is designed to provide reception without signal distortion when
several interferences act simultaneously on the input. The channel filters
are signal-tracking filters which are detuned with respect to the resonance
frequency and relative to one another by an amount which is constant in time
and which is several times the bandwidth of the active spectrum of the
useful signal, and the filter passbands are selected to be identical and
equal to the width of the active spectrum of the useful signal, a delay line
being connected in one of the channels.

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UDC: 621.391:519.2

BABANOV, Yu. N., MANUKYAN, S. G.

"Increasing the Interference Resistance of Radio Systems With Grouped Signal Transmission in the case of a Frequency-Modulated Carrier"

V sb. Metody pomekhoustoychivogo priyema ChM i FM (Methods of Interference-Free FM and PM Reception--collection of works), Moscow, "Sov. radio", 1970, pp 221-230 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12A43)

Translation: The authors consider a radio communications systems in which selectivity is increased in relationship to signals from extraneous radio systems whose frequency spectra are within the range of the passband of the radio system. The group method of signal transmission is used in combination with frequency modulation of the carrier. It is shown that the effect of regular extraneous interference signals has a periodic pulse action. Group transmission makes it possible in receiving a signal with FM carrier to spread out the pulse energy of the interference signals over time segments much greater than the duration of each interference pulse. In addition to protection by the direct dispersal of interference energy, the compensating device of a receiver with FM carrier offers possibilities for additional protection by compensating interference oscillations through the use of information on the interference entering the i-f amplifier from the image channel. Resumé.
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- 29 -

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UDC [621.391.82:621.396.62:621.376.32]-758.37

MANUKYAN, S. G. M

"Method of Noise Compensation with an FM-Carrier"

Uch. zap. Gorkovsk. un-t (Scientific Notes of Gorkiy University), 1970, vyp. 105, pp 27-30 (from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9A118)

Translation: Application of the compensation method for protection of receivers from regular interfering signals (from foreign radios) is possible as a result of the short-term effect of the noise. In a system with an FM-carrier it is possible to use the property of variation of the carrier frequency with time for noise suppression and to select a channel with a delayed input mixture as the auxiliary channel. Delaying the input signal in time permits the oscillations required for compensation in the basic channel to be received. In the proposed system the input signal $V_{in}(t)$ comes to the second frequency converter via the delay line, and it comes to the first converter without a delay. The carrier frequencies of the useful signal will be different as a result of passage of one of them through the delay line. Signal and noise oscillations will be observed in the first channel at the output of the intermediate frequency amplifier, and only noise oscillations will be observed in the second channel. Depending on the delay line time constant a different phase shift will be

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MANUKYAN, S. G., Uch. zap. Gorkovsk. un-t (Scientific Notes of Gorkiy University), 1970, vyp. 105, pp 27-30 (from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9A118)

observed between the noise oscillations in the first and second channels. When feeding the oscillations from the first and second channels to the subtractor noise condensation is realized. The results of experimental testing of the proposed method of noise compensation are presented.

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UDC 621.391.82:621.396.62:621.376.32:621.317.743

MANUKYAN, S. G., KHRULEVA, N. S., PLATONOV, V. I.

"Statistical Characteristics of Noise from Regular Sources When Receiving an AM Type Signal Superimposed on an FM Carrier"

Uch. zap. Gorkovsk. un-t (Scientific Notes of Gorkiy University), 1970, vyp. 105, pp 31-32 (from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9A107)

Translation: The effect of interfering signals on a receiver in communication systems with an FM-carrier is of the nature of short pulses. This arises from the fact that the heterodyne follows the frequency variation of the useful signal only, and the effects of the interfering signals are exhibited only in the time intervals when the frequency components of the active spectrum of the signal and noise coincide. To determine the distribution law of instantaneous values of the noise at the receiver output, experimental research was performed. By statistical processing of the output voltage oscillograms for two types of modulating voltage (noise vibration in the 250-3,500 hertz frequency band and sinusoidal oscillation with a frequency of two kilohertz), the distribution curves for the instantaneous values of the noise were obtained. For the first type of modulating voltage, the distribution law obtained is close to normal, and for the second type of modulating voltage, the

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MANUKYAN, S. G., et al., Uch. zap. Gorkovsk. un-t (Scientific Notes of Gorkiy University), 1970, vyp. 105, pp 31-32 (from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9A107)

deviation from the normal law is more significant. The greatest variance from normal distribution is observed for values close to zero.

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UDC 615.38:636

MANASYAN, A. V., and MANUKYAN, V. A., Yerevan Zoo veterinary Institute

"The Stimulating Effect of Eleutherococcus on Cattle. 1"

Yerevan, Biologicheskii Zhurnal Armenii, Vol 23, No 8, Aug 70, pp 107-108

Abstract: Healthy 14-16 month old bulls were used in the investigation to establish the stimulating and minimum doses of an extract of Eleutherococcus senticosus R. et M., when used for the therapy of gastrointestinal disorders in cattle. The effect of the preparation on the clinical and hematological indices of the organism was also determined. The practical dose of the preparation when administered intramuscularly was established as 0.001 ml/kg. The animals were examined prior to and 1, 3, 6, and 24 hours after injection of the extract. Eleutherococcus preparations were therapeutically effective, and produced no negative clinical results. The extract has a stimulating effect on the organism and increases the quantity of leukocytes in the blood (in particular, neutrophils), an important factor in control of infections. The stimulating effect of the Eleutherococcus preparation is mainly due to its favorable effect on the hematopoietic organs.

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USSR

UDC: 621.374.32

ROGAVA, S. Ye., MANUKYAN, Yu. S., DZHIKIYA, K. S., ROGAVA, Z. Ye., Tbilisi
Affiliate of the All-Union Scientific Research Institute of Metrology imeni
D. I. Mendeleev

"A Binary Pulse Counter"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obratztsy, tovarnyye znaki,
No 10, Apr 71, Author's Certificate No 298073, Division H, filed 27 Sep 69,
published 11 Mar 71, p 193

Translation: This Author's Certificate introduces a binary pulse counter
which contains the binary flip-flop counter proper with a ripple-through
carry net based on AND elements, and also OR elements, delay elements and a
half-adder. As a distinguishing feature of the patent, the device is designed
for detection of malfunctions, simplification and increased counting speed.
The zero-output terminals of the flip-flops for all digital places are con-
nected to inputs of the corresponding AND elements, which are connected in
series and form an auxiliary ripple-through carry net whose input is connected
through a delay element to the counter input. The outputs of the AND cir-
cuits of the auxiliary ripple-through carry net are connected through an OR

1/2